

**Texas Tech University
School of Medicine
Office of Curriculum**

**Renaissance II Medical Education
Pre-Summit Theme Team Reports**

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Table of Contents

Cultural Competency	3
Genomics.....	9
Geriatrics.....	14
Medical Informatics/Evidence Based Medicine.....	26
Nutrition Science.....	40
Population Health.....	47
Professionalism-Communication.....	54
Year 1 Integration	64
Year 2 Integration.....	76
Pre-Clinical Skills	79
Educational Evaluation.....	81
Hindrances to Successful Implementation.....	95



Renaissance II Medical Education Summit

Cultural Competency Theme Team

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Definition of Theme

“Culture influences an individual’s health beliefs, behaviors, activities and medical treatment outcomes. Because of the significant influence of culture upon health and related outcomes, health care professionals should be culturally competent in order to provide optimum health care to patients.” (Blue,2002,1)

“Cultural competency is a set of skills, knowledge and attitudes, which enhance a clinician’s 1) understanding of and respect for patient’s values, beliefs and expectations; 2) awareness of one’s own assumptions and value system in addition to those of the U.S. medical system; and 3) ability to adapt care to be congruent with the patient’s expectations and preference.” (Mutha et al, 2002, 25)

We believe that awareness of one’s own assumptions and value system includes awareness of the factors that create and perpetuate health care disparities. By this we mean, challenging the disparities in access to medical resources, the power differentials inherent in the doctor patient relationship, and institutional power differentials in TTUHSC’s relationship with the communities it serves.

Culhane-Pera et al (1997), describe five levels of cultural competence for health care providers, including physicians, nurses, and other clinicians. They are:

- Level 1 – No insight about the influence of culture on medical care
- Level 2 – Minimal emphasis on culture in medical setting
- Level 3 – Acceptance of the role of cultural beliefs, values, and behaviors on health disease, and treatment
- Level 4 – Incorporation of cultural awareness into daily medical practice
- Level 5 – Integration of attention to culture into all areas of professional life.

We recommend that by the time our medical students graduate, they will demonstrate minimum cultural competence at level 3 or above and will display competency in the knowledge, skills, attitudes and behavioral objectives developed by Culhane-Pera et al (1997) associated with that level. We further recommend that the goal for resident training be level 4 and that for faculty training be competency at level 5. Students are taught in various and complex ways; to fully integrate cultural competency into our curriculum, the faculty must serve as role models for students at every level of training.

Culhane Pera et al (1997) developed comprehensive objectives for each level of cultural competency. Those for level 3 are included below. The theme team has received copies of the objectives for the other four levels from Dr. Culhane-Pera and will disseminate them to members of all the theme teams.

Knowledge:

- Define culture and list various factors that influence culture
- Describe cultural beliefs, values and behaviors of a cultural group different than one in which you belong
- Discuss important cultural influences of particular patients
- Describe three traditional healing practices of specific ethnic groups in the local area
- Describe the negotiation process

Skills:

- Inquire about beliefs, practices and values for patients and families as pertinent to medical problems.
- Obtain a medical history, considering cultural information
- Consider cultural information in making diagnostic and therapeutic plans
- Work with interpreters in an effective manner
- Apply general cultural information as hypotheses and not as stereotypes

Attitudes:

- Respect patients' and families' behaviors and values
- Be aware of the influence of sociocultural factors on patients, providers, the clinical encounter and interpersonal relationships
- Appreciate the heterogeneity that exists within and across all cultural groups and the need to avoid overgeneralization and negative stereotyping
- Be aware of own cultural beliefs, values, and practices that influence self as a cultural person.

Behaviors: (based on the work of Culhane-Pera's and Betancourt original articles)

- Be receptive to feedback on cultural effectiveness/responsiveness
- Regularly inquire about possible cultural comprehension with staff and patients

Much of the literature addressing cultural competency focuses on the development of physician competency with minority patient populations. We as an institution would also like to include that as the U.S. minority populations, such as women, African-American, Latino, Asian, and working class students, make up a larger percentage of medical students, we must also address the cultural competency issues appreciated by these students who enter a field once dominated and defined by privileged, well-educated Caucasian males. These students struggle with the development of cultural competency within the complex cultural of medical education at TTUHSC where they encounter values, attitudes and behaviors that are as foreign to them as they may be to students from Asia or the Middle East.

Rationale for Theme

"A ... demographic change is the rising percentage of minorities in the overall U.S. population. According to U.S. census data, 26 percent of the current population is nonwhite, a percentage that is expected to increase to almost 47 percent by 2050. The country's growing cultural and ethnic diversity presents new challenges and opportunities for physicians and other health professionals, who must become culturally competent and better skilled in communicating and negotiating health management with diverse populations." (Cuff and Vanselow, 2004, 4)

The LCME requires cultural competency training as part of medical education. "The faculty and students must demonstrate an understanding of the manner in which people of diverse cultures and belief systems perceive health and illness and respond to various symptoms, diseases, and treatments.... Medical students must learn to recognize and appropriately address gender and cultural bias in themselves and others, and in the process of health care delivery." (Liaison Committee on Medical Education, 2003, 13)

Template schools and programs in cultural competency exist and include, but are not limited to the following:

1. Center for Health Care Professionals, University of California, San Francisco
2. Medical University of South Carolina College of Medicine, Charleston, SC
3. Department of Family & Community Medicine Regional Hospital, St. Paul Ramesy Family Practice Residency, St Paul, MN.

Curriculum Sequence and Implementation Timeline

Unfortunately, the IOM report, *Improving medical education: enhancing the behavioral and social science content of medical school curricula* (Cuff, 2004), includes cultural competency as a topic to be included within a behavioral science curriculum, but is not specific about cultural competency content or teaching methods for medical students. At this time the Multicultural Task Force of ABSAME is planning to develop a comprehensive curriculum recommendations to augment the IOM report. What we do know is that, based on the 2000-2001 AAMC survey of 125 U.S. medical schools, 3 included cultural competency, called cultural diversity, as a separate required course; 112 addressed it as part of a required course, 21 offered a separate elective course, 32 included it as part of an elective course and 28 used some other education experience. (Liaison Committee on Medical Education Part II Annual Medical School Questionnaire for 2000-2001, 2001)

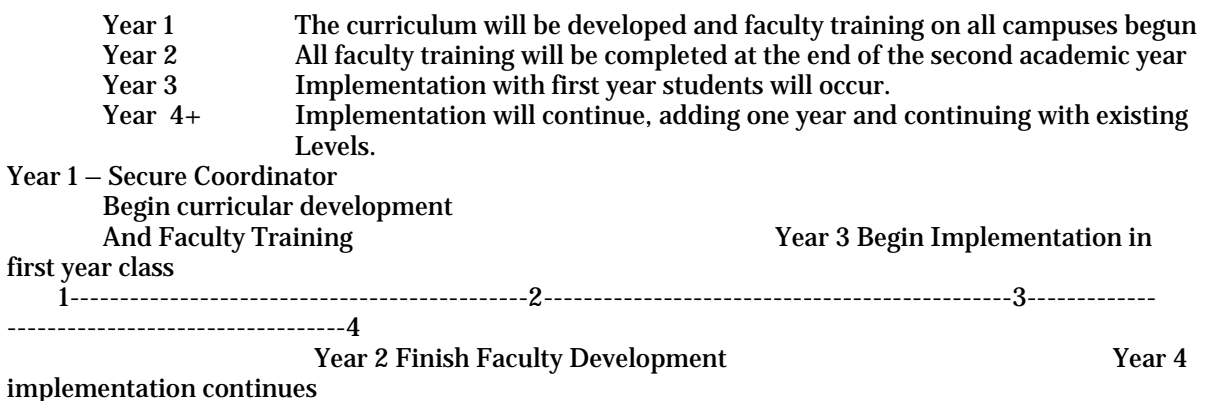
Beagan's (2003) research at Dalhousi University, Halifax, Nova Scotia suggests that to be effective in shaping the behaviors of medical students, curricula on social and cultural issues in medicine cannot be limited to a two - year course offered during student's first and second years of school. When this was done at Dalhousi, Beagan found that students in the 3rd and 4th clinical years did not perceive that exposure to cultural competency training had any impact on their clinical work.

We agree that ultimately the choice of cultural competency curriculum materials and teaching methods must be tightly linked to clearly defined written objectives. For this reason, we are drawn to Culhane-Pera's work. However, Betancourt (2003) offers a model for linking conceptual approaches to curricular timing and teaching methods based on his objectives. Betancourt suggests that focusing on student attitudes is best done during the 1st and 2nd years and should include exploration of culture, racism, and classism as well as other topics. These factors may be explored as they relate to the student and his/her culture and how they may affect clinical decision making. He suggests that knowledge be provided throughout the undergraduate years and that tools and skills be developed within the conceptual framework of the clinical encounter, a setting that lends itself to the exploration of cultural competency which is integral along with "hard science", for a the successful physician-patient relationship.

Respectfully using the work of Began, Betencourt, Murtha et al, and Culhane-Pera et al, we recommend that implementation of the curriculum start with only the first year students. During the second year, training will be continued and implemented for second year students and so on. In addition, it essential that the curriculum be a continuum of educational experiences linking together concepts learned in years 1 and 2 with the experiential clinical application and new learning that makes up the bulk of years 3 and 4. Because of this need of coordinated and integrated education for the students, the education of the faculty must be uniform and accomplished before, rather than during, the implementation of this material into the overall student curriculum.

The implementation of the cultural competency curriculum at TTUHSC is going to require the full time focus of a faculty member. Therefore, we recommend the creation and timely implementation of a behavioral and social science curriculum coordinator award to fund a full-time faculty member to oversee the development and implementation of the behavioral and social science recommendations found in the IOM report on behavioral and social science in medical education.

We recommend the following timeline for implementation:



Evaluation will include both quantitative and qualitative methods, such as written content questionnaires, written self-assessments, written curriculum questionnaires, medical chart reviews, observations and/or videotaping of medical encounters, pre and post tests, focus groups, and interviews with randomly selected students. The one-year-at-a-time model for implementation facilitates on-going curricular evaluation and evolution.

