

# Cells to Society: A Curriculum for Modern Medicine 2.2

October 14, 2004

## Summary

The new UVA “Cells to Society” model for medical education in the 21<sup>st</sup> century is designed to provide the student with a foundation of knowledge and clinical skills necessary for a lifetime of medical practice, and to nurture the humanitarian and scientific motivation that called students to the profession of medicine.

In this model, scientific and clinical concepts are integrated for improved long-term retention, and information management skills decrease reliance on excessive memorization. Focusing on the patient, problem-solving skills of analysis, connection, and overview are taught and practiced.

The addition of new and earlier exposure to the various disciplines of medicine will aid students in career decisions.

New undergraduate programs include:

- (1) Integrated basic science and clinical courses and clerkships in the M.D. degree program,
- (2) “Exploratories” to explore clinical medicine, service to the community, and research,
- (3) Core clerkships, selectives, and expanded elective opportunities earlier in the curriculum
- (4) A unique “Basic Science for Careers” course following clerkships designed for individual residency choices, e.g. Basic Science for Pediatrics
- (5) A capstone 4<sup>th</sup> year career practice program covering the social, economic and political aspects of medical practice,
- (6) An integrated curriculum in professionalism involving ethics and humanities,
- (7) Information management and critical thinking,
- (8) Simulation training to improve clinical skills,
- (9) Joint degree access, e.g., MD/PhD, MPH, and MS.

This bold new “Cells to Society” curriculum supports each learner’s needs and style with adult “just in time” learning, more problem solving, and more learning in the context of health and disease. The curriculum provides time for student exploration and enhances the clinical relevance and sequencing of the educational material. In addition, the curriculum fosters creativity in addressing health problems and provides a model for innovation and leadership at local, national and international levels.

## Background:

### Rationale for Changing the Curriculum

- Relevant to the future practice of medicine
- Integrate learning for ease of understanding and long-term retention
- Embrace adult “just in time” contextual learning with opportunities for the individual to fashion intellectually stimulating educational programs while setting the path to self-directed responsibility for learning
- Stimulate and train leaders for tomorrow’s health care

### Basic Curricular Design Drivers

- Ensure student competency
- Prepare students for informed career decisions
- Continue to attract the best students
- Develop and maintain a continuum with GME and CME competencies
- Integrated information management and critical thinking in an electronic age where the availability and amount of information is expanding rapidly
- Learn and practice problem solving skills as medical knowledge expands and changes
- Needs & expectations of patients and society have changed
- Interpersonal and communication skills are of critical importance
- Professionalism is essential; includes improved supervision & mentoring
- Understand the context of systems-based healthcare, its impact on practice, and how resources related to the health system can improve health care
- Understand the need to evaluate doctor patient care-related practices, assess and integrate scientific evidence, and improve clinical practice patterns

### Curriculum Goals:

- Focus on learning and commit to programs of active learning to meet the educational needs of medical students
- Increase clinical experience - increase time available for acquiring patient-care knowledge and skills - including development of cultural, social and self-awareness; learn medical information acquisition and decision making; develop communication skills; accept responsibility for patient care; acquire life-long learning skills and learn the art of medicine through patient encounters and guidance from practicing physicians (informal & hidden curriculum) while assuring continued acquisition of scientific knowledge.
- Teach and apply medical problem solving and management of medical information through innovative use of information technology
- Sequence the basic scientific and cultural information for educationally sound learning; for greater integration and coordination
- Balance learning of content and process
- Communicate the sense of wonder – of amazement - that is the future of medicine

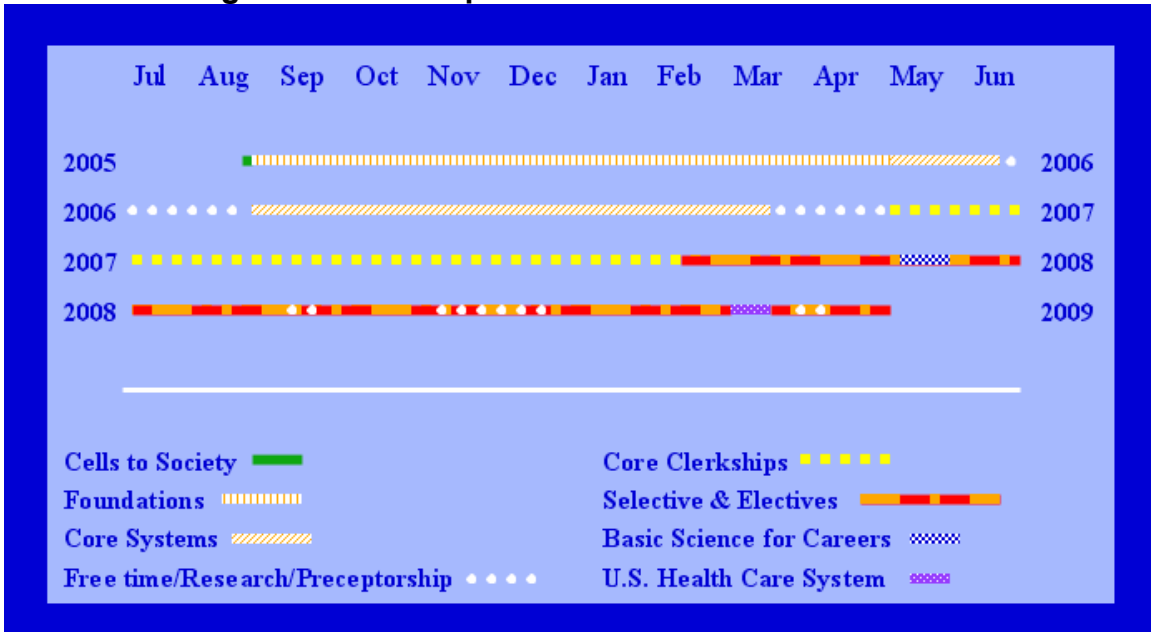
## Objectives:

