



Lois Kaye, M.A./Editor
Patti Quallich, B.F.A./Computer Design Artist

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THEME OF ISSUE 10:

Student Assessment in the New Curriculum for the University Program

Assessment is designed to strengthen Dean Ralph Horwitz's pillars of medical education and measure these elements: clinical mastery, research and scholarship, leadership, and civic professionalism. Starting with the Class of 2010 matriculating in July 2006, the University Program will adopt methods of assessment that emphasize multi-dimensional aspects of student performance relating to these pillars. Early in the curriculum, assessment will measure students' skills in problem solving and abilities in applying medical concepts to new situations, in addition to comprehension of fundamental principles. Students are engaged in working collaboratively in small Case Inquiry Groups (IQ Groups), and their contributions to the group content and to the group process as well as their professional behaviors will be assessed in the context of these groups. Students will participate in self-assessments and, at intervals, prepare learning plans to identify areas of focus and growth. The assessment is moving to a continuous quality improvement model as we hope to strengthen skills in self-reflection and lifelong learning. Emphasis will be on longitudinal approaches tracking the student's performance across all four years and possibly beyond medical school.

Methods of assessment planned for the **Foundations of Medicine and Health** in the new curriculum follow. Each will be described in turn.

Students are required to "meet criteria" for each of the following components in order to pass each block:

1. Essay Questions (both SEQs and SummSEQs)
2. Completion of *formative* Multiple-Choice Questions
3. Case Inquiry Group (IQ Group) assessment
4. Clinical Mastery assessment
5. Clinical Immersion assessment or End-Product for the week
6. Completion of Evidence-Based Self-Assessment of Progress (E-SAP)

Students who do *not* "meet criteria" may gather additional evidence of mastery of the content of the block through various means and must do so before their summative competency reviews at the end of Blocks 3 and 6.

Essay Questions (both SEQs and SummSEQs)

Synthesis Essay Questions (SEQs) were inspired by best practices during the Renal committee in the current curriculum combined with positive experiences with a similar format in the college program. These essay questions are named "synthesis" because they require that students demonstrate understanding of the material and the ability to synthesize—i.e., apply to new situations—the concepts that were taught. These are written by content specialists and are used in both formative and summative ways.

- Mid-week throughout the block, students will be given a choice between two Synthesis Essay Questions pertaining to that particular week's learning objectives to answer in an essay by the end of the week. At the end of the week, "ideal" answers to the SEQs written by the specialists will be published. Students may compare their answers to "ideal answers." In addition, Case Inquiry Group facilitators ("IQ Group" leaders" of the new curriculum) will review students' answers and provide feedback. Students may confer with specialists who wrote the questions, if desired. Over

the course of the block, students will be given 20 synthesis essay questions, two per week with a requirement of answering one of the two each week, as part of the formative learning experience.

- Summative SEQs (SummSEQs) are derivatives (not identical to the initial 20 SEQs). These questions require students to demonstrate conceptual understanding of the material. At the end of the block, students will take a SummSEQ test with approximately 3 to 5 SummSEQs, which will be graded by specialists.

Formative Multiple-Choice Question Examinations

- At the beginning of each block and organized by week, relevant multiple-choice questions from the Case School of Medicine test question bank will be released to students for self-assessment. Each question chosen correlates with the block's learning objectives. In total, about 200 multiple choice-questions will be released per block, with about 20 of those assigned per week. The 20 questions will be administered online weekly to be taken at a time determined by the student. The site is unsecured and provides the student with immediate feedback as to the correct answers.
- At the end of each block, an online multiple-choice-question Cumulative Achievement Test, composed of questions from the National Board of Medical Examiners (NBME) secure test item bank, will be administered to test information that was taught during the block and help students assess their progress in preparing for the USMLE Step 1 exam. These Cumulative Achievement Tests are designed to test content drawn from the block and also include questions from previous blocks so that the exams become progressively longer. Though required, Cumulative Achievement Tests are formative and scores do not weigh into the decision as to whether a student "meets" or "does not meet" expectations for the block. Results are entered into the student's electronic portfolio, and students may choose to disclose results. The end-of-block Cumulative Achievement Test is a timed examination administered the last Friday afternoon of the block. On June 12 and 13, NBME representatives were at Case to meet with School of Medicine faculty to create the exams for each of the six blocks of the new curriculum.