Prior to student implementation, faculty training will be planned and implemented, to include but not be limited to:

- Step 1 Orientation to curriculum guidelines (recommend using *Toward Culturally*

- Competent Care toolbox* developed by the Center for Health Care Professionals - University of California, San Francisco as a framework to which other teaching strategies, may be added)
- Step 2 Experiential activities to facilitate self-reflection about the use of cultural competency training materials in all courses, including basic sciences and clinical courses and clerkships
- Step 3 Training on ways to integrate cultural competency orientation into courses on basic sciences, clinical courses and clerkships at all levels – training to include both didactic and experiential methods

A template of faculty development is available from the Dept. of Family &Community Medicine Regional Hospital, St. Paul, Ramesy Family Practice Residency, St Paul.

We recommend that Cultural Competency be taught throughout the 4 years of medical education with the identification of dedicated time during the first two years as either a part of our current curriculum or as a separate class to introduce our students to the concepts of cultural competency. To facilitate this we recommend the use of the *Toward Culturally Competent Care* toolbox developed by the Center for Health Care Professionals, University of California, San Francisco as the content framework from which we may expand to include other materials and teaching approaches. *Toward Culturally Competent Care* begins with exploration of the student's attitudes and values, then explores the effects of cultural differences in the patient, and finally explores the cultural dynamics of the physician-patient relationship. Finally, we recommend that teaching resources be developed to address the role of medical education and governmental policy/regulation in perpetuation of both local and national health disparities.

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Pre-Summit Theme Team: Genomics

Committee Members: Simon Williams, PhD, CBB-Lubbock (Chair); Elmus Beale, PhD, CBB-Lubbock (Co-chair); Robert Bright, PhD, Micro. & Immunol.-Lubbock; Everardo Cobos, MD, Int. Med.-Lubbock; Randolph Schiffer, MD, Neuropsych-Lubbock; Brandt Schneider, PhD, CBB-Lubbock; Afzal Siddiqui, PhD, Int. Med.-Amarillo; Vijay Tonk, MD, Peds-Lubbock; Surendra Varma, MD, Peds-Lubbock.

Definition of Theme: “Genomics” is a recently coined term that refers to the analysis of the function and interactions of genes within a complete genome. The term is now frequently used to define a new area of biology that has benefited from the tremendous advances resulting from the completion of the sequence of the human and many other genomes. There is great anticipation that genomics research will lead to new and powerful approaches to disease detection, classification and treatment (5, 9). However, genomics is not a new discipline; rather it is a subspecialty of genetics. Essentially, although genomics and genetics differ based on the number of genes being examined, the underlying concepts are the same. By extension, it is apparent that it is crucial that clinicians have a strong grounding in genetics to be able to grasp the advances afforded to medicine by potential applications in the area of genomics. Based on this reasoning, this committee decided to rename itself the Genetics and Genomics Theme Team.

The genetic bases for many human diseases have become apparent over the past few decades, resulting in greater understanding of the underlying etiology of these diseases and improvements in their detection and treatment (1). These advances have primarily been focused on diseases where phenotypic changes can be traced to discrete mutational events. In genetic terms, these diseases are referred to as monogenic traits and examples include Huntington’s disease and Duchenne Muscular Dystrophy. However, the mutational events that underlie such “simple” diseases likely comprise a small subset of the total burden of genetic insults our genome encounters. Most diseases presumably result from the accumulation of several genetic changes, with each change adding to the possibility that a disease state will result. Examples of such “complex” diseases are more common maladies such as cancer, diabetes and hypertension. Advances in the area of genomics, and in particular in the ability to simultaneously examine the behavior of hundreds or thousands of genes in a single biological sample, now make the analysis of these complex diseases more tractable. These advances include the development of microarray technologies for surveying the expression of multiple genes at one time, and the sequencing of multiple mammalian and other genomes, thereby permitting the use of comparative genomics approaches to understand human diseases.

Bearing in mind the differences in academic backgrounds of many incoming medical students, it is imperative that the students are provided with a strong background in genetics early in the curriculum. Of course, a clinician does not necessarily need to be an expert in all of the intricacies of classical genetics. However, it is clear that a solid understanding of the major basic concepts of genetics as they apply to medicine will be indispensable for clinicians in the years to come. Therefore, the committee decided to perform a brief survey of the current curriculum to establish the coverage of genetics in extant courses and clerkships. The information gleaned from this survey is summarized in Table 1. We believe that this information is fairly complete. It is important to mention that several respondents were pleased to hear that changes in the genetics content in the curriculum were being considered, suggesting that an overhaul of the genetic content of the curriculum was overdue. The current curriculum will be discussed in

the next section.

Rationale for Theme: As mentioned above, this committee has adopted the slightly modified name of the Genetics and Genomics Theme Team. This change came about due to the realization that understanding the potential ramifications of advances in the area of genomics requires a strong foundation in genetics. As shown in Table 1, genetics has not been emphasized in the current curriculum. Apparently, a genetics course used to be part of the curriculum and was taught by Dr. John Morrow, formerly of the Department of Cell Biology & Biochemistry. This course was dropped at some undefined time in the past and there does not appear to have been an attempt to incorporate genetics into current courses, except in those cases listed in Table

1.

Table 1: Coverage of Genetic topics in Current Curriculum

Year	Course/Clerkship	Description of lectures
1	Medical Biochemistry	Three lectures entitled "Human Genome Expression"
1	Anatomy	Portions of 3 lectures on genetic control of development (Hox genes; Sex determination)
1	Integrated Neurosciences	Brief mention of genetic influences in several lectures: e.g., Huntington's, Parkinson's, MS; 1 lecture on neural tube defects includes genetic disorders such as Down's; genes associated with apoptosis; genetic influences on memory; genetic features of Alzheimer's (Down's; APO alleles); genes and the etiology of schizophrenia; effects of drug abuse on gene expression
2	Intro to Neuropsychiatry	1-2 slides of most lectures touch on genetic components of neuropsychiatric syndromes
2	Microbiology	7 lectures on bacterial genetics which include: DNA & the molecular basis of genetics; organization of microbial genomes; mutations and variation in bacteria; genetics of virulence factors.
2	Pathology	Numerous lectures cover clinical cytogenetics; cancer cytogenetics; case-based lectures on clinical genetics; genetics of tumors (e.g. oncogenes and tumor suppressor genes). Much material is based upon a chapter on genetics in the Robbins textbook.
3 & 4	Pediatrics	1-2 lectures on genetics in year 3. Some year 3 students will encounter, by accident, children with genetic problems. Some year 4 students spend 1-2 days with visiting clinical geneticists.
3 & 4	Clinical Neurology and Pediatrics, El Paso	Dr. Johanan Levine lectures and clinical case studies on a variety of molecular biology techniques and their applications to human genetics related to neurology.
3 & 4	Ob/Gyn and Internal Med	Nothing specific is presented.

At this point, it is certainly worth mentioning a reorganization of the year one curriculum being undertaken by Dr. Gwynne Little of the Department of Cell Biology & Biochemistry. Dr. Little has taken the topics mentioned in the USMLE Step 1 course outline and attempted to incorporate them into a streamlined first year curriculum for medical students. This document, which I believe will be presented to the Curriculum Planning Committee, presents a greatly improved program for genetics teaching for the first year medical students. We will refer to this document in the expanded discussion of our curriculum proposals below. We will also discuss how advanced teaching in the area of genetics and genomics can be introduced into later years of the curriculum.

Curriculum, Sequence and Implementation Timeline: In considering the design of a curriculum that would integrate genetics and genomics into medical school teaching, we considered existing curricula at other medical schools. In particular, we considered the curriculum at Harvard Medical School that was described in detail in a recent publication (7). Recognizing that the resources for teaching of genetics may differ between TTUHSC and Harvard Medical School, we felt that the program described contained many of the features we considered to be important. Therefore, the following summary of a potential curriculum for TTUHSC draws heavily from the Harvard example.

First Year Curriculum: Introduction to Genetic principles in Medical Education.

The following topics should be covered in the first year to provide a strong foundation in genetic principles for all medical students. Many of these topics are covered in the proposed curriculum designed by Dr. Little that was mentioned above.

1. Basic structure of a gene and genome, transcription, translation, replication and repair.
2. Consequences of gene mutation (genotype) for phenotype. Classes of mutations.
3. Mechanisms of inheritance, including Mendelian inheritance and variations such as genomic imprinting.
4. Organization of the human genome and implications of comparative genomic studies.
5. Chromosome structure, abnormalities and resulting disorders.
6. Gene-gene and gene-environment interactions in complex phenotypes.
7. Genetic control of embryogenesis and development, lessons from model organisms.
8. Introduction to population genetics
9. Ethical aspects of genetic information.
10. Biochemistry with emphasis on inborn errors of metabolism
11. Proteomics including signal transduction cascades and protein interactions relevant to developmental defects and cancer
12. Principles of multifactorial determination as they apply to birth defects
13. Risk analysis using susceptibility markers, including SNPs and other polymorphism mapping techniques.
14. Finding genetic information on the web (Bioinformatics)

It is imperative that these basic genetic concepts are presented in a way that emphasizes the clinical significance of the observations. This is often a task that is difficult for basic scientists, who often will be the lecturers in these initial classes. Several suggestions to aid in this process were presented in reference (7). These include:

1. Introduction of major concepts with clinical cases. It may be possible to integrate these examples with cases that students will encounter in later courses or within specific clerkships. A rational approach such as this will provide continuity for the student's education.
2. Present questions before answers. This approach avoids confusing students with specific

- technological advances before they understand their potential applications.
3. Emphasize problem-solving approaches. This will ensure that students don't simply learn current techniques but are provided with tools that enable them to keep up-to-date with emerging technologies.
 4. Emphasize integration of genetics into all areas of biology and medicine. For example, the genetic aspects of specific diseases should be emphasized during the sections that deal with specific organs and tissues.
 5. Encourage student participation. For example, in the choice of case studies to be discussed in class, this will provide evidence of the currency of the examples presented.

Second Year Curriculum and Clinical Clerkships.