- Create an introduction to the study of medicine in which the focus is on patients and where connections are made to all aspects of medicine from the molecular to cultural and global health issues. -- **“Cells to Society – An Introduction”**
- Reorganize the first two years of study into two sections: 1) Foundations of Medicine where students acquire the scientific [anatomy, biochemistry, cell & tissue structure, physiology, molecular biology, genomics, human behavior, neuroscience, microbiology, and immunology], humanistic and professional foundations [introduction to medical practice including ethics, professionalism, interview and physical exam skills] and 2) Core Systems where health and disease are approached from a combined patient centered and organ system perspective [pathology, pathophysiology, pharmacology; introductory psychiatric medicine and epidemiology and advances skills and precepts of the introduction to medical practice]. -- **“Foundations of Medicine and Core Systems”**
- Design an experience in the undergraduate medical curriculum to nurture the humanitarian and scientific motivation that called students to the profession of medicine. Allow students to express themselves creatively in the basic sciences, in clinical medicine and in service to the community. -- **“Exploratory”**
- Design a bookend to the Cells to Society Introduction: a review of the Foundations and Systems material and a prelude to clerkships - basic science, clinical, and social topics, e.g. heart failure, asthma, hypertension, psychiatric disorders, cancer, arthritis, diabetes, infectious disease, each taken from basic scientific principles through clinical medicine and societal implications. -- **“Major Diseases of Our Time”**
- Reorganize the clinical years to improve the quantity and quality of the clinical experiences; including uniform experiences in a master core curriculum, and individualized selectives and “free choice” electives. -- **Contemporary Clerkship/Elective/Selective**
- Bring basic science to clinical relevance in a program to relate basic science to the individual student’s chosen discipline (future residency), focusing on the application of basic science principles used in the daily practice of the chosen discipline. The program will follow the clerkships, to review, expand and focus on basic sciences as applied to a particular discipline and to provide motivation and mentoring for students in their chosen field. Three components are planned: 1) plenary sessions on basic scientific principles as applied to medicine, 2) career groups in which one or more students focus on scientific advances in their chosen discipline, e.g. Internal Medicine - signal transduction inhibitors in the treatment of malignancy, Neurology - diseases of mitochondria or Surgery - extracellular matrix proteins and wound healing, and 3) selectives chosen from a menu of half-day topics in the major disciplines, each focused on application of scientific principles to clinical problems.-- **Basic Science for Careers (BS4C)**
- Provide students with an understanding of the relevant regulatory, economic, and legal frameworks in the practice of medicine and in health policy -- **Rx and Dx: The U.S. Health Care System**
- Integrate information management tools into the learning process – tools; methods - data collection, organization, analysis and communication; how to use these methods for education, research; patient and practice management. -- **Information Management & Critical Thinking**
- Create a nurturing environment for professional behavior throughout the curriculum by

establishing a continuum of academic programs to teach and value professional behavior in medical students that will carry on into their residencies and practice years. – **A Curriculum for Professionalism**

- Incorporate simulation technology to prepare for and augment patient encounters and to increase the safety and efficiency of learning [develop a Simulation Center for education of medical professionals]. -- **Simulation Training in Medical Education**

**Curriculum Organizational Sequence:**



# New Curriculum Elements

## ▪ Cells To Society

“Cells to Society” is an introduction into medical school in which the focus is on patients and where connections are made to all aspects of the Foundations of Medicine from molecular to cultural and global health issues, e.g. diabetes, pregnancy, HIV-cancer. The program is intended to inspire and motivate students to learn the knowledge, skills and values needed for the practice of scientific clinical medicine

Goal:

Demonstrate to first year medical students how the care of a patient raises questions across multiple domains in addition to clinical medicine, especially:

- Biomedical science
- Society
- Culture

Course Objectives:

- Introduce the UVA SOM “Competencies Required of the Contemporary Physician”
- Introduce important learning experiences
  - Patient interaction
  - Small group work
  - Case-based study

Student Objectives:

- Explain to peers at least one significant feature of the disease studied in each of several areas - Clinical, “Cells” and “Society”
- Explain to peers at least one way in which a clinical feature relates to a “Cells” feature and a “Society” feature.
- Economics

