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Editor

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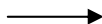
Hold the Date  
New Curriculum Update Retreat  
October 18, 2005  
5:30-8:30PM  
Room E-401 School of Medicine

## **THEME OF ISSUE 2: LEARNING OBJECTIVES that Work for Students**

Challenge: Restructuring a multi-committee system into eight major integrated blocks requires shared expertise of many faculty. Sharing and integration are evident in the high quality learning objectives that each block is developing. Extensive student input has been enlisted in determining how to make learning objectives valuable guides.

Design teams are holding *workshops* on writing effective learning objectives. Double click on icons below to access the handouts from the workshops: 1) Verbs for Use in Writing Learning Objectives, and 2) Learning Objectives for the New Curriculum. Email Ms. Minoo Darvish at [mxg86@case.edu](mailto:mxg86@case.edu) if you would like help from the learning objectives *consult team*.

To access the handouts,  
double click on the icons



VERBS FOR  
WRITING LEARNING O



Learning Objectives

On July 25<sup>th</sup>, design leaders met with more than 20 students to review early drafts of learning objectives. Two-to-four students sat down with each faculty design leader and reviewed the first drafts of learning objectives for the eight blocks that comprise the Foundations of Medicine and Health (the first 1½ years of the new curriculum). Students gave specific feedback and suggestions on how learning objectives could be written to serve as useful study guides.

On August 8<sup>th</sup>, block leaders received one-on-one feedback to improve drafts of learning objectives. Prior student feedback indicated a preference for those learning objectives that resembled short answer essay questions due to the explicit learning expectations identified.

Also discussed were clinical immersions, dedicated times during each block in the clinical and simulation settings, to provide a context to reinforce basic science learning in the first 1½ years. Immersions offer an additional venue to develop educational activities around learning objectives. Each block has selected a clinical immersion leader to help in the development of these key learning opportunities.

## **QUICK OVERVIEW OF THE NEW CURRICULUM**

Issue 1 of the *New Curriculum Update Bulletin* outlined the CASE System of Medical Education. Recall that the curriculum vision 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, a two-part sequence:**  
*Part I: Social, Behavioral, and Environmental Context of Health and Disease*  
*Part II: Scientific and Clinical Foundations*
- 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
<b>Foundations of Medicine and Health</b> <ul style="list-style-type: none"> <li>Social, Behavioral, Environmental Context of Health and Disease</li> <li>Scientific and Clinical Foundations</li> </ul>	Board Review	<b>Core Clinical Rotations</b> (48 weeks, flexible scheduling)	
		<b>Research and Scholarship</b> (4-month block plus electives, flexible scheduling)	
		<b>Advanced Clinical and Scientific Studies</b> (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				
	Social/ Behavior/Environ Context of Health and Disease	Building a Human Being	Food to Energy	Homeostasis	Host Defense and Host Response	Cognition, Sensation, and Movement	BOARD REVIEW BLOCK			
Longitudinal Blocks & Themes	Integration and Assessment	(Endo, Repro, Development, Genetics, Mol Biol, Cancer Biology)	Integration and Assessment	(GI, Nutrition, Energy, Metabolism, Biochemistry)	Integration and Assessment	(CV, Pulm, Renal, Cell Regulation, Pharmacology)		Integration and Assessment	(Host Defense, Microbiology, Blood, Integument, Auto-immune)	Integration and Assessment
	<b>Block 7:</b> Structure (Anat., Histo-Path,	Radiology)								
	<b>Block 8:</b> Clinical Mastery									
	LONGITUDINAL THEMES									
	• Civic Professionalism									
	• Leadership									
	• Population Medicine									
	• Bioethics									
	• Research & Scholarship									

## Here are SAMPLE LEARNING OBJECTIVES from the blocks in the Foundations of Medicine and Health.

### Block 1: Social, Behavioral, and Environmental Context of Disease

**Design Leader: Dr. David Aron** ([David.Aron@med.va.gov](mailto:David.Aron@med.va.gov))

Block 1 comprises the first part of the Foundations of Medicine and Health and is actively engaged in designing its curriculum. Dr. Aron welcomes new faculty and student members to the design team. Email him if you are interested. Meetings usually take place every other Tuesday from 5:30 to 7:00 p.m. at the School of Medicine. This group has just begun to meet and is not yet developing learning objectives. It is first looking at the overall structure of the block and identifying the broad concepts that will serve as organizing themes.