The emphasis in later years of the curriculum should be on the integration of the knowledge gained in the first year into specific clinical situations. As shown in Table 1, this concept has already been implemented in certain courses (e.g. Pathology) but we anticipate that, if the first year curriculum is fortified, the students will be much better prepared. By extension, this will obviate the need for excessive introductory material, leaving the course directors and participants free to delve deeper into the genetic aspects of their specific topics. Specific cases incorporating genetic diseases introduced during the first and second year courses should be emphasized within the clerkships.

Advanced topics-Genomics

As mentioned above, advances in the area of genomics have significant implications for future clinicians. The most important potential impact of these advances is the implementation of what is termed "personalized medicine" where decisions on diagnoses, prognoses and therapies are based on experimental evidence gleaned directly from the molecular analysis of biopsy samples of the patient's tissue. In addition, haplotype mapping and other advances in determining an individual's genetic makeup may provide important information concerning risk factors for the development of specific genetic diseases. Therefore, it is imperative that students are exposed to these emerging technologies, along with their scientific, medical and ethical implications, during their training. These topics could be best covered during the third and fourth years in tutorial settings. Topics that would be covered would include the following:

Genome mapping. Emphasis on new findings resulting from continued analysis of the human and other genome sequences. *Microarray technology.* Introduction to the basic technology and interpretation of the resulting data. *Applications of microarray technologies.* Use of microarray-derived data for disease diagnosis and prognosis. *Pharmacogenomics.* Use of genomic technologies (including microarray analysis) for designing effective therapies (4). *Haplotype mapping.* Advances in the mapping of specific markers as risk factors for specific diseases. *Genome biology and Development.* (8) *Epigenomics.* Changes in gene expression that are not accompanied by changes in DNA sequence. These alterations, which result from chemical modifications of DNA and DNA-associated proteins are causally associated with many forms of cancer and probably other diseases (6). *Ethical implications of genomic data.* (2, 3)

Implementation.

The major changes proposed here can be summarized as follows:

1. Expansion of genetics lectures in year 1 to ensure that all students receive solid basic training in genetics.
2. Placing emphasis on genetic aspects of specific diseases throughout the student's training and providing continuity where concepts in year 1 are connected to specific diseases, and these diseases are revisited throughout the subsequent training.
3. Introduction of advanced tutorial-type lectures for senior students that emphasize the implications and applications of new and emerging technologies.

Although we recognize that these changes will provide additional burdens for faculty throughout the medical school curriculum, the importance of genetics and genomics in clinical training cannot be over-emphasized. As mentioned above, some of the changes described above are present in early drafts of a modified year one curriculum prepared by Dr. Little.

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Texas Tech University School of Medicine
Education Summit, May 13-14, 2004
Pre-Summit Theme Team: Geriatrics

Definition of Theme

CORE COMPETENCIES FOR THE CARE OF OLDER PATIENTS ¹

Resources Related to Curricular Initiatives

Geriatrics and Gerontology in Medical Education (brief progress reports on on-going geriatrics curricular activities). *Acad Med* 2002;77(9):933-938.

- Implementation of Geriatric Education into the First and Second Years of a Baccalaureate-MD Degree Program [Arnold et al., Senior Mentor Program, University of Missouri-Kansas City SOM]
- Senior Mentor Program: A Geriatrics Focused Curriculum [Thornhill et al., Senior Mentor Program, University of South Carolina SOM]
- Teaching Interdisciplinary Geriatrics Team Care [Williams et al., 1-month rotation in an interdisciplinary geriatrics clinic, University of Michigan Medical School.]
- A Model of Community-based Interdisciplinary Team Training in the Care of the Frail Elderly [Keough, et al., Program of All-inclusive Care of the Elderly (PACE) program in use at University of Massachusetts Medical School.]
- Palliative Care Module within a Required Geriatrics Clerkship: Taking Advantage of Existing Partnerships [Pan, et al., Palliative Care sessions at Mount Sinai SOM.]
- A Web-Based Geriatrics Portfolio to Document Medical Students' Learning Outcomes [Supiano et al., Web-based system to track acquisition and mastery of student learning at University of Michigan Medical School.]
- An Unfolding Case with a Linked OSCE: A Curriculum in Inpatient Geriatric Medicine [Karani et al., PBL case with linked OSCE in an in-patient geriatrics unit at Mount Sinai SOM.]

Alford CL, Miles T, Palmer R, Espino D. An Introduction to Geriatrics for First-Year Medical Students. *J Am Geriatr Soc* 2001;49:782-787. [University of Texas HSC assessment of student attitudes toward the elderly related to a senior professor program and series of 6 didactic lectures on geriatrics; the project showed improved student attitudes but little change in career aspirations.]

Barnard MA, McAuley WJ, Belzer JA, Neal KS. An Evaluation of a Low-Intensity Intervention to Introduce Medical Students to Healthy Older People. *J Am Geriatr Soc* 2003;51:419-423. [Oklahoma University College of Medicine project that paired medical students with a community-dwelling older person. The project demonstrated a positive effect on students' attitudes toward aging.]

Powers CS, Savidge MA, Allen RM, Cooper-Witt C. Implementing a Mandatory Geriatrics Clerkship. *J Am Geriatr Soc* 2002;50:369-373. [Discussion of the development of a 4-week MS3 clerkship experience at the University of Arkansas for the Medical Sciences. Evaluation suggested that students acquired

The overall goal of the geriatrics curriculum for medical students is to provide the foundation for competent, compassionate care of older patients.

ATTITUDES Students should	KNOWLEDGE <i>Students should acquire knowledge of</i>	SKILLS & YEAR 4 COMPETENCIES <i>Students should be able to</i>
<ul style="list-style-type: none"> • Be aware of the various myths and stereotypes related to older people • Recognize that ageism, like racism, affects all levels and aspects of society, including health professions, and can adversely affect optimal care of elderly patients • Recognize that “the elderly” are a diverse group with different personalities, different values, different functional levels, and different medical illnesses, and understand that each person needs to be cared for as an individual regardless of chronological age • Be open and willing to work with colleagues in other disciplines in caring for older patients 	<p>Basic Science</p> <ul style="list-style-type: none"> • The demography and epidemiology of aging, including the growth in numbers of older people and heterogeneity of the older population • Theories of aging, including biochemical/molecular, cellular, genetic, and biopsychosocial • “Normal” aging versus diseases at the molecular, cellular, tissue, and organism levels • Anatomic and histologic changes associated with aging • Pathology associated with normal aging & age-associated disease • The physiology of aging in various organ systems • Pharmacologic issues in aging and relevance to therapeutic decisions <p>Clinical</p> <ul style="list-style-type: none"> • Common geriatric syndromes and conditions, and have a basic understanding of risk factors, causes, signs, symptoms, differential diagnoses, initial diagnostic evaluations, and preventive strategies • Diseases and disorders that are more common to or that have particular features in older people; students should have at least broad knowledge of pathophysiology, presenting signs and symptoms, differential diagnoses, and initial diagnostic evaluations • The presenting signs and symptoms of and appropriate referral for psychosocial problems and issues common to elders • Disease prevention • Ethical issues in geriatric care • Health care financing • Cultural and ethnic aspects of aging, including health and disease perception and access to medical care 	<ul style="list-style-type: none"> • Perform the basic elements of geriatric assessment, including the standardized methods for assessing physical, cognitive, emotional, and social functioning as appropriate • Conduct screening examinations for mental status, geriatric depression, and functional status (including activities of daily living and instrumental activities of daily living) • Demonstrate physical diagnosis skills, including the ability to perform mobility and gait and balance assessments, recognizing normal versus abnormal signs of aging, and performing preoperative assessment • Interpret laboratory results and diagnostic procedures • Design and implement an appropriate,

sufficient cognitive knowledge to satisfactorily complete the clerkship, but did not highly value the experience.]

Report References

¹ The Education Committee Writing Group of the American Geriatrics Society. Core Competencies for the Care of Older Patients: Recommendations of the American Geriatrics Society. *Acad Med* 2000;75:252-255.

<ul style="list-style-type: none"> • Be aware of their attitudes about their own aging, disability, and deaths • Be compassionate toward those who provide day-to-day care for frail elderly and the difficulties they face • Appreciate the need for improving and optimizing older people's functioning rather than just focusing on disease 		<p>comprehensive management plan for the patient, including in those situations that require positive support for chronic, complex illness; chronic pain; permanent disability; death and dying</p> <ul style="list-style-type: none"> • Interact effectively with patients, caregivers, and health professionals in a manner that evidences appropriate sensitivity, concern, and compassion • Appropriately document orders, prescriptions, patient progress, new data, and changes in problems, diagnoses or treatment and management plans
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LCME Language Related to Geriatrics²

ED-13. Clinical instruction must cover all organ systems, and include the important aspects of preventive, acute, chronic, continuing, rehabilitative, and end-of-life care.

ED-17. Educational opportunities must be available in multidisciplinary content areas, such as emergency medicine and geriatrics, and in the disciplines that support general medical practice, such as diagnostic imaging and clinical pathology.

Geriatrics Content on the AAMC Medical School Graduation Questionnaire³

- I learned about the health care needs of healthy older adults during my medical training
- I am well prepared to care for older adult patients in acute settings
- I am well prepared to care for older adult patients in ambulatory settings
- I am well prepared to care for older adult patients in long-term health care settings
- I was exposed to expert geriatric care by the attending faculty of my medical program
- Geriatric/gerontology education was part of all four years of my medical education
- Small group exercises were used to increase by knowledge of geriatrics
- Interdisciplinary approaches were used to increase my knowledge of geriatrics

² Liaison Committee on Medical Education. Functions and Structure of a Medical School: Standards for Accreditation of Medical Education Programs Leading to the M.D. Degree. September 2003, available from www.lcme.org.