### Cells to Society Introductory Program – 3 days

	Wednesday	Thursday	Friday
<b>AM</b>	Intro and patient interviews: faculty & student Epidemiology and natural history “How the Doctor Thinks”	Field trips (labs, dialysis unit, prosthetics center, etc.) Team learning	Summary student reports Expert panel – field questions from students – present unanswered challenging issues Inspirational speaker
<b>PM</b>	Library intro Clinical Skills Fair: Glucose self-measurement, BP, Pedometer, BMI/fat, Appropriate menu choices Small groups: team formation - topics	Team learning Small groups (topics) report	

▪ **Foundations of Medicine and Integrated Core Systems**

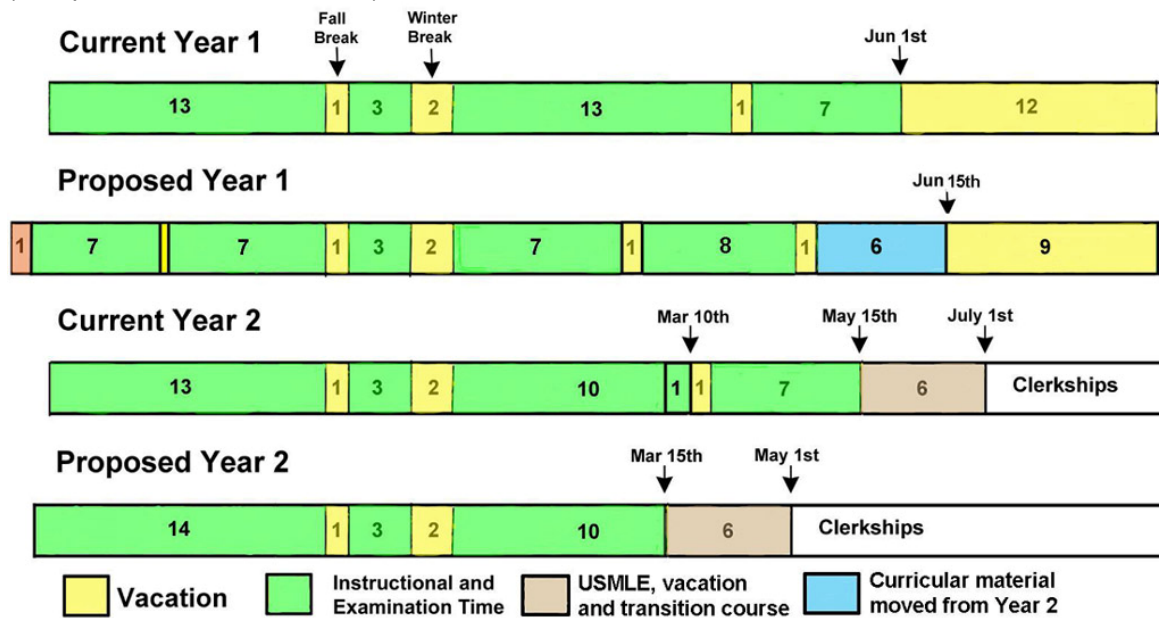
Foundations of Medicine is an integrated program of courses where students acquire the scientific, humanistic and professional foundations necessary for a career in medicine [traditional anatomy, biochemistry, cell & tissue structure, physiology, neuroscience, genomics, and human behavior].

Core Systems is an integrated program of courses where health and disease are approached from a combined patient centered and organ system perspective [pathology, pathophysiology, pharmacology; introductory psychiatric medicine and epidemiology]. These elements are combined in the “patient” with the history & physical exam; diagnosis; therapeutics and especially the process of obtaining, synthesizing and acting on information.

Foundations of Medicine and Core Systems allows:

1. Accommodation of the new Cells to Society component
2. Absorb the ~5 week truncation of the “2<sup>nd</sup> year” schedule through a mixture of:
  - a. Reduction in vacation time and reduction in material in the curriculum
  - b. Extend “1<sup>st</sup> year” academic calendar
  - c. Shorten summer between the “1<sup>st</sup> and 2<sup>nd</sup> years” - 9 weeks
3. Shifting a portion of “2<sup>nd</sup> year” material to end of “1<sup>st</sup> year”
4. Accommodation of increased clinical learning in the “3<sup>rd</sup>-4<sup>th</sup> years” by ending Foundations of Medicine and Core Systems in early ~mid-March of the 2<sup>nd</sup> year

