

Cells to Society: A Curriculum for Modern Medicine 2.4

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Summary

The new UVA “Cells to Society” model for medical education in the 21st 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 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 4th 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

Goals of Curricular Change:

- 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 for Curricular Change:

- 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 Illnesses 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