³ Association of American Medical Colleges. 2003 Medical School Graduation Questionnaire, available from www.aamc.org/data/gq/allschoolsreports/start.htm

- Based on my medical specialty experiences, I am planning additional training (special certificate) in geriatrics (Family Practice of Subspecialty Respondents only)
- Based on my medical school experiences, I am planning additional training (subspecial training) in geriatrics (Internal Medicine Respondents only)

2001 AGS Recommendations for Medical Education⁴

1. Gerontology and geriatric medicine should be integrated into the curriculum for each year of medical school, and clinical experiences in geriatrics should be required.
2. Residency and fellowship training programs that involve primary or consultative care of elderly patients should be required to have scheduled clinical and didactic experience in geriatrics. The full spectrum of healthcare should be utilized for training.
3. Future faculty responsible for geriatric education within family medicine, internal medicine, and psychiatry should have academic geriatric fellowship training that includes instruction in clinical care, teaching, research, and administration.
4. Formal recognition of expertise in geriatric medicine should be considered by all specialties that provide care to older adults.
5. Practicing physicians who provide substantial care to older adults should be strongly encouraged to gain continuing medical education in geriatrics.
6. Continued increased funding is needed for the support of medical student, residency and fellowship training programs in geriatric medicine. This must be available for training in acute inpatient, outpatient, and long-term care settings. Additional funding is necessary to support the development of geriatrics faculty and a sufficient number of faculty to direct clinical research and educational programs.

Cultural Competencies in Geriatric Care

The Ethnogeriatrics Committee of the AGS, in conjunction with the University of California Geriatric Resource Program, published in January 2004 a set of core competencies in multicultural geriatric care.⁵ Key details from that report:

- *Attitudes:* As a first step in cultural competency education, the student assesses his or her values and biases and those of the medical profession as a whole. Despite the importance of this exercise, it is not often a component of clinical training. Although self-assessment can be uncomfortable, providers in-training must appreciate their own beliefs before trying to understand and interact appropriately with the beliefs and values of others.
- *Knowledge:* Knowledge and data are available to inform care providers about culturally appropriate practices and to educate trainees on matters of cultural diversity in geriatric care. Such efforts can influence attitudes and help to improve healthcare outcomes.
- *Skills:* Trainees should be able to apply the concept of culturally appropriate respect and implement effective patient communication strategies.

Palliative Care in Medical Education

Selected “best pedagogical practices” regarding end-of-life care in medical education were proposed by Billings and Block:⁶

⁴ American Geriatrics Society Education Committee and Public Policy Advisory Group. Education in Geriatric Medicine. *J Am Geriatr Soc* 2001;49:223-224.

⁵ Xakellis G, Brangman SA, Hinton WL, Jones VY, Masterman D, Pan CX, Rivero J, Wallhagen M, Yeo G. Curricular Framework: Core Competencies in Multicultural Geriatric Care. *J Am Geriatr Soc* 2004;52(1):137-42.

⁶ Billings JA, Block S. Palliative care in undergraduate medical education: status report and future directions. *JAMA*. 1997;278:733-738.

- The care of dying persons and their families is a core professional task of physicians. Medical schools have a responsibility to prepare students to provide skilled, compassionate end-of-life care.
- The following key content areas related to end-of-life care must be appropriately addressed in undergraduate medical education:
 - Communicating effectively and humanely with the patient and family
 - Skillfully managing pain and other distressing symptoms
 - Providing accessible, comprehensive, high-quality home and hospice care
 - Eliciting and implementing patients' end-of-life care wishes, and appreciating the limitations of treatment in advanced disease
 - Understanding ethical issues and respecting patients' personal values
- Medical education should encourage students to develop positive feelings about dying patients and their families and about the role of the physician in terminal care.
- Enhanced teaching about death, dying, and bereavement should occur throughout the span of medical education.

Rationale For Theme

The Aging Population and Health Imperative

According to the Administration on Aging's (AoA) report "A Profile of Older Americans: 2002"⁷, persons aged 65 and older numbered 35 million in 2000 (the most recent year for which data are available), an increase of 12% over the previous decade, and represented 12.4% of the population. Since 1900, the percentage of older Americans more than tripled, and life expectancy increased almost 30 years over the course of 20th century. That growth in the older population, dramatic though it has been, will seem modest by the standards of the coming three decades. By 2030, the U.S. population of older persons will exceed 70 million, more than twice the most recent numbers, with the proportion of elderly reaching 20% of the population. Minority populations are projected to represent 25.4% of the elderly in 2030, up from 16.4% in 2000.

The AoA profile further reports that most older persons have at least one chronic health condition, and many have multiple conditions (most frequently reported to be arthritis, hypertension, hearing impairments, heart disease, cataracts, orthopedic impairments, sinusitis, and diabetes). The percentages of older people with disabilities increases sharply with age, such that almost 3 in 4 people aged 80 or older suffer from at least one disability. Older persons stay in the hospital about four times longer than younger people, and they spend 12.6% of their total expenditures on health, more than twice the amount spent by others (5.5%).

The Healthy People 2010 initiative—the nation's "prevention agenda"—is a series of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats.⁸ Almost all of the 28 objectives address health conditions endemic in the elderly (cancer, chronic kidney disease, diabetes, heart disease, poor nutrition, respiratory disease, poor vision and hearing, etc.) or programs and treatments that serve the elderly (rehabilitation services, community health promotion, vaccination programs, and so forth).

Clearly, as the elderly population increases, so will the numbers of chronic health conditions, disabilities, days spent in the hospital, and health-related expenditures. *Just as clearly, the need for physicians who are trained to provide effective care for the elderly will never be greater as it*

⁷ Administration on Aging. A Profile of Older Americans: 2002. U.S. Department of Health and Human Services, available from www.aoa.gov/prof/statistics/profile/14.asp.

⁸ Healthy People 2010. Understanding and Improving Health, available from www.healthypeople.gov.

will in the first half of the 21st century.

Encouraging Physician Training in Geriatrics

The need for gerontology and geriatrics training in medical education has not gone unnoticed. The Older Americans Act, signed into law on July 14, 1965, established the Administration on Aging within the Department of Health, Education and Welfare, and called for the creation of State Units on Aging. In 1974, the Older Americans Act Comprehensive Services Amendments established Area Agencies on Aging.⁹ Also in 1974, Congress granted authority to form the National Institute on Aging to provide leadership in aging research, training, health information dissemination, and other programs relevant to aging and older people.¹⁰ In 1983, the AAMC published a steering committee report on “Undergraduate medical education preparation for improved geriatric care,”¹¹ which grew out of an initiative sponsored by the National Institute on Aging and the Pew Charitable Trust.

To enhance physician training in response to this dramatic growth in the number of older Americans, the Reynolds Foundation initiated its Aging and Quality of Life Program in 1996, which has funded millions to academic health centers.¹² The American Geriatrics Society (AGS) Education Committee first published “Areas of Basic Competency for the Care of Older Patients for Medical and Osteopathic Schools” in 1998¹³, further detailed and distributed in a 2000 *Academic Medicine* article.¹⁴ In 2000, with support from the John A. Hartford Foundation, the AAMC awarded \$4.8 million to 40 medical schools to enhance their gerontology and geriatrics curriculum.¹⁵ The Texas Tech University School of Medicine was one of those AAMC/Hartford grantees, receiving \$120,000 in 2000-2002 to develop a 4-year geriatrics curricula.

⁹ Administration on Aging. Historical Evolution of Programs for Older Americans, available from www.aoa.gov/about/over/over_history.asp.

¹⁰ National Institute on Aging. History and Mission, available from www.nia.nih.gov/about/history.htm

¹¹ Undergraduate medical education preparation for improved geriatric care. Report of the Steering Committee. In: Proceedings of the Regional Institutes on Geriatrics and Medical Education. Washington DC: Association of American Medical Colleges, 1983:113-132.

¹² D.W. Reynolds Foundation. Aging and Quality of Life, available from www.dwreynolds.org/Programs/National/Aging/AboutAging.htm

¹³ American Geriatrics Society Education Committee. Areas of Basic Competency for the Care of Older Patients for Medical and Osteopathic Schools, available from www.americangeriatrics.org/products/positionpapers/competencyPF.shtml

¹⁴ American Geriatrics Society Education Committee Writing Group. Core Competencies for the Care of Older Patients: Recommendations of the American Geriatrics Society. *Acad Med* 2000;75:252-255.

¹⁵ Anderson MB, Sabharwal R. Geriatrics Instruction in the Medical School Curriculum. Association of American Medical Colleges, 2003;3(2), available from www.aamc.org.

<p>Template Institutions</p> <p>According to the AAMC, 57 medical schools have identifiable geriatric units,¹⁰ most of which are divisions within departments of Internal Medicine—a fourfold increase since 1982. Several schools have units at the departmental level, including those funded by and named for the D.W. Reynolds Foundation at Oklahoma University Health Sciences Center and the University of Arkansas for the Medical Sciences. The oldest department of geriatrics is the Brookdale Department of Geriatrics and Adult Development at Mount Sinai School of Medicine. The newest is at Florida State University. Indeed, FSU, the nation’s newest medical school and the first developed in two decades, has only five academic departments, one of which is Geriatrics (the others are Biomedical Sciences, Medical Humanities and Social Sciences, Clinical Sciences, and Family Medicine and Rural Health). The FSU College of Medicine has a legislative mandate to emphasize geriatrics throughout the four-year curriculum, taking an interdisciplinary approach to promoting wellness and treating disease in older patients.¹⁶</p> <p>Among the institutions recognized for their innovative and extensive geriatrics programs in medical education:</p>	<p><i>Mount Sinai School of Medicine</i>¹⁷</p> <ul style="list-style-type: none"> ▪ MSI Human Growth and Development course includes an introduction to geriatrics and lectures on demographics of an aging society, memory loss, palliative care, geriatric assessment, sexuality in the elderly, and the sociology, psychology and physiology of aging. Small group workshops feature six active older persons who share their wisdom and thoughts on aging to help medical students address their stereotypes about aging early in their medical careers. ▪ MSII Physical Diagnosis course includes three hours devoted to the history, physical exam, and functional assessment of the geriatric patient. Students have the opportunity to observe a geriatrician performing a complete history on an elderly patient, stressing areas pertinent to geriatrics. ▪ The geriatric student interest group for MSIs and MSII, which constitutes a student chapter of the American Geriatrics Society. ▪ MSIV required four-week geriatrics clerkship, where students are assigned to one of eight clinical sites. At all sites, students are exposed to the spectrum of geriatric care, including long-term, acute, outpatient, preventive, rehabilitation, and home care. Other clerkship components: <ul style="list-style-type: none"> ▪ Extensive education in Palliative Care the elderly, health promotion, and cognitive assessment. ▪ Decision-making and geriatric assessment. ▪ Didactic lectures, covering a broad range of subjects 	<p><i>University of Arkansas for the Medical Sciences</i>¹⁸</p> <ul style="list-style-type: none"> ▪ Required 4-week MSIII Geriatrics Clerkship: 1) to assist the student in developing a knowledge base in Geriatric Medicine with an emphasis on common geriatric syndromes and diseases as well as the normal aging process, and 2) to introduce the student to the interdisciplinary approach of comprehensive assessment, management, and prevention techniques in the elderly. The course exposes students to elderly patients in four of five different care settings: primary care outpatient clinics, transitional care unit, inpatient service, nursing homes, and hospice. Students are introduced to the continuum of care for elderly patients and the resources associated with each area. In addition, students attend both weekly didactic sessions and Geriatric Grand Rounds. Clerkship components: <ul style="list-style-type: none"> ▪ Six half-days per week in ambulatory clinics, where students see a wide variety of elderly patients with multiple chronic diseases and geriatric syndromes. ▪ Six half-days per week in either the VA Transitional Care Unit or the Geriatric Inpatient Service, where students observe common rehabilitative and restorative techniques used with elderly patients or atypical presentation of diseases in the elderly ▪ One half-day per week in a nursing home, learning issues of frailty, loss of independence, polypharmacy, chronic pain, & end-of-life decision making ▪ One half-day per week in hospice care, which
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¹⁶ Florida State University College of Medicine. Department of Geriatrics, available from med.fsu.edu/geriatrics.