**Proposed New Schedule for Foundations of Medicine and Core Systems**  
(Comparison with old schedule)



**Working Schedule for Foundations of Medicine and Core Systems**  
 (Assumes fall of 2005 start of new curriculum)

<p>Fall 2005 schedule:</p> <ul style="list-style-type: none"> <li>1 week for orientation and Cells to Society</li> <li>6 weeks of instruction</li> <li>1 week of exams</li> <li>3 day Fall break (Fri afternoon, Sat, Sun, Mon)</li> <li>6 weeks of instruction (less one day for new Fall break)</li> <li>1 week of exams</li> <li>1 week of Thanksgiving break</li> </ul> <p>Early Winter 2005 - 06</p> <ul style="list-style-type: none"> <li>3 weeks of instruction</li> <li>2 weeks of winter break</li> </ul>	<p>Winter 2005 - 06:</p> <ul style="list-style-type: none"> <li>6 weeks of instruction</li> <li>1 week of exams</li> <li>1 week break</li> <li>7 weeks of instruction</li> <li>1 week of exams</li> <li>1 week break</li> </ul> <p>Spring 2005 - 06:</p> <ul style="list-style-type: none"> <li>5 weeks of instruction</li> <li>1 week of exams</li> <li>9 weeks of Summer</li> </ul>
<p>Fall 2006 - 07:</p> <ul style="list-style-type: none"> <li>7 weeks of instruction</li> <li>1 week of exams</li> <li>5 weeks of instruction</li> <li>1 week of Thanksgiving break</li> <li>2 weeks of instruction</li> <li>1 week of exams</li> <li>2 weeks of Winter break</li> </ul>	<p>Winter 2006 - 07:</p> <ul style="list-style-type: none"> <li>8 weeks of instruction</li> <li>1 week Major Diseases</li> <li>1 week of exams</li> <li>6 weeks of break/USMLE-1</li> </ul> <p>Clerkships begin May</p>

▪ **Exploratory:**

Aligned with the Foundations of Medicine and Core Systems the Exploratory is an experience in the pre-clerkship curriculum to nurture the humanitarian and scientific motivation that called students to the profession of medicine. It should allow students to express themselves creatively in the basic sciences, in clinical medicine and in service to the community.

The program will be initiated with a menu of clinical medicine and community service options. Selectives from research, humanities, and student-designed projects will be added in the second or third year of the program. New opportunities for experience in research, the humanities, and clinical medicine, e.g. clinical experiences in anesthesiology, family medicine, pathology, should be added to the summer between year 1-2 to supplement the existing "summer research program" and to the post-clerkship electives.

**Organization:**

In the spring of the first year the class will be split into two groups (A & B), the "A" group doing community service and the "B" group doing a clinical experiential.

In the fall of the second year the same class will be split into the same two groups (A & B), the "A" group doing a clinical experiential and the "B" group doing community service.

### Exploratory Groups

Exploratory	Student #	Activity
First Year Class Spring - 7 weeks	70 students	Community Service
First Year Class Spring - 7 weeks	70 students	Clinical
Second Year Class Fall - 7 weeks	70 students	Clinical
Second Year Class Fall - 7 weeks	70 students	Community Service

Students assigned to a clinical exploratory will spend a minimum of two hours one afternoon per designated week as shown below in a clinical activity with a University of Virginia physician. Case-based reflective sessions are noted.

### Clinical Exploratory Activity Schedule

Spring (Foundations) 70 students grp A		Fall (Core Systems) 70 students grp B	
Week	Activity	Week	Activity
1	Introduction	1	Introduction
2	Clinical	2	Clinical
3	Clinical	3	Clinical
4	Clinical	4	Clinical
5	Clinical	5	Clinical
6	Pre-exam week	6	Pre-exam week
7	Exam week	7	Exam week
8	Spring break 1	8	Clinical
9	Clinical	9	Clinical
10	Clinical	10	Clinical
11	Clinical	11	Clinical
12	Clinical	12	Pre-exam week
13	Clinical	13	Exam week
14	Reflective Session	14	Thanksgiving break
15	Pre-exam week	15	Clinical
16	Exam	16	Clinical
17	Spring break 2	17	Reflective Session

Students assigned to a community service exploratory will spend a minimum of two hours one afternoon per designated week as shown below in a community service activity. Reflective sessions are noted.

### Community Service Exploratory Activity Schedule

Spring (Foundations) 70 students grp B		Fall (Core Systems) 70 students grp A	
Week	Activity	Week	Activity
1	Introduction	1	Introduction
2	Community Service	2	Community Service
3	Community Service	3	Community Service
4	Community Service	4	Community Service
5	Community Service	5	Community Service
6	Pre-exam week	6	Pre-exam week
7	Exam week	7	Exam week
8	Spring break 1	8	Community Service
9	Community Service	9	Community Service
10	Community Service	10	Community Service
11	Community Service	11	Community Service
12	Community Service	12	Pre-exam week
13	Community Service	13	Exam week
14	Reflective Session	14	Thanksgiving break
15	Pre-exam week	15	Community Service
16	Exam	16	Community Service
17	Spring break 2	17	Reflective Session

▪ **Major Diseases of Our Time:**

Associated with the Foundations of Medicine and Core Systems is a one-week review of the Foundations and Systems material and a prelude to clerkships. Major Diseases of Our Time acts as a summary bookend opposite the Cells to Society Introduction.

Reviews of major diseases - basic science, clinical, and societal topics, e.g.