Case Inquiry Group (IQ Group) Assessment

Learner-centered Case Inquiry Groups (IQ Groups) meet three times a week for case-based inquiry and problem solving. Facilitators are required to complete assessments of small group participants during the midpoint and at the end of each of block. Students will be assessed on observable behaviors such as teamwork, preparation, quality of both questions and contributions, group dynamics/peer interaction, leadership, professionalism, attendance, etc. *Peer* assessment will be used formatively for feedback only and will not count toward a grade. The Case Inquiry Group (IQ Group) *facilitator* assessment for each student's performance during the block will be factored into the judgment of whether or not students "meet criteria" for performance in the block.

Clinical Mastery Assessment

Beginning very early in the curriculum, students will take part in a new program initiated this past year called "Rotating Apprenticeships in Medical Practice" (RAMP). This program allows students to learn from highly respected clinical teachers and offers students learning opportunities with patients that span the life cycle. At regular intervals during the year, preceptors complete clinical evaluations charting students' growing competence in core clinical skills.

Clinical Immersion Assessment or End-of-Block Project

Each of the six blocks in the Foundations of Medicine and Health incorporates a week of clinical experiences that include clinical assignments and activities intended to deepen and strengthen basic science concepts taught in the classroom. Students will receive credit and assessment for these end-of-immersion week projects that involve teamwork and collaboration among small groups.

Completion of Evidence-Based Self-Assessment of Progress (E-SAP)

At the end of each block, students review the learning objectives for the block and their mastery of required concepts and prepare a reflective essay. The highlights of the essay identify strengths (as perceived by the student) and areas for further learning and improvement. These are reviewed by the students' advisers and are required as part of each block's activities to cultivate skills in reflection and lifelong learning.

Summative Portfolio Reviews

Each student takes part in Summative Core Competency Reviews three times throughout the curriculum: at the end of Block 3, at the end of Block 6, and mid-fourth year. Students gather and assess evidence of their mastery of 9 competencies and write a reflective essay on how well they have met expectations for each competency as compared with established benchmarks. The evidence and essay are part of the student's portfolio. The expectations, or "benchmarks," for proficiency vary with progression through the curriculum.

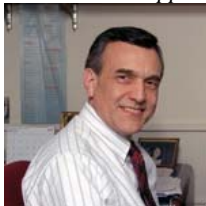
Case School of Medicine Competencies for the *University Program* match competencies required for residency and are recast in the language of Dean Horwitz's "pillars" of medical education. These are:

1. Medical Knowledge
2. Clinical Mastery
3. Interpersonal and Communication Skills
4. Civic and Personal Professionalism
5. Research and Scholarship
6. Leadership
7. Practice-Based Learning and Improvement
8. Systems-Based Practice
9. Lifelong Learning and Personal Development

The determination "meets" or "does not meet" criteria is made during each of the three review periods mentioned. Students not meeting criteria for the portfolio review are referred to the Committee on Students. This longitudinal assessment approach makes it possible to follow the student's performance across blocks and over all four years.



Dr. Klara Papp



Dr. John Mieyal

Co-Chairs of the Student Assessment Committee are **Klara K. Papp, Ph.D.**, Klara.Papp@case.edu, Director, Center for the Advancement of Medical Learning (CAML) and Senior Research Associate in the School of Medicine Office of Curricular Affairs, and **John Mieyal, Ph.D.**, John.Mieyal@case.edu, Professor of Pharmacology. The committee includes Drs. Amy Wilson-Delfosse, Terry Wolpaw, and Dan Wolpaw and Mr. Dante Roulette (Class of 2008). Together, they spearhead assessment plans in the new School of Medicine curriculum. They worked to design a system that fosters student learning and self-assessment that provides the highest quality information to students and faculty alike.