¹⁷ Mount Sinai School of Medicine. The Brookdale Department of Geriatrics and Adult Development, available from www.mssm.edu/geriatrics

¹⁸ University of Arkansas for the Medical Sciences. Donald W. Reynolds Department of Geriatrics, available from www.geriatrics.uams.edu

	<ul style="list-style-type: none"> ▪ Four simulated patient cases. All students have two opportunities with simulated patients: one is to discuss advance directives and the health care proxy, the other is to practice "breaking bad news." Encounters between medical students and simulated patients are taped and monitored by physician preceptors, allowing for later discussion and review. 	<p>combines home visits to terminally ill patients and didactic sessions that focus on symptom relief and the importance of interdisciplinary healthcare teams.</p> <ul style="list-style-type: none"> ▪ An OSCE in the state-of-the-art Clinical Skills Center, where students interview and / or examine three standardized patients representing typical geriatric syndromes or problems. Each standardized patient encounter is followed by a computerized Post-Encounter examination consisting of 5 multiple-choice questions relating back to the patient case.
<p><i>The Johns Hopkins School of Medicine</i>¹⁹</p> <ul style="list-style-type: none"> ▪ Elective Clerkship in Geriatric Medicine designed to provide an in-depth exposure to geriatric medicine and gerontology. The student works closely with members of the faculty in the following programs: ▪ Geriatric Rehabilitation Unit: The student works as a subintern gaining first-hand experience in 	<p><i>University of California, Los Angeles, David Geffen School of Medicine</i>²⁰</p> <ul style="list-style-type: none"> ▪ The UCLA School Medicine uses a block-based curriculum designed to increase integration of normal human biology with disease processes and clinical skills from the first week onward. Basic science is taught in the context in which physicians use it clinically. Geriatrics is one of seven curricular themes that are woven into the 	<p><i>The RPS/AFAR Medical Student Geriatric Scholars Program (Harvard Medical School, Mount Sinai School of Medicine, University of California, Los Angeles School of Medicine, Weill Medical College of Cornell University)</i>²¹</p> <ul style="list-style-type: none"> ▪ The Medical Student Geriatric Scholars Program provides an eight- to twelve-week opportunity in clinical geriatrics and aging research. Medical Student Geriatric Scholars train at one of four

¹⁹ The Johns Hopkins School of Medicine, available from www.hopkinsmedicine.org/som

²⁰ University of California, Los Angeles. UCLA Center on Aging, available from www.aging.ucla.edu, www.geronet.med.ucla.edu, and www.ucop.edu/healthaffairs

²¹ American Federation for Aging Research. The RPS/AFAR Medical Student Geriatric Scholars Program, available from www.afar.org/medstu.html

<p>managing patients with multiple health problems. The value of a multi-disciplinary approach to geriatric medicine is emphasized.</p> <ul style="list-style-type: none"> ▪ Physician House Call Program: The student evaluates and follows a selected group of patients who are home-bound because of illness. ▪ Ambulatory Care: The student may elect to spend a portion of the time working with a member of the faculty in one of the division's primary care sites. ▪ Teaching Conference: The student participates in the weekly clinical geriatrics rounds and seminars attended by faculty members, fellows & housestaff. ▪ Research Seminars: The student may participate in the divisional research seminars which often include presentations by visiting professors. ▪ Research Elective in Geriatric Medicine and Gerontology. Electives are available providing participation in research projects utilizing molecular biology, cell biology, mechanisms of metastasis and clinical research tools to study type II diabetes, obesity, frailty, aphasia, dementia, osteoporosis, enteric infection and other areas of faculty research activity. ▪ The Sol Goldman Student Award in Geriatric Medicine. Income from this fund is to be used to support a student in the School of Medicine who is interested in the special health needs and issues of older adults. One or two awards of \$1,000 are given annually to outstanding students who successfully complete an elective in geriatric medicine. 	<p>fabric of each course (other themes are cultural competency, doctoring principles and skills, anatomy, genetics, gender-based health, and population medicine, informatics & clinical reasoning).</p> <ul style="list-style-type: none"> ▪ UCLA participates in the Academic Geriatric Resource Program, a major operational area supported by the Division of Health Affairs of the University of California system, as well as the interdisciplinary UCLA Center on Aging, which offers a number of Medical Education and Training programs 	<p>National Training Centers.</p> <ul style="list-style-type: none"> ▪ Following the scholarship, Scholars will participate in aging research and/or related activities under the supervision of their home institution faculty sponsors. Scholars receive training from top experts in geriatrics and/or gerontology and other disciplines such as physiology, molecular biology, neurology and epidemiology. In concert with this clinical and didactic training, scholars participate in research initiatives in basic, clinical or health services research relevant to the care of the elderly. ▪ Since 1994, 700 medical students from 80 medical schools have participated in the program. The Medical Student Geriatric Scholars Program provides a stimulating introduction to geriatrics research and clinical care, under the mentorship of top experts in geriatrics and related disciplines. This positive introduction has led many program scholars to pursue careers in geriatrics.
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Curriculum Sequence and Implementation Timeline

Current Geriatrics Experiences in the Texas Tech School of Medicine

- Year 1: *Foundations of Medical Practice* follows a life-cycle organization, with discussion of aging. A class includes a session with a healthy ager to help students establish positive attitudes toward and recognize patterns related to aging.
- Year 2: *Medical Pharmacology* includes a 2-hour session on Geriatric Pharmacology using Team Learning as the modality as taught by faculty from Family Medicine and Pharmacology. Cases were written as clinical chart information and the students were asked how they as Year 3 students would handle the case. *Introduction to Clinical Medicine* uses Team Learning sessions in geriatric medicine.
- Year 3 El Paso
 - *Internal Medicine Clerkship*: Medical students receive didactic exposure to geriatrics through lectures given by faculty in the department. These are varied topics but include certain geriatric syndromes such as falls, incontinence, dementia, drug interactions in the elderly, rheumatologic diseases in the elderly, geriatric assessment and physiology of aging.
 - *Family Medicine Clerkship*: Hartford geriatric case with discussion and conference sessions. Students receive a 1.5 hour interactive workshop on when to choose hospice with role playing the doctor/patient interaction of proposing hospice; students then spend a half-day in hospice with the interdisciplinary team and then making home visits. All students participate in nursing home with faculty and residents. They make home visits usually on geriatrics as they come up.
- Year 3 Lubbock *Family Medicine Clerkship*:
 - Paper case Review of Hartford Grant case with group discussion - 1 hr.; then in connection of this case, the students have a conference where they present the findings of an evidence based article answering a specific clinical question from the case - 3 hour conference.
 - Lecture on health maintenance in adults and elder adults - 1 hour
 - Nursing Home rounds with the residents - 3 hours, plus occasional afternoon experience at Garrison with Dr. Baker
 - Each student spends one afternoon with community hospice program - 1 hour lecture and 3 to 4 hours of direct home visits
 - Exposure to geriatric population as seen in our clinics and hospital service.
- Year 3 Amarillo *Family Medicine Clerkship*:
 - 30-minute lecture/case conference discussion with a faculty member on geriatrics in general, as well as another 30 minute session on End-of-Life issues.
 - Full day spent at BSA Hospice (inpatient for part of day and in patient homes with hospice nurses for the other part).
 - Half-day at the nursing home with one of faculty members.
 - Considerable exposure to geriatric patients in both the inpatient and outpatient settings.
 - Numerous other lecture topics which cover medical issues that are largely, although not exclusively, geriatric in nature.