- Asthma
- Heart Failure
- Diabetes (Obesity; nutrition)
- Dementia
- Acute Renal Failure
- Pre-maturity (Respiratory Distress Syndrome)
- HIV (Infectious disease)
- Adult Respiratory Distress Syndrome
- Sickle Cell Disease (Anemia –nutritional)
- Pneumonia
- Cancer

**A one-week modular experience, e.g.**

	Mon	Tue	Wed	Thu	Fri
<b>AM</b>	Reading	Reading	Reading	Reading	Reading
<b>PM</b>	Asthma Prematurity- RDS	Pneumonia Dementia	Heart Failure Acute Renal Failure	Infectious Disease (HIV) Cancer	Diabetes Anemia – nutritional

Goal:

- A review and synthesis of biomedical, social and cultural issues for medical students

Course Objectives:

- Review important biomedical, social and cultural concepts
- Case-based basic science tutorial study – lecture & discussion

Student Objectives:

- Explain key biomedical, social and cultural features of [10] major diseases
- Improve performance on USMLE

Introduce MDOT with a one day; two disease pilot program. Evaluate.

▪ **Contemporary Clerkships, Selectives and Electives**

**Goal:**

improve the quantity and quality of the clinical experiences

**Objectives:**

- Core clerkships must focus learning on competencies by ensuring quality [case-based]

lecture series, computer modules and other self-directed learning, etc. A tracking or logging system must be used to ensure the quantity, appropriate distribution, and quality of patient encounters.

- Provide students with the opportunity to experience non-clerkship specialties well before choosing a specialty and beginning the residency application process.
- Provide students with an advantage in scheduling away or audition electives because of the “early” opportunity for electives and selectives beginning in March.
- Increase the elective opportunities with focused two-week experiences.
- Selectives increase the responsibility on the student, increase student choice, allow focused application, and further experience in related disciplines. The ACE – Advanced Clinical Elective will continue.
- Apportion time for the Basic Science for Careers course in which foundation sciences are specifically applied to residency and career choices.

**Organization:** All students will be exposed to the same clinical clerkship experiences and be expected to master a core curriculum. Students then will individualize the required selectives and “free choice” electives.

Core Clerkships (40 weeks) Begin May

8 weeks Internal Medicine  
8 weeks General Surgery  
8 weeks Pediatrics  
4 weeks Neurology  
4 weeks Family Medicine  
4 weeks Obstetrics/Gynecology  
4 weeks Psychiatry

Core Clerkships end late February

Selectives & Electives Start Late February

2 week Internal Medicine Selective  
2 week Internal Medicine Selective  
2 week Surgical Subspecialty Selective  
2 week Surgical Subspecialty Selective  
2 week Obstetrics/Gynecology Selective  
2 week Psychiatry Selective  
4 week Advanced Clinical Elective  
4 week Basic Sciences for Careers  
~1 week Dx & Rx: The U.S. Health Care System  
23 weeks Electives  
44 weeks of scheduled electives and selectives  
12 weeks of free time [USMLE-2CK/CS; Interviews; Life Events; Vacation; Additional Electives]

**Operational Needs:**

- Develop a core group of third year advisors to assist students with planning their schedules for clinical experiences. Students will later select a specialty specific advisor to assist with residency selection and application.
- Support of approximately 0.4 FTE for “Clinical Skills Educators” in each clerkship.

- Support of 0.25 FTE for clerkship directors
- A web based scheduling program is necessary to schedule and track clerkships, selectives, and electives (including Basic Sciences for Careers).
- Increase the number of two-week elective opportunities, e.g. dermatology, radiology, ophthalmology, and orthopedics for students interested in other fields who would benefit from some exposure, but may not need a four week experience.
- Return Neurology to the clerkship environment.
- Clinical Connection bridges across clerkships, e.g. Human Sexuality, Information Management, Law & Medicine, Pain Management, Moral Distress, and Disaster Medicine
- Life Saving Techniques Workshop for all students
- There will be no clinical clerks rotating during March and April, providing clinical opportunities for first and second year medical students. These satellite site openings will allow for advanced post-clerkship training in the selectives and electives at those sites.

## ▪ Basic Science for Careers

### Goals:

- Bring basic science to clinical relevance

### Program Objectives:

- Relate basic science to the individual student's chosen discipline, e.g. "Basic Science of Internal Medicine" or Basic Science of Surgery", focusing on the application of basic science principles used in the daily practice of the chosen discipline
- Place appropriate level basic science in post-clerkship period
- Motivate and mentor students in their chosen field
- Increase interest in academic medicine
- Improve faculty and resident knowledge and attitudes toward teaching

### Student Objectives:

- Be better able to apply the scientific principles of medicine to a chosen career and improve clinical competency
- Increased interest in scholarly pursuits & academic careers
- Strengthened UVA residency candidates
- Improved USMLE-2 performance

### Operational Format:

- The format combines limited didactic teaching with small group learning including active discussion and student presentation.
- Required of all students.
- Use discipline specific didactic and small group sessions to demonstrate basic science necessary for discipline specific clinical care and problem solving.