### Block 2: Building a Human Being

**Design Leader: Dr. Georgia Wiesner** ([glw2@case.edu](mailto:glw2@case.edu))

Block 2 has worked collaboratively to develop a curriculum that integrates endocrinology, reproductive biology, development, genetics, molecular biology, and cancer biology. Members have been concentrating on the flow of topics and development of learning objectives. As part of the Learning Objectives Workshop, members drafted several learning objectives and submitted them for feedback.

By the end of this block, the student will:

- Describe the structure of the insulin receptor and explain how binding of insulin to its receptor causes changes in the target cell.
- Describe the structure of the steroid hormone receptor and discuss the purpose of each of the three domains. Define the concept of a hormone's "cognate receptor," and explain if it is possible for a hormone to bind to a receptor that is not its "cognate receptor." Describe the steps from binding of a steroid hormone to its receptor to the changes in the cell that are the result of this binding.
- Explain how excessive levels of cortisol can cause high blood pressure and low serum potassium levels, and why cortisol does not cause these problems at normal blood cortisol concentrations.

### Block 3: Food to Energy

**Design Co-Leaders: Dr. Colleen Croniger** ([cmc6@case.edu](mailto:cmc6@case.edu))

**Dr. Stephen Previs** ([sxp29@case.edu](mailto:sxp29@case.edu))

**Dr. Martin Snider** ([Martin.Snider@case.edu](mailto:Martin.Snider@case.edu))

Block 3 is integrating the teaching of nutrition, the gastrointestinal system, metabolism, and biochemistry. This block is actively engaged with key clinicians (Drs. Tony Tavill, Kevin Mullen, and Tony Post) so that the basic science concepts are developed in the context of clinical cases. Sample learning objectives follow.

By the end of this block, the student will:

- Compare and contrast the hormonal regulation of glycolysis in the liver for a person who has fasted overnight and for a person who has just eaten a piece of cheesecake. Specifically focus on the regulated steps in the glycolytic pathway.
- Describe the metabolic consequences of a block in the glycolytic pathway, given a case of a child born with a deficiency in the pyruvate dehydrogenase complex. Propose a therapeutic strategy to treat the inborn error.
- Describe one's own diet/supplement intake for a 3-day period.
  - a) Analyze it quantitatively using the Food Wise CD-Rom. Assess whether the food intake meets the gender/age/lifestyle appropriate guidelines of the Dietary Reference Intakes (DRI) and Recommended Dietary Allowance (RDA). If the diet is inadequate, propose changes in the dietary pattern to meet the DRI/RDA guidelines.
  - b) Compare and contrast the food intake qualitatively with evidence-based recommended eating patterns for health promotion and disease prevention: 1) food guide pyramids; 2) DASH-Dietary Approaches to Stop Hypertension;

3) Lyon Diet-Heart Study Mediterranean Diet; 4) American Diabetes Association; 5) American Heart Association; 6) American Cancer Society. Propose changes in the dietary pattern to meet the recommended diets.

#### **Block 4: Homeostasis**

**Design Leader: Dr. Jim Finley** ([jfinley@metrohealth.org](mailto:jfinley@metrohealth.org))

Block 4 integrates cardiovascular, pulmonary, renal, cell regulation, and pharmacology. Learning objectives presented at the July 25 meeting were well received by students. Samples follow.

By the end of this block, the student will:

- Describe the effect of heavy exercise on the body's acid-base balance, and list the ways in which the kidney helps to correct the disturbance in acid-base homeostasis.
- Defend the following statement: The kidney plays a significant role in ensuring adequate oxygen delivery to the peripheral tissues in a patient with chronic left ventricular failure.
- List the three different types of capillaries, and explain how their differences in structure relate to their differences in function.
- Define the relationship between electrical activity in the various regions of the heart and the electrocardiogram, discussing specifically the P wave, QRS complex, T wave, P-R interval, S-T segment, and the Q-T interval.