Recommendations for Topics, Teaching Formats, and Evaluation

Area/Year	Recommendation	Timeline
Oversight	1. Establish an interdisciplinary and intra-campus faculty committee appointed by the Dean or as a subcommittee of the Educational Policy Committee to provide oversight for the SOM Geriatrics Curriculum. This committee would meet quarterly to review curriculum activities related to geriatrics education, recruit interested faculty to participate in teaching activities, serve as liaisons to residency programs on each campus, and participate in evaluation efforts.	July 2004
Student Affairs	2. Establish and fund a Geriatrics Interest Group for MSI and MSII students in Lubbock; this group would meet regularly for guest speakers, panel discussions, community experiences, and so forth.	Spring 2005
Faculty Affairs	3. Provide extensive faculty development in geriatrics teaching processes and content, including guest speakers, interactive training sessions, journal club and grand round sessions. 4. Conduct faculty recruitment to ensure the presence of board certified geriatricians on each campus.	Fall 2004 Fall 2005
MS Year 1	5. Conduct a 2-year Senior Mentor program that matches MSIs with a healthy ager in the community, coordinated through <i>Foundations</i> Course; students meet at least twice per year with the mentor. Provide enhanced content related to geriatrics in <i>Anatomy, Biochemistry, Neuroscience & Physiology</i> courses.	July 2004
MS Year II	6. Continue the Senior Mentor program, coordinated through <i>Skills for Patient Assessment</i> . Continue geriatrics modules through TL in ICM. Provide enhanced content related to geriatrics in <i>Assessing Medical Evidence, Introduction to Psychiatry, Microbiology, Pathology, Pharmacology</i> courses.	July 2005 Spring 2005
MS Year III	7. Use geriatrics PBL or TL cases in <i>Family Medicine, Internal Medicine, Psychiatry</i> , and <i>OB/Gyn</i> clerkships to expose students to decision-making and other issues. Include an elderly patients in OSCE experience in Family Medicine & SOM required activity.	July 2005
MS Year IV	8. Incorporate additional geriatrics content into Neurology clerkship and the Ambulatory Care Selective to provide additional emphasis on dementia, depression and movement disorders 9. Offer a Geriatrics Elective from among a menu of choices for course emphasis and study locations.	July 2005 July 2005

Bibliography/References

Pre-Summit II Curriculum Theme Team Report
Theme: Medical Informatics/Evidence Based Medicine

Part I prepared by R. S. Marcus, MD with the assistance of D. A. Galvan, MD. Part II prepared by J. Rice, MLS, D.A. and Galvan, MD with the assistance of M. Vugrin, MSLS, R. Marcus, MD, and B. Nelson, MD.

April 21, 2004

Introduction: Medical informatics and evidence based medicine (EBM) have been recognized by leaders in medical education as necessary core competencies in medical school curricula. Many institutions are beginning to integrate both of them into all four years. Because EBM relies greatly on information technology for data collection, analysis, and retrieval, it has been combined with medical informatics into a single curriculum theme. The first part of this report presents the medical informatics considerations. The second part presents the information on evidence based medicine.

Part I - Medical Informatics

Definition of Theme

Medical informatics has been defined by the Medical Informatics Advisory Panel of the AAMC as “the rapidly developing scientific field that deals with resources, devices and formalized methods for optimizing the storage, retrieval and management of biomedical information for problem solving and decision making.” In the panel’s report it states that medical informatics “should be a central feature of the medical curriculum.” Their argument is based on the following premise: “To support health care, life-long learning, education, research and management, medical students should be able, at the time of graduation, to utilize biomedical information for: formulating problems; arriving at strategies for solutions; collecting, critiquing and analyzing information; taking action based on findings; and communicating and documenting these processes and the results.”

Core components of this theme were also well defined by the AAMC panel. The panel differentiated the components in terms of roles and offered a list of objectives that are pertinent to the roles. The roles include:

- Life-long Learner
- Clinician
- Educator/Communicator
- Researcher
- Manager

The objectives include those relating to knowledge (e.g. the knowledge of the search engines and bibliographic databases that are available on the Internet), skills (e.g. the ability to use an electronic patient record system), attitudes (e.g. being skeptical about the quality and validity of information), and behaviors (e.g. respecting the confidentiality of patients). The complete list of objectives can be found in the AAMC panel’s report entitled *Contemporary Issues in Medicine: Medical Informatics and Population Health – Medical School Objectives Project*. Please see the Internet citation below.¹

Rationale for Theme:

The basis for this curriculum theme is solid. Covvey et al present a succinct argument for the necessity of integrating medical informatics into the medical school curriculum. “Information is the currency of healthcare. Clinicians capture, process, and store information about particular patients and search for information to facilitate care. Clinical research is an effort to link

healthcare activities with the results they produce. Consequently, it is essential that practicing clinicians be familiar and proficient with existing information tools.”²

The Medical Education Summit of October 2002 clearly recognized the need to expand and enhance our use of information technology in curriculum management, communication, and evaluation. The participants acknowledged the inexorable advance of computer applications in patient care documentation and workflow. Most medical academicians are now familiar with the Institute of Medicine’s report on medical errors and with the IOM’s call for the use of information technology to assist in reducing errors.³ Many faculty members are also aware of the recognition by the federal government and the private medical establishment that electronic medical records can improve patient safety. Several prominent medical schools have already implemented a vertically integrated medical informatics piece into their curricula. Our present effort to redesign our curriculum provides us with an ideal opportunity to do the same.

Curriculum Sequence and Implementation Timeline:

At this time, given that the actual design of the new curriculum at Texas Tech is as yet unknown, it would be difficult to propose a detailed list of objectives and place them in the proper sequence with respect to the rest of the curriculum. However, several guiding principles might be considered:

- The AAMC panel, as well as other experts, has emphasized the need to train students as users of technology rather than to teach the science of medical informatics. The informatics curriculum should be “designed to merge imperceptibly with the curriculum of the medical school.”⁴
- The core information must be reinforced throughout the four year undergraduate program.
- The assessment of informatics competence “needs to be frequent and handled as a routine part of the student evaluation of any course”⁵
- All members of the faculty need to “buy into” the concept of embedding informatics into all aspects and all years of the curriculum.
- Opportunities for faculty development in medical informatics should be provided to assure competency of the faculty in this area
- The infrastructure must be robust enough to allow implementation of the informatics piece throughout the institution.
- Computer literacy skills should be assessed early in the first year. Deficiencies in skills should be addressed at that time.
- Students should play a role in the design of the curriculum, considering that they tend to have much expertise in the use of computers.

The basic topics commonly included in medical informatics curricula include:

- General computer literacy
- Computer-based communications
- Finding, storing, and using biomedical data, information, and resources
- Computer-based learning
- Patient care and clinical information management
- Evidence-based medicine
- Research

- Intellectual property and copyright
- Security and privacy

These basic topics and the objectives from the AAMC panel's report (see above) can serve as a framework for future informatics curriculum development.

Teaching formats used at other institutions include lectures, small group sessions, computer lab sessions, and self-instruction. We may use these methods as well as develop other innovative techniques.

Outcome assessment methods may include written exams, oral exams, "open-computer" exams, and OSCEs. The objectives as listed in the AAMC panel report may serve as a basis for these assessments. For example, students may be tested in an open-computer exam on how well they can search for literature on a topic. They may also be asked to prepare an effective PowerPoint presentation. Another assessment method could be the addition of a section on clinical evaluation forms assessing student use of medical informatics during rotations.

The AAMC panel suggested a two-step phase-in of medical informatics into a medical school curriculum. It begins with an initial strategy involving a categorical course in medical informatics and culminates in the embedding of informatics instruction in all courses. Initially the informatics specialists would teach the courses. Ultimately, all of the faculty would participate. The panel acknowledged that a revision of a school's entire curriculum provides an opportunity to incorporate medical informatics instruction into all levels. We envision bypassing the initial phase at Texas Tech. The more advanced systems and programs available today (compared to 1998 when the panel issued its report) enable us to be more bold in our implementation. The final implementation schedule will depend upon the plans for the implementation of the entire medical school curriculum.

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Part II - Evidence-Based Medicine

What is EBM?

Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values.

-By best research evidence we mean clinically relevant research, often from the basic sciences of medicine, but especially from patient-centered clinical research.

-By clinical expertise we mean the ability to use our clinical skills and past experience to rapidly identify each patient's unique health state and diagnosis, their individual risks and benefits of potential interventions, and their personal values and expectations

-By patient values we mean the unique preferences, concerns and expectations each patient brings to a clinical encounter and which must be integrated into clinical decisions if they are to serve the patient.

-Sackett, et al

What does this mean?

It means finding the latest systematic reviews (where rigorous appraisal of the literature has already been performed) on diseases and treatments that impact our patients. This information can then be used to optimize treatment decisions and patient management. EBM also involves critically and statistically analyzing journal literature using the proper methodology (i.e., diagnosis, prognosis, treatment, harm) in order to determine whether the information is valid and applicable to one's patient. Finally, one must take this knowledge to the wards, the operating suite and the family conference room and be able to explain how this latest research can better improve the health and quality of life for the patient.

How is it done?

There is a process that must be taught by librarians and clinicians in order to successfully practice EBM. It begins with formulating an appropriate, answerable clinical question. There must be an understanding of the databases available, as well as an optimum search strategy formulation. Library resources must be used to locate adequate references. Students must be taught the skills to critically assess the literature taking into consideration the complexities of study design and methodology. Finally, one must be able to integrate the evidence with professional experiences, communicate it to the patient and, in a shared decision-making fashion, apply the lessons learned to maximize the patients' health and well-being.

Haven't we been doing this?

EBM was never supposed to be an "academic elitist catch phrase." This process has been employed for years in journal clubs, morning report and morbidity / mortality conferences. There were always leaders and mentors at the cutting edge of the literature who were able to analyze the data and assess its relevance to the clinical discussion at hand. However, this process was never formalized nor properly addressed in our medical school or postgraduate training. It is only under the guidance of educators at Canada's McMaster University, Oxford University and the University of Rochester that teaching of EBM came into vogue. By extension, the process of scientifically identifying and appraising literature, followed by its integration into patient care, became known as Evidence-Based Medicine.

Has EBM proven to have better outcomes than "standard practice"?

EBM is not meant to replace, but to augment standard practice. It is an answer to our need for a more formalized process of evidence retrieval, synthesis and application as we strive to meet the demands of insurance-driven managed-care practices and the insatiable needs of patients for consumer health information. To practice medicine without the use of best-evidence would be counter-intuitive.

Does it help our students become better physicians?

Medicine has become far too complicated for physicians to make treatment decisions without a systematic review of evidence. Therefore, many physicians rely on practice

guidelines and additional decision-making support tools that are based on principles of evidence to assist with their decision-making process. (Roberts)
An EBM curriculum would provide students with the skills and knowledge to become life-long, self-directed learners and discerning analysts of the literature who are able to translate that information so as to optimize patient care and, hopefully, improve outcomes. Additionally, EBM is a process that can help fill the knowledge gap that begins the moment our students graduate from medical school.