Direction And Coordination:

- General oversight (an Office of Clerkship & Elective Oversight) as well as directors and coordinators at the departmental or discipline level (basic scientists and clinicians)

Facilities and Funding:

- Need for simultaneously available (~10-15) small group rooms everyday of the week for one month
- Funding for directors (basic scientist and clinician); coordinator

## Two-week Module for Basic Science for Careers

(This format will be repeated for the second half of the month).

Week #1	Mon	Tue	Wed	Thu	Fri
AM	Intro -all Plenary	Selective #1	Selective #2	Selective #3	Selective #5
PM	Speciality SmGrp	Specialty SmGrp Reading	Plenary? Reading	Selective #4	Reading

Week #2	Mon	Tue	Wed	Thu	Fri
AM	Plenary	Selective #7	Selective #8	Presentations	Presentations
PM	Selective #6	Reading	Plenary? Reading	Selective ?	Reading

## Selectives for Basic Science for Careers

(Select 10 selectives within chosen field; others may be outside field)

Medicine	Surgery	Psychiatric Medicine Neurology	Pediatrics	Obstetrics &Gynecology
ARDS Occup/Environ Med Common ID- Rx options Acute Hypertension ECG Overdoses & Drug Abuse Violence/Abuse Fundamental Body CT Acute MI Geriatric Pharmaco Rx HIV Neck & Back Pain Bleeding Pt Invasive CV Studies Geriatric Syndromes Acute Renal Failure Cardiac Arrhythmias Chest X-ray Pulm Function Approach to Anemia Thromboembolic Dis Hypo-Hyper Natremia Acid-Base & Renal/Pulm Physiol Fluid-Electrolytes Clin Path for Internists Gay & Lesbian Pts Recogniz/Help Pt w/Dementia Toxicology	GI Bleed Abdominal Surg Cardiovascular Surg Transplantation Bleeding Pt Acute Renal Failure Acid-Base & Renal/Pulmonary Physiology Shock Fluid-Electrolytes Surgical Pharmacotherapy Surgical Pathology Infectious Disease for Surg Clinical Pathology for Surg Anatomy for Surg Pre-Op Eval	Anxiety Disorders Stroke The Dizzy Pt Neck & Back Pain Approach to Bioterrorism Depression Neurovasc Exam Arm & Leg Pain Management Alzheimers & Memory Loss Hypnotic Methods Recogniz/Help Pt w/Dementia Rx Tobacco Dependence Adolescent Patient Geriatric Patient Neuro/Psychiatric- Pharmacotherapy Neuro-Pathology Toxicology Neuro-physiology Neuro-anatomy  * <a href="#">Informed Consent</a> <a href="#">Delivering Bad News</a> <a href="#">Doctors Get Sick Too</a> <a href="#">Care Guidelines</a> are suggested for all careers	Acid-Base for Peds Foreign Body Ingestion Anemia in Childhood Child Abuse Hypnotic Methods in Peds Fluid-Electrolytes for Peds Adolescent Patient Pediatric Pharmacotherapy Pediatric Pathology Infectious Disease of Childhood Metabolic Diseases of Childhood Toxicology Anatomy for Pediatricians	Fluid-Electrolytes in the Ob-patient Endocrinology for OBGYN Approach to Anemia Ob/Gyn Pharmacotherapy Obstetric Coagulation & Thromboembolic Disorders Physiology of Pregnancy Gynecologic Pathology Anatomy for Ob/Gyn Pre-Op Eval

## ▪ Dx & Rx: The U.S. Health Care System

### Goals:

- To introduce students to the key health policy, economic and legal issues that will shape their practices for decades
- To develop a curiosity, a comfort level and a shared vocabulary for dealing with these complex issues
- To challenge students to address current policy, economic, and legal issues as raised in policy journals, legislation, court cases and contemporary media

### Program Objectives:

- Provide students with an understanding of the relevant regulatory, economic, and legal frameworks in the practice of medicine and in health policy
- Case discussions that include the use of economic, public policy, and legal frameworks and vocabularies
- Interactions with health policy leaders regarding their perspectives on health care and the roles and responsibilities of physicians

### Student Objectives:

- After participating in the two-week course, 4<sup>th</sup> year medical students will be able to:
  - Define and discuss important economic, legal, and public health terms and frameworks
  - Analyze their societal responsibilities in cases arising in medical practice
  - Explain the historical, legal, and public policy dimensions of key concepts, such as standard of care, informed consent, and physician “duty to report”

### General Structure:

- Eight class days March 7-16, 2005
  - [Plenary sessions each morning](#)
    - [9:30 to 11:00 +/- 30 minutes depending on format or topic](#)
  - [Small group \(10-15\) discussion sections each afternoon](#)
    - [1:00 to 4:00 with breaks etc](#)

### Schedule of Topics:

- Day One “Myths about US Health Care System” Dean Garson
- Day Two “Follow the Money: Structure and Financing of the US Health Care System” Tom Massaro
- Day Three “Patients and Populations: The Tension between Individual Medicine and Public Health” Ruth Gaare-Bernheim/panel
- Day Four “Disparities in Access, Coverage and Health Outcomes: The Moral Imperative” Norm Oliver
- Day Five “The Age of the Consumer: Implications for Medical Practice” Tom Massaro
- Day Six “The Most Regulated Industry in the US: Implications for Medical Practice” TBD
- Day Seven “Managing Innovation: Technology and Practice Changes” Speaker TBD
- Day Eight “First do no harm: Evidence Based Medicine, Quality and Patient Safety” Garson and Massaro

## ▪ Curriculum for Professionalism

### Goal:

- Competent, compassionate, socially responsible physician

### Program Objectives:

- Create a nurturing environment for professional behavior throughout the curriculum.
- Establish a continuum of academic programs to teach and value professional behavior in medical students that will carry on into their residencies and practice years.
- Attend to informal and hidden curriculums to ensure that there are consistent values and expectations.