#### **Block 5: Host Defense and Host Response**

**Design Leader: Dr. Tim O'Brien** ([tobrien@metrohealth.org](mailto:tobrien@metrohealth.org))

Block 5 incorporates host defense, microbiology, blood, integument, and auto-immunity. This group has completed a learning objectives workshop and has been drafting learning objectives. Sample learning objectives provide an idea of the content.

By the end of this block, the student will:

- Outline the specifics of the maturation of red blood cells, granulocytes, and platelets and the role of specific growth factors in that process. Extrapolate the clinical uses of growth factors in the treatment of hematologic diseases.
- Explain the evolutionary necessity for the coexistence of humoral and cellular immune responses in higher vertebrates.
- Correlate the pathophysiology of chronic myelogenous leukemia with its defining cytogenetic abnormality, the Philadelphia chromosome, and describe how new pharmacologic therapy targets the product of this aberrant gene.
- Identify the primary site of hematopoiesis and the cells produced there during the three major periods of intrauterine life.

#### **Block 6: Cognition, Sensation and Movement**

**Design Co-Leaders: Dr. Kathy Clegg** ([kac9@case.edu](mailto:kac9@case.edu))

**Dr. Shana Miskovsky** ([shana.miskovsky@uhhs.com](mailto:shana.miskovsky@uhhs.com))

Block 6 is developing a curriculum that integrates neurosciences, mind, and musculoskeletal medicine. Current focus is on the flow of concepts and drafting learning objectives. The learning objectives workshop was well attended and led to the following examples.

By the end of this block, the student will:

- Describe the location, unique metabolism, and three functions of the metaphysis. Propose an anatomical reason why children are predisposed to infections in the metaphyseal region of bone.
- Given a case such as the following: A 13-year-old football running back complains of significant medial knee pain and inability to walk after being clipped by an opposing player. Examination reveals a grossly unstable and swollen knee but intact nerve and vascular structures.
  - a) Identify the likely location of knee injury (growth plate or ligament).

- b) Justify your answer using the following: skeletal age, strength characteristics of growth plate versus ligament and anatomical location of injury.
- c) Describe the three grades of ligament injury. Explain how ligament healing occurs through a four-stage process.
- d) Describe the five types of Salter-Harris growth plate (epiphyseal) fractures. Which fractures are likely to result in growth disturbances (i.e., growth arrest)?

## **Block 7: Structure**

**Design Leader: Dr. Barbara Freeman** ([bkf@case.edu](mailto:bkf@case.edu))

Block 7 integrates anatomy, histopathology, and radiology. This group is working on goals and accompanying learning objectives for the anatomy of the pelvis. The following example was designed to promote mastery of the position of the pelvic organs with respect to one another.

The student will:

1. Diagram a mid-sagittal section through a female pelvis indicating the positions of the urinary bladder and urethra, the uterus and vagina, the rectum and anal canal, the pelvic diaphragm, and the peritoneum.
2. Diagram a mid-sagittal section through a male pelvis indicating the positions of the urinary bladder, prostate gland and urethra, the rectum and anal canal, the pelvic diaphragm, and the peritoneum.

This group is also working on learning objectives for histopathology.

The student will:

- Compare and contrast the morphologic changes seen in the liver of a patient with exposure to a lethal toxin such as high levels of carbon tetrachloride to a patient with a sublethal injury from exposure to modest amounts of alcohol.
- Given a case such as the following: A 22-year-old college student presents in the emergency room feeling lousy with right upper quadrant pain. He indicates that he went binge drinking for the past two weeks after his exams were done. Examination of his abdomen indicates tenderness and an enlarged liver.
  - a) Describe the morphologic changes occurring at the tissue and cellular level that would indicate the reason for his hepatomegaly.
  - b) Indicate whether this is a reversible or irreversible process and why.
- Given a case such as the following: A 65-year-old woman who has been diagnosed with congestive heart failure has bipedal peripheral edema and difficulty breathing. Echocardiography indicates an enlarged heart. Describe the histopathological changes that would be seen if a biopsy of her heart muscle was taken.