Why do we need a change in our curriculum vis-à-vis EBM?

In the 2001 Institute of Medicine report Crossing the Quality Chasm: A New Health System for the 21st Century the overarching vision was that:

All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches and informatics.

Additionally, EBM meets the following TTUHSC institutional specific objectives:

- A. Knowledge – The student will demonstrate an exemplary and contemporary fund of knowledge in basic and clinical sciences essential to the practice of medicine, to also include the analytical tools for data collection, quantitative analysis, critical reading and investigation, and evidence-based medicine and their application to the clinical care of patients.
- B. Skills – The student will demonstrate excellence in patient care, including the ability to utilize varied methods of self-directed learning and information technology to acquire information in the basic and clinical sciences needed for patient care.
- C. Behaviors – The student will model the professional behaviors of a skilled and competent physician, including patient care based on evidence, skilled clinical reasoning and the current state of medical art and science.
- D. Attitudes – The student's attitude will exemplify the highest ethical standards, including commitment to life-long learning as a hallmark of professional excellence throughout a physician's career.

In order for TTUHSC-SOM to become a 21st century school these goals must be embraced, nurtured and brought to fruition for the sake of our students and the well-being of our patients.

Is EBM a “theme” or a “curriculum”?

To be taught intensively and effectively, EBM needs to be incorporated as a mandatory part of the MS1 curriculum. We would recommend that an EBM seminar series span the entire MS1 year, which would give time for comprehensive instruction in research skills, biostatistics, epidemiology and the complex skills required for critical analysis of the literature. By MS2, and carrying on into the clerkships in MS3 and MS4, EBM could become a “theme”: an idea that is integrated into the basic science courses and the clerkships so as to create a redundancy and reinforcement of the material in order to improve use and retention.

How do we change our curriculum?

In the current curricular structure of TTUHSC-SOM, EBM is only introduced and taught sporadically. To be truly effective, an EBM curriculum needs to be incorporated and practiced with its scope and intensity being progressive and with planned repetition throughout the four year curriculum. There needs to be an expectation by all faculty that an evidence-based approach will be the foundation of basic science education, physician-student interactions, case reports, ward discussions and daily communications. Only by designing an innovative curriculum and

incorporating an EBM culture will TTUHSC-SOM students learn to synthesize this approach into their daily clinical practice.

Is there improved collaborative teaching through EBM?

In an integrated curriculum, EBM will be taught and practiced in all courses from the basic science classroom through advanced clerkships. In this environment, collaboration between departments will be crucial in order to maintain continuity, sequencing and planned redundancy of EBM skills. Active involvement of the non-traditional medical faculty (librarians, epidemiologists, statisticians, etc.), at all levels of instruction as teachers and evaluators, is critical to the successful implementation of an EBM curriculum. We need to identify regional teams to help coordinate and direct campus EBM activities and to serve as mentors. From these regional teams we can draw on experienced and enthusiastic individuals who can serve as EBM directors in the first and second years – teaching, coordinating, assisting medical students and evaluating the process, effectiveness and retention of our EBM objectives. This would stimulate participation of all campuses in the education of first and second year students.

How does EBM impact contemporary pedagogies?

It is through EBM and its empowering of medical students that they are able to transform from fact-learners to self-directed, independent learners. A creative EBM curriculum facilitates the use of contemporary pedagogies (problem-based learning, case-based learning, small group exercises and team learning). As we move from the first year curriculum through the fourth, learning environments would go from large-group formats (MSI-II) to small-groups (MSIII) and, finally, to individualized learning (MSIV).

How will we change our curriculum?

Approaches to teaching EBM in medical education vary widely. One can consider four theoretical levels of EBM instruction in U.S. schools of medical education (as outlined by Dr. P. Keckley, Director of the Vanderbilt Center for EBM):

	Level I Minimal Emphasis	Level II Minor- Moderate Emphasis	Level III Strong Emphasis	Level IV Progressive, Innovative Emphasis
Strategy	-Traditional & historical -No EBM emphasis	-Recognition of need for EBM -Variable support from course directors. and faculty - Provide knowledge management tools	-Initiatives by deans and course directors, to give students tools for life long learning -The student is both a learner and evaluator of scientific knowledge	-Comprehensive and progressive -Enthusiasm from administration, chairs and course directors. -Doctor as an EBM collaborator
Teaching and instructors	-Statisticians - Epidemiologists	-Informatics -Primary care clinicians	-Multidisciplinary approach to teaching -Clinical instruction from those with EBM expertise -Informatics, public health support	-Novel collaborative teaching approaches -Clinicians, nurses, payors, public health specialists, patient advocates
Curriculum	-Population-based -Public health and prevention -Epidemiology & biostatistics	-Applications population-based knowledge to clinical decisions	-Problem based ideas -Emphasized in both preclinical and clinical years -Parental approach to physicians role	-Continuous and dynamic -Built on different stages of learning at different levels of education -Market forces and collaborative care
Technology	-Not emphasized	-Info. Management tools -Literature searching -Online resources	-Wireless innovations- -Online platforms for learning -IT as a teaching component of EBM	-Technology integral -Technology enables EBM -Student M.D. has ready access to IT

TTUHSC-SOM is currently at level I and should strive to achieve level III throughout our system and as we become more adept at it level IV will become within reach.

How do we define our course objectives and what is the suggested vertical and horizontal EBM curriculum?

The course objectives are adapted from those proposed by Indiana University. The suggested curriculum is specific to the TTUHSC-SOM curriculum. Competencies and measures for the curriculum need to be elaborated by committee members.

COURSE OBJECTIVES	SUGGESTED CURRICULUM	COMPETENCIES/ OUTCOMES	METHOD OF MEASURING COMPETENCY/OUTCOME
<p>MS I: The MS I student will meet the criteria for lifelong learning by exhibiting the following skills within the context of a structured setting, such as a medical school course: framing a question, utilizing modern information searching modalities, organizing data, compiling and using information.</p>	<p><i>Yearlong seminar in EBM directed by the inter-campus EBM team</i></p> <ul style="list-style-type: none"> ➤ Introductory lecture: What is EBM, defining a clinical question ➤ Fundamentals of database searching and use of library databases ➤ Finding Library resources ➤ EBM and Critical appraisal of internet resources ➤ Critical appraisal of the literature (methodology and relevant biostatistics) ➤ CAT (Critically Appraised Topics) summaries ➤ Epidemiology ➤ Biostatistics ➤ Guidelines and best practices ➤ Practical clinical applications of EBM ➤ Communicating EBM decisions with patients ➤ Bioinformatics ➤ Computerized decision support systems 	<p>[We have ideas about what competencies should be included but would like committee input.]</p>	<p>[We have ideas about what competencies should be included but would like committee input. This would include formative and summative evaluations, small-group presentations, self-assessments, etc.]</p>
	<p><i>Anatomy:</i> Application of EBM principles to an appropriate course-related question.</p>		
	<p><i>Biochemistry:</i> Application of EBM principles to an appropriate course-related question.</p>		
	<p><i>Found. for Medical Practice:</i> Application of EBM principles to an appropriate course-related</p>		

	question.		
	<i>Histology & Cell Biology:</i> Application of EBM principles to an appropriate course-related question.		
	<i>Neuroscience:</i> Application of EBM principles to an appropriate course-related question.		
	<i>Physiology:</i> Application of EBM principles to an appropriate course-related question.		
MSII: There will be reinforcement and redundancy of the EBM skills learned in MSI, with application of these principles to the basic science curriculum, as well as its introduction into the basic clinical experience.	<i>EBM Strategies Seminar directed by the inter-campus EBM team:</i> ➤ Advanced research strategies ➤ Critical analysis ➤ Biostatistics ➤ Epidemiology		
	<i>Integration and Analysis:</i> Application of EBM principles to an appropriate course-related question.		
	<i>Intro to Clinical Medicine:</i> Application of EBM principles to an appropriate course-related question.		
	<i>Intro to Psychiatry:</i> Application of EBM principles to an appropriate course-related question.		
	<i>Microbiology:</i> Application of EBM principles to an appropriate course-related question.		
	<i>Pathology:</i> Application of EBM principles to an appropriate course-related question.		
	<i>Pharmacology:</i> Application of EBM principles to an appropriate course-related question.		
	<i>Skills in Patient Assessment:</i> Application of EBM principles to an appropriate course-related question.		
	MS III: The MSIII student will demonstrate general competency in the skills	<i>Internal Medicine:</i> Each student will be responsible for <i>at least one</i> clinical question that applies to a patient on the service, compiling the research and	

<p>indicative of lifelong learning development listed above. The student will have demonstrated the ability to identify and analyze relevant scientific and medical literature and to apply acquired knowledge effectively. The student will have reinforcement of the previously learned principles of biostatistics, epidemiology and library research strategies.</p>	<p>critical analysis which should lead to a presentation appropriate for the department (e.g. morning rounds, weekly reports, student research forum, M&M conference, etc.). Seminars in biostatistics, epidemiology and library research strategies will be directed by the campus EBM team.</p>		
	<p><i>Psychiatry:</i> Each student will be responsible for <i>at least one</i> clinical question that applies to a patient on the service, compiling the research and critical analysis which should lead to a presentation appropriate for the department (e.g. morning rounds, weekly reports, student research forum, M&M conference, etc.). Seminars in biostatistics, epidemiology and library research strategies will be directed by the campus EBM team.</p>		
	<p><i>Surgery:</i> Each student will be responsible for <i>at least one</i> clinical question that applies to a patient on the service, compiling the research and critical analysis which should lead to a presentation appropriate for the department (e.g. morning rounds, weekly reports, student research forum, M&M conference, etc.). Seminars in biostatistics, epidemiology and library research strategies will be directed by the campus EBM team.</p>		
	<p><i>Ob/Gyn:</i> Each student will be responsible for <i>at least one</i> clinical question that applies to a patient on the service, compiling the research and critical analysis which should lead to a presentation</p>		