QUICK OVERVIEW OF THE NEW CURRICULUM

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**
- 2) **Research and Scholarship**
- 3) **Core Clinical Rotations**
- 4) **Advanced Clinical and Scientific Studies**

Curriculum Overview: the University Program

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 Becoming a Doctor (Social-Behavioral Context, Civic Professionalism, Epi/Biostats)	Reflection & Integration	Block 2 The Human Blueprint 1 Week Clinical Immersion (Endo, Repro, Development, Genetics, Mol Biol, Cancer Biology)	Reflection & Integration	Block 3 Food to Fuel 1 Week Clinical Immersion (GI, Nutrition, Energy, Metabolism, Biochemistry)	Reflection & Integration	Block 4 Homeostasis 1 Week Clinical Immersion (CV Pulm, Renal, Cell, Regulation, Pharmacology, Cell Physiology)	Reflection & Integration	Block 5 Host Defense and Host Response 1 Week Clinical Immersion (Host Defense, Microbiology, Blood, Skin, Auto-immune)	Reflection & Integration	Block 6 Cognition, Sensation, and Movement 1 Week Clinical Immersion (Neuro, Mind Musculoskeletal Cellular Neurophysiology)	Reflection & Integration	BOARD REVIEW BLOCK
Block 7: Structure (Anat., Histo-Path, Radiology)	→		→		→		→						
Block 8: Clinical Mastery	→		→		→		→						
LONGITUDINAL THEMES													
• Civic Professionalism													
• Leadership	→		→		→		→						
• Population Medicine													
• Bioethics													
• Research & Scholarship													

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

<p>BASIC CORE I: Family Medicine, Internal Medicine, Surgery Basic Science Integration (16 weeks at one of 3 teaching sites)</p>
<p>BASIC CORE II: Neurosciences, Pediatrics, Psychiatry, Women's Health (OB/GYN) Basic Science Integration (16 weeks at one of 3 teaching sites)</p>
<p>ADVANCED CORE: Undifferentiated Care Chronic Care Care of the Aging Peri-Operative Critical Care and Pain Management (Each four weeks, flexible scheduling)</p>

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

- Becoming a Doctor II: For two weeks prior to Match Day of the fourth year, students will return to the concepts introduced in Becoming a Doctor I. They will take stock of what we have learned in four years, what we previously learned that has subsequently been shown to be incorrect, and what remains to be solved. There is much in medicine that remains to be “figured out.”
- Two Sub Internships
- Areas of Concentration: 12 weeks of linked experiences integrating basic science and clinical experiences and intended to result in an area of expertise
- Further clinical and research electives

EDITOR’S CORNER

For the sake of clarity, I have kept things parallel by referring to the student as “he” instead of mixing “he” and “she” throughout the poem. No sexism intended! *Lois*

An Investment in Assessment

The new curriculum starts in July, and even the most jaded
Of med students are wondering how they’ll be graded.
What are the expectations that come with all these curricular innovations?
Will excessive caffeine-induced stimulation, sleep deprivation,
And increased perspiration be endured only to master minutiae regurgitation?
No way! Students can clear their head and have no further need to dread
Mindless rote memorization. They’ll be asked instead
To pull together concepts via **SummSEQs** whose emphasis on integration
Leads to reasoning in pursuit of analytic sophistication.

The purpose of the SummSEQ is not to traumatize or agonize but to make the student realize
That a **physician scholar** must epitomize knowing how to **synthesize!**
The SummSEQ counts as both an assessment tool and a learning activity in order to instill
Respect for figuring out how concepts inter-relate as an essential learning skill.

In keeping with the student-centered, interactive learning theme,
The student has a major role as part of the assessment team.
Each and every student compiles a **summary portfolio** without exception,
Assembling **evidence** of mastering the **9 competencies** for inspection.

Introspective, self-reflective, endowed with a unique perspective, the student prepares
An **essay** attesting to how well his own performance compares
With benchmarks for the 9 competencies set by the University Program at Case
As requisite for “**meets criteria**” status on which promotion is based.

The student will chart his own growth across all four years,
Considering “behavioral” feedback from **Case Inquiry Group leaders and peers**
Along with results from the **NBME MCQ Cumulative Achievement Test**
And the **Case SOM question bank** where cognitive knowledge is routinely assessed.

At first, the challenges of compiling a comprehensive portfolio may seem insurmountable,
But the student will prove himself more than accountable.

Who better to present his case?
Every one of his accomplishments he can retrace.

Before meeting with the society dean or adviser face to face,
The student completes an evidentiary **summary portfolio**, and just in case
He finds he falls short in a competency where he hasn’t kept pace,
He designs a remedy to take effect once his **learning plan** is in place.

Case is banking that it’s worth the investment
To develop a **longitudinal, student-centered** system of assessment,
With the student taking responsibility at its core,
Creating a new realm for the independent learner to explore.



Lois Kaye, M.A.
lsk2@case.edu