### Student Objectives:

- Demonstrate professional behaviors (respect, responsibility and accountability, knowledge and skills, excellence and scholarship, honor and integrity, altruism, leadership, and caring, compassion and communication) that form the foundation upon which the practice of medicine rests.
- Be able to freely discuss issues of professional meaning with professional peers (students, residents, attendings and staff).
- Practice reflection both personally and professionally.
- Explore and develop models of patient-physician relationships, and of collegial and community relationships.
- Achieve a professional and personal definition of service and its meaning.
- Understand the culture of medicine and how it influences one's own thinking and professional development.

### Methods:

Although the various aspects of professionalism (see NBME list of behaviors) are integral to the entire curriculum certain activities in the curriculum provide better opportunities for teaching or learning professionalism.

#### NBME list of behaviors:

respect  
responsibility and accountability  
knowledge and skills  
excellence and scholarship  
honor and integrity  
altruism  
leadership  
caring, compassion and communication

Creating the professional culture for physicians begins with the medical school admissions process and matriculation of the student. The table below lists in sequence through the four years, best-matched behaviors with activities, content and evaluation methods for each, thus

effectively creating a curricular content, sequence and schedule map for professionalism. Models for learning professionalism occur in numerous settings: ceremonial, lecture, small group, role modeling, and experiential.

**Table 2. Sequence/Behavior/Activity/Content/Evaluation**

Schedule Sequence	Y	Professional Behavior(s) Opportunities	Activity/Instructional Method	Content	Student Eval.	Program Eval.
Admissions process	<	Al; C; Rspt; Ac	Application & Interview Communication of UVA values: altruism and humanism	Recognition of ethical issues Humanistic experiences	---	
Prematriculation	<	C; R	Reading or film – discuss c 4 <sup>th</sup> yr. student	Self-reflection		
Convocation/ Covenants	1	All	Community – students & faculty; White coat			
Cells to Society	1	R; Ac				
Anatomy	1	KS; Ac; Rspt	Lecture, SmGrp & Lab	KS, R & Rspt. to self, peers & faculty for all	MC exam Attend; Gen Observ	
Biochem	1	KS; Ac; Rspt				
C&TS/Physiology	1	KS; Ac; Rspt				
M&M Genetics	1	KS; Ac; Rspt				
HumBehav	1	KS; Ac; Rspt				
Neurosci	1	KS; Ac; Rspt				
Microbiology	2	KS; Ac; Rspt				
Pathology	2	KS; Ac; Rspt				
Pharmacology	2	KS; Ac; Rspt				
Psychiatric Medicine	2	KS; Ac; Rspt				
Practice of Medicine-1	1	All	SmGrp/Pt contact	KS; Self-reflection	Small group evaluation; videotape patient interviews; written exam	
Medical Center Hour	A	Ac; Rspt	Lecture			
Exploratories	1 2	Al; L; Ac; C; H; R	Pt-Dr encounter; staff interface; self-reflection	Self-reflection		
Practice of Medicine-2	2	All	SmGrp case model; Lecutre; Pt interview; staff interface; H&P	KS; Self-reflection Pt interview template; collaboration c staff in pt Rx plan	Nsg & multi d feedbk tool	
Becoming a Clinician	3					
Clinical Connections Conversations	3	All	Clinical Conversations/SmGrp self-reflection	Self-reflection		
Clerkships/Selectives	3 4	All	Clerkship clinical template; staff interface; Ethics Rounds	Per clerkship outline; self management in unit/staff team environ; collaborative pract w/multi d team	Nsg & multi d feedbk tool	
Gold Humanism	4	All				
Electives	3 4	Ac	Humanities courses; supvis pt care			
Dx & Rx: US Health Care System	4	Ac	Lecture; SmGrp case model			
Al=Altruism; H=Honor & Integrity; C=Caring, Compassion & Communication; Respect=Rspt; R=Responsibility; Ac=Accountability; ES=Excellence & Scholarship; KS=Knowledge & Skills; L=Leadership						