## **Block 8: Clinical Mastery**

**Design Co-Leaders: Dr. Mireille Boutry** ([mireille.boutry@case.edu](mailto:mireille.boutry@case.edu))

**Dr. Susan Padrino** ([susan.padrino@uhhs.com](mailto:susan.padrino@uhhs.com))

The pre-clerkship clinical programs are undergoing intensive review and reorganization based on evolving educational needs and student input. Issue 3 of the *New Curriculum Update Bulletin* will feature a closer look at how these exciting new programs are shaping up.

## **Bioethics Longitudinal Theme**

**Dr. Stephen Post** ([Stephen.Post@case.edu](mailto:Stephen.Post@case.edu))

The Bioethics theme will be an integrated part of each block in the Foundations of Medicine and Health, both in the form of small group cases, occasional lectures, and the clinical immersions. Learning objectives are case-specific. Students will describe ethical arguments pro and con, legal ramifications, and conflicts in relation to specific cases, as they examine various ethical principles.

Given a case such as the following:

M.W. is a mother of two, unmarried, and down on her luck. She agrees with Mr. J. to a process of artificial insemination with his sperm, and signs a contract specifying that the child will be relinquished by M.W. to Mr. J. and his wife shortly after birth, with M.W. having no parental rights or role. M.W. is paid \$15,000 for the inconvenience of pregnancy. Mrs. J. had been unable to conceive a child, despite repeated access to sophisticated reproductive technologies. However, upon the birth of the child, M.W. decides she wants to keep the child as her own. After four months of legal wrangling, the courts determine that Mr. and Mrs. J. are likely to provide more adequately for “the best interests of the child.”

1. Give two main reasons in defense of M.W.’s wish to retain the newborn.
2. Give two main reasons in defense of Mr. and Mrs. J. in wanting to raise the newborn.
3. Briefly describe current practice in the U.S. with regard to contractual surrogate mothering.

## OTHER UPDATES/ANNOUNCEMENTS

### Office of Academic Computing

**Thomas M. Nosek, Ph.D., Associate Dean** ([Thomas.Nosek@case.edu](mailto:Thomas.Nosek@case.edu))

**Staff Changes in Classroom Support for the School of Medicine:** The Dean’s office has arranged for the University Information Technology Services division to provide **all classroom AV/computer support**. **Victor Guinto** ([Victor.Guinto@case.edu](mailto:Victor.Guinto@case.edu)) has been hired as the **new Manager of Classroom Support in the School of Medicine**, reporting to Mike Kubit ([michael.kubit@case.edu](mailto:michael.kubit@case.edu)). Victor will be hiring two additional staff members. The level of support will be the same as in past years.

**Video Streaming Policy:** All lectures given in E-301 and E-401 are streamed and made available to faculty and students via the eCurriculum approximately 10 minutes after completion of the class. Note that lectures will **not** be streamed if: 1) the faculty member giving the lecture makes the request – faculty should contact the AV/computer support staff assigned to the room immediately before their lecture; 2) a patient is present; 3) there is a malfunction of equipment. A new streaming video product this year will improve the quality of the video stream. Two windows will appear, a smaller one showing the faculty member and a second larger window synchronized with the video showing the PowerPoint slide or any other media that is projected.

## EDITOR’S CORNER

When writing learning objectives, be *selective*.

Zooming in on what students need to know takes a good detective.

To get results intended be *specific*.

You want the response precise rather than prolific.

Design groups continue to analyze social issues, normal states, and etiology,

And witness the effect of approaching deadlines on their own “distressed” physiology.

This newsletter’s weekly theme has been set in rhyme

To get you to read the bulletin. Please make the time!



Your ideas are welcome. Email me suggestions for future “theme of the week” features for the *New Curriculum Update Bulletin*.

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