

New and Innovative Curriculums in Medical School Training

International Association of Medical Science Educators

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Objectives

- Provide a description of the unique six year combined degree program at the University of Missouri-Kansas City School of Medicine.
- Discuss the curriculum and how integrating traditional classroom and clinical experiences together benefits student education.
- Compare objective performance information to national standards.



Background

- Former Chairman, Combined Group on Baccalaureate-MD programs
- Associate Dean of Student Affairs, University of Missouri-Kansas City School of Medicine
- Associate Professor, Internal Medicine/Pediatrics
- 1990 Graduate of University of Missouri-Kansas City School of Medicine



Why the interest in innovative education?

- US comments:
 - Shortage of physicians
 - Cost of attendance
 - Lack of medical school availability for those interested in pursuing career



The Traditional Medical School Path in the US

- Complete undergraduate education with a degree in any category, additional completion of medical school pre-requisite courses
- MCAT (Medical College Admissions Test)
- Apply/acceptance into Medical School
- Four year Medical School experience



Traditional four year curriculum

Year	Fall Semester	Winter Semester	Summer Semester
1	Basic Science coursework	Basic science coursework	Break
2	Basic science coursework	Basic science coursework	Break or begin clinical clerkships
3	Clinical clerkships (Internal Medicine/Pediatrics/Family Medicine/Obstetrics-Gynecology/General Surgery/Psychiatry)		Elective clinical rotations
4	Elective clinical rotations		

Other Countries

- Some countries with medical school experiences less than eight years:
 - Canada
 - United Kingdom
 - India
 - Bulgaria (five year curriculum plus internship)
 - Poland
 - Czech Republic
- Entry exam following high school, with acceptance into medical school based on exam scores
 - Six or seven year programs
- Variety of curriculum plans



Alternative curriculum options in the US

- Combined Baccalaureate/MD programs in US
 - Shortened undergraduate degree program
 - Early entry into medical school programs
 - Shortened medical school curriculum (three year program)



Alternative curriculum options in the US

- Combined Baccalaureate/MD programs in US
 - Integration of clinical experiences into the undergraduate and basic science medical school years
 - Six or seven year combined programs
 - Three year medical school curriculum tied to residency program
 - Provisional residency position included due to concerns about prejudice towards these students



University of Missouri-Kansas City (UMKC) School of Medicine Program

- History
 - Created in 1970 as an innovative option to address projected physician shortage; goal to provide care to communities in Missouri
- Hallmarks of the medical education plan:
 - Combined baccalaureate/MD plan
 - Early exposure to clinical medicine
 - Small-group learning through the docent system
 - Continuing ambulatory care experience weekly for four years



UMKC-specific curriculum innovations

- Docent system
- Year 1 and 2 experience
- Hospital team experience
- Weekly ambulatory clinic sessions
- Team-based approach to advising
- Senior/junior partner responsibilities



UMKC Curriculum

Year	Fall Semester	Winter Semester	Summer Semester
1	MEDICINE: Medical Terminology, Learning Basic Medical Sciences, Fundamentals of Medical Practice I (Anatomy) w/Lab, General Chemistry I w/Lab, General Psychology, Two General Education Requirements*	MEDICINE: Fundamentals of Medical Practice II ARTS & SCIENCES: Human Biology II (Microbiology) w/Lab, General Chemistry II w/Lab, Sociology: An Introduction, General Education Requirement*	MEDICINE: Hospital Team Experience ARTS & SCIENCES: Organic Chemistry w/Lab, Cell Biology
2	MEDICINE: Fundamentals of Medical Practice III ARTS & SCIENCES: Human Biochemistry, Social and Psychological Development Through the Life Cycle, Genetics, General Education Requirement*	MEDICINE: Fundamentals of Medical Practice IV, Clinical Correlations ARTS & SCIENCES: Human Structure/Function, II and III	MEDICINE: History of Medicine, Clinical Correlations ARTS & SCIENCES: Human Structure/Function IV