## Current Programs For Professionalism Curriculum:

- **The "White coat" ceremony and reading of the covenant** mark the official recognition of the formal, "hidden", and "informal" (institutional) aspects of the curriculum.
- **Medical Center Hour** will include two or three mandatory sessions per semester throughout PoM-1&2 as appropriate.
- The **Exploratories** offer opportunities for community service and for introductory clinical care activities; will provide a venue for reflection on the community and clinical activities.
- **Clinical Connections program, in particular the "Clinical Conversations"** sessions, play an important role in a professionalism curriculum with programs of self-reflection, simulations, clerkship journals and most importantly reflective discussion of real life experiences. The reflective exercises allow for exploration of issues of professional/personal balance, career choice.
- **Electives** provide periods for reflection and assessment of the student's maturation and past and future roles through the humanities.
- **Enhance student involvement in patient care settings:**
  - inclusion of the student in family meetings and ethics consults;
  - develop and assess a series of online "Great Cases in Ethics" for student study

## New Programs For Professionalism Curriculum:

- **Create an "Ethics Rounds"** one day per week or one day per two weeks in the clerkships - pilot in Medicine.
- **Include an ethics component in the Basic Sciences for Careers**, e.g. ethics for the surgeon, the internist, the psychiatrist, the obstetrician /gynecologist, or the pediatrician
- **Develop new electives:** "Ethics in the Health Care System" and "The Ethics Consult Service".
- **Develop NetLearning modules for select basic ethics material** for students and faculty.
- **Develop faculty and residents** as leaders/mentors for programs of self-reflection.
- **Appoint a "caretaker" Professionalism directorship** (physicians; nurses; students) reporting to the Curriculum Committee to monitor the Professionalism Curriculum with the goal of ensuring that the whole and each component is functioning properly. The person/program to do this is undetermined, but might naturally fall within the scope of the Humanities program.

## ▪ Information Management and Critical Thinking

Goal:

Integrate information management tools into the learning process. This entails knowledge of utilization of hardware and software; methods of data collection, organization, analysis and communication; how to use these methods for education, research; patient and practice management. Address and assess specific information competencies throughout the four years of the curriculum with attention to the competencies required in graduate medical education.

Objectives:

### **Assess Computer and Information Literacy**

- Conduct web-based entry assessment of computer and information skills beginning Fall 2004 for the incoming class of 2008. Use the results to develop information management and critical thinking (IMCT) curriculum.
- Develop specific assessment tools and strategies (beyond self-report) for all four years of the curriculum.

### **Integrate IMCT into POM-1**

- Goal: increase student awareness of wide range of information resources available to answer different kinds of questions by adding structured handouts plus structured assignments to existing POM-1 cases.
- Karen Knight is working with POM-1 course directors Eve Bargman and John Gazewood to determine specific competencies to be taught; develop resource lists; develop structured exercises; develop a tool to record and assess the *process* used by students to identify and evaluate information. POM-1 mentors will be coached in the exercises.

### **Integrate IMCT into POM-2**

- Goal: increase student awareness of appropriate information resources; how to retrieve, filter, evaluate and reconcile information; how to retrieve and interpret patient-specific information; select and use information for patient education.
- Jason Lyman (HES) and Brian Wispelwey (POM-2 course director) have determined specific competencies to be taught as part of existing cases and are developing four specific projects that began Fall 2004 covering the topics of information retrieval, managing patient information, patient education regarding online health information, and population-based medicine (PBM). The goal is to implement these modules into the current structure of the small group sessions. The one exception is the PBM module, which will involve a Web-based self-study case for the students to complete independently outside of the small groups and will occur in the second semester.

### **Support/Enhance Existing IMCT Activities in Clerkships**

- Goal: build on existing strengths; refine assessment tools; consider developing a CPX exam that addresses IMCT
- Process: Family Med and AIM continue to share their approaches and experiences with entire IMCT Design and Development Team

### **Consider Opportunities for Education Research with IMCT Activities**

- Goal: identify opportunities to assess impact of the IMCT changes begin made; or to

- gather additional data on information-seeking behaviors; publish results
  - The HIC has approved a research study from Aug 2004 – May 2005 to assess the implementation of IMCT in POM-1
  - Under consideration: an ethnographic type study to attempt to catalog the informal curriculum to teach IMCT that happens in the interaction between students, residents and attendings during rounds or morning report. This gets at the intersection between UME and GME
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- **Joint degree and program access, e.g., MD/PhD, MPH, MS, MBA, LLB**
    - Offer students the ability to become educated in related fields.
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- **Simulation Training in Medical Education**
    - Prepare students for and augment patient encounters by incorporating simulation technology into medical training.
    - Increase the safety and efficiency of learning.
    - Medical students will be introduced to computerized patient simulation through life-saving procedure courses during their third year. There will be 4 life-saving procedure courses during the third year, which will offer the opportunity for approximately 35 students at a time, providing them an all day life-saving procedures, techniques, and hands-on experience. The Center for Medical Simulation will also assist medical students at the second year level in developing diagnostic skills through interaction with computerized simulators as well as human patient models. Computerized simulators, other non-computerized simulators and virtual reality models will provide students opportunity throughout their medical school years to work with other students, residents, attendings, and support staff on educational and research projects electively.
    - There is the opportunity to develop an “on demand program” whereby students can go to the Center for Medical Simulation Laboratories and work on simulation cases independently or with an established on call physician mentor (to be developed).