	<p>appropriate for the department (e.g. morning rounds, weekly reports, student research forum, M&M conference, etc.). Seminars in biostatistics, epidemiology and library research strategies will be directed by the campus EBM team.</p>		
	<p><i>Family Medicine:</i> Each student will be responsible for <i>at least one</i> clinical question that applies to a patient on the service, compiling the research and critical analysis which should lead to a presentation appropriate for the department (e.g. morning rounds, weekly reports, student research forum, M&M conference, etc.). Seminars in biostatistics, epidemiology and library research strategies will be directed by the campus EBM team.</p>		
<p>MS IV: The MSIV student demonstrates a high enthusiasm for learning and actively pursues learning opportunities. He/she exhibits a proficiency in the above skills in the clinical setting. The MSIV student should also be proficient in the ability to identify and analyze important scientific and medical literature, asking all the relevant questions, recognizing potential shortfalls, identifying</p>	<p><i>In all 4th year rotations and/or electives:</i></p> <ul style="list-style-type: none"> ➤ Each student will be responsible for <i>at least one clinically-oriented research</i> project and critical analysis leading to a presentation appropriate to the department (e.g. morning rounds, weekly reports, student research forum, M&M conference, etc.). 		
	<p>In-depth Research project addressing clinical question in the area of post-graduate education.</p>		

<p>strategies for solutions, critically reviewing all options and strategies, and implementing correction through further study. The student should be knowledgeable about searching for information from multiple sources and from remote sites. He/she should reflect an active commitment to the pursuit of knowledge and ability to organize and integrate information as demonstrated by evidence of multiple independent research and learning efforts at increasingly complex levels. The MSIV should be able to integrate advanced physical diagnosis with basic science and evidence-based research and apply these skills to clinical activity.</p>			
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How do we engage faculty and begin the process of faculty development?

First we identify those “champions” of EBM within our system and allow them to define and implement those changes in infrastructure (curriculum, hours spent teaching EBM, how it is taught and evaluation of the EBM program) that will be necessary to change the underlying culture of the school. Then we take those “champions” and use them to educate others within the system at intra- and intercampus meetings. Visiting professors from Level III and IV schools (as documented by Keckley) could mentor and provide guidance to the faculty. Finally, we begin the process of learning, teaching and practicing EBM on a daily basis.

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Nutrition Science Theme

Taskforce Members: Kathy Chauncey, PhD, RD, Fam Med-Lub, *Chair*; Misty Evans, MD, Int Med-Amarillo, *Co-Chair*; Tamis Bright, MD, Int Med-El Paso; Carol Felton, MD, ObGyn-Lub; John Griswold, MD, Surg-Lub; Kim Peck, MD, Fam Med-Lub; John Pelley, PhD, CBB-Lub; Barbara Pence, PhD, Assoc. Dean Research-Lub

- **Definition of Theme:** identify its core components in terms of knowledge, skills, attitudes, behaviors, and Year 4 exit competencies

The goals of the nutrition science curriculum for medical students are to demonstrate the vital role of nutrition for optimal human health and disease prevention; to equip medical students to provide proper nutritional therapies; and to appreciate the cost effectiveness of nutrition as a medical intervention. The interdisciplinary clinically related nature of the nutritional sciences is an asset in the shift of emphasis in medical education to interdisciplinary teaching in a clinically relevant format.

ATTITUDES <i>Students should</i>	KNOWLEDGE <i>Students should acquire knowledge of</i>	SKILLS & YEAR 4 COMPETENCIES <i>Students should be able to</i>
<ul style="list-style-type: none"> • Recognize that nutrition, physical activity, and health lifestyle behaviors can have direct, substantial, and long-term effects on growth and development, health maintenance, and disease prevention and treatment. • Demonstrate a commitment to interact with patients in a culturally competent manner that appropriately acknowledges the unique characteristics and nutritional needs of each individual. • Recognize the importance of using a multi-disciplinary team approach in nutrition health care. • Recognize how personal, environmental, and social factors interact and impact on eating behaviors and overall nutrition. • Demonstrate sensitivity to biomedical and nutritional changes as well as psychological, social, and ethical issues that affect patient care. 	<p>Basic Science</p> <ul style="list-style-type: none"> • Define a fuel; name the 3 classes of fuels in the human diet. Distinguish among the classes according to their structural features and caloric content. • Describe crucial variation in the patterns of exogenous and endogenous fuel utilization among tissues. • Explain the concept of fuel homeostasis and use this concept to explain the changes of blood glucose, fatty acids and amino acid levels that occur in response to variations in timing, quantity, and type of dietary fuel intake and to variations in the intensity or duration of physical exercise. • Define calorie, basal metabolic rate, respiratory quotient, and daily energy expenditure, and describe how these values are measured or calculated. Explain how each of these values is related to physical exercise, caloric balance, weight gain or loss, and the rate of fuel metabolism. • Define nitrogen balance and explain how it is affected by dietary intake and growth. • Outline the pathways for synthesis and degradation of cholesterol, and explain the 	<ul style="list-style-type: none"> • Evaluate a patient's diet and current nutritional status based on accepted food guides. • Identify individuals who require medical nutritional therapy and lifestyle modification. • Effectively communicate with patients in a culturally competent manner to provide accurate nutritional information and dispel misinformation. • Take an appropriate patient medical history, including family, social, nutritional/dietary, physical activity, and weight histories; use of prescription medicines, over-the-counter medicines, dietary and herbal supplements; and consumption of alcohol and recreational drugs. • Conduct an appropriate physical examination, including anthropometrics, evaluation of growth and development and signs

<ul style="list-style-type: none"> • Recognize the importance of patient autonomy and shared decision making in the nutritional management of patients. • Serve as positive role model for patients regarding nutrition and healthy lifestyles. • Recognize the importance of attention to nutritional management to enhance a patient's quality of life. • Be involved in public health initiatives that promote community health regarding nutrition and physical activity. 	<p>mechanisms that regulate these pathways in response to cholesterol intake, saturated fat, and other dietary components.</p> <p>Clinical</p> <ul style="list-style-type: none"> • Distinguish among the classes of lipoproteins involved in cholesterol and lipid transport in the blood, and explain how different genetic and dietary factors influence lipoprotein concentrations and composition. • Distinguish between the two types of dietary fiber, and explain the potential contributions of fiber to health maintenance. • Define Recommended Dietary Allowance (RDA), Dietary Reference Intake (DRI), Adequate Intake (AI), Estimated Average Requirement (EAR); and Upper Limit (UL); explain how these values are established for different age groups; and identify the population groups to which they apply. • Using the US Dietary Guidelines and the revised Food Guide Pyramid, describe the general characteristics of a healthy diet, including the recommended contribution of various food groups, good common sources of individual nutrients, foods to be consumed in limited amounts, and the carbohydrate: fat: protein distribution. • Identify types of individuals, populations or communities at risk for specific or general dietary vitamin and mineral deficiencies or imbalances as a result of genetic, environmental, or socio-cultural influences. • Access the most accurate current general and disease-specific nutritional information and recommendations. • Describe the changes in nutritional requirements that occur with aging and development. 	<p>of nutritional deficiency or excess.</p> <ul style="list-style-type: none"> • Select and interpret the results of screening measures, laboratory tests, and diagnostic procedures appropriate to assess and manage a patient's nutrition. • Integrate nutritional assessment information into an individualized nutritional management and physical activity plan for optimal health, risk factor reduction and common medical problems. • Effectively counsel patients to make informed nutritional decisions consistent with adopting and maintaining a healthy lifestyle and with establishing appropriate dietary, exercise and behavioral goals. • Employ effective counseling techniques matched to the patient's level of motivation and readiness for change, encouraging the use of goal setting, identification of barriers, problem solving, self-monitoring, self-reinforcement, and stimulus control.
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- **Rational for Theme:** identify in 1-2 paragraphs why this theme is important and sources related to the importance of this theme for our School (for example, Institute of Medicine reports or EPC decision), including brief discussion of similar efforts at “template” schools such as Northwestern, Univ of Rochester, and Harvard.

“Template Schools”

Mercer School of Medicine

University of Kansas School of Medicine

UCLA School of Medicine

University of North Carolina School of Medicine

Content of the current curriculum – February 22, 2000

Topics of nutrition content are being taught in the following areas

Family Medicine -	10 hours (8 on Lubbock campus only)
Pathology -	6 hours
Pharmacology -	2 hours
Internal Medicine -	1 hour
Preventive Medicine -	1 hours
TOTAL	20 hours

The subcommittee realizes that instruction in many medical and surgical departments may include information regarding the effect of diet or specific nutrients on disease. However, at this time it is not possible to identify these areas or to assume that nutrition objectives are being taught in a consistent manner as part of the curriculum.

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The most compelling reason for including practical nutrition education in medical school teaching and postgraduate courses for practicing physicians is the worldwide epidemic of obesity that is affecting both pediatric and adult populations. Excessive weight gain resulting in metabolic syndrome is associated with major diseases affecting the general health of Americans such as type 2 diabetes, cardiovascular disease, hypertension and various malignancies such as breast and colon cancer.

Nutrition is an important component in preventing major causes of diseases that commonly affect Americans today, that is, hypertension, diabetes, cardiovascular disease and cancer. Yet an in-depth analysis of the role of nutrition medical school and postgraduate education of physicians has reported a large deficit in practical nutrition knowledge in medical care today. Several studies conducted by prestigious medical groups such as the National Academy of Sciences (NAS), the Association of American Medical Colleges (AAMC) and the American Medical Association (AMA) have strongly recommended that nutrition education be expanded within the medical school curriculum and included in residency training programs. The National Heart, Lung and Blood Institute (NHLBI) developed a Nutrition Academic Award (NAA) Program in 1997 to “support the development and enhancement of nutrition curricula for medical students, residents and practicing physicians to learn principles and practice skills in nutrition.” This program, cosponsored by the National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK), has now funded 21 medical schools for a 5 year period to pursue this goal.

A subcommittee of the Educational Policy Committee reviewed the Texas Tech medical school curriculum for nutrition content and filed the following report in 2000.

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Several organizations including the American Society of Clinical Nutrition, the American Medical Student Organization, and the National Academy of Science have published recommendations for medical curricula, which include a minimum recommended number of 25 hours of nutrition education