Year	Fall Semester	Winter Semester	Summer Semester
3	MEDICINE: Clinical Practice of Medicine I, Intro to Pharmacology (Self-Paced), Continuing Care Clinic (half-day weekly) ARTS & SCIENCES: Medical Neurosciences, Pathology I (General/Clinical)	MEDICINE: Clinical Practice of Medicine II, Intro to Pharmacology (Self-Paced), Continuing Care Clinic (half-day weekly) ARTS & SCIENCES: Medical Microbiology, Pathology II (Anatomic/Systemic)	MEDICINE: Pharmacology, Behavioral Sciences in Medicine, Docent Rotations I, Family Medicine I, Ambulatory Care Pharmacology (Self-Paced), Continuing Care Clinic (half-day weekly), Patient-Physician Society I and II ARTS & SCIENCES: Courses for B.A. degree*
4	MEDICINE: Pharmacology, Behavioral Sciences in Medicine, Docent Rotation I, Family Medicine I, Ambulatory Care Pharmacology (Self-Paced), Continuing Care Clinic (half-day weekly), Patient-Physician Society I and II ARTS & SCIENCES: Courses for B.A. degree*	MEDICINE: Psychiatry, Prescribing for Special Populations (Self-Paced), Obstetrics/Gynecology, Pediatrics, Family Medicine II Rural Preceptorship, Surgery, Docent Rotation II, Continuing Care Clinic (half-day weekly), Electives ARTS & SCIENCES: Humanities/Social Science	
5	MEDICINE: Psychiatry, Prescribing for Special Populations (Self-Paced), Obstetrics/Gynecology, Pediatrics, Family Medicine II Rural Preceptorship, Surgery, Docent Rotation II, Continuing Care Clinic (half-day weekly), Electives ARTS & SCIENCES: Humanities/Social Science	MEDICINE: Docent Rotation III, Emergency Medicine, Rational and Safe Drug Prescribing (Independent Study), Continuing Care Clinic (half-day weekly), Electives** ARTS & SCIENCES: Humanities/Social Science	
6	MEDICINE: Docent Rotation III, Emergency Medicine, Rational and Safe Drug Prescribing (Independent Study), Continuing Care Clinic (half-day weekly), Electives** ARTS & SCIENCES: Humanities/Social Science		

The curriculum

- Administration:
 - Curriculum Associate Dean reports directly to Dean
 - Curriculum council recommendations reviewed by Coordinating Committee, approved by Dean
 - Student input as council members
- How change occurs:
 - Idea proposed
 - Council review
 - Recommendation to Coordinating Committee



Student Profile

- Over 3000 graduates since start of program in 1971
- BA/MD class size average of 110
- MD students



Student Profile

- Attrition rate from 1970-2005 was 20.6%; similar to pre-med attrition rate at average undergraduate program
- In past decade, attrition rate much lower due to combination of selection changes, curriculum revisions, retention endeavors
 - Majority of attrition occurs in year 1 and 2



Docent Team

- Team comprised of faculty physician, 12-14 students in years 3-6
- Same docent for a student during years 3-6
 - Team members change as students graduate and new students join team
- Interdisciplinary team developed during internal medicine hospital rotation, which includes a clinical medical librarian, pharmacist, students of pharmacy and/or nursing.
- Student partnerships



Standardized data

- USMLE tests – 2015
 - Step 1: 93% first time pass rate
 - Step 2 CK: 96% first time pass rate
 - Average Step 1 and Step 2 CK scores are at the national mean among first takers (per USMLE data)
- NRMP
 - Match rate at national average as compared to traditional US medical schools
 - Wide variety of specialty interests among students



Comparisons

- LCME:
 - Standards applied to traditional medical schools are applied to the UMKC program
 - Result of last review: full accreditation
- Graduation Questionnaire
 - Annual analysis for comparison data and student satisfaction
- Intern survey
 - Survey to program directors to compare UMKC graduate performance with intern peers



Criticisms of shortened curriculum

- Decreased opportunities for electives
- Limited clinical exposure so that students may select a career choice they later regret
- Immaturity of students



Conclusions

- Shortened curriculum can be successful in educating students to be excellent physicians
- Concerns about maturity do not necessarily correlate to chronologic age
- Team-based learning encourages continuation of working as a team following graduation from school



Conclusions

- Flexibility with schedule allows for additional opportunities
- UMKC program has 45 years of experience to attest to the success of an innovative curriculum
- Combined programs have existed throughout the US for over 25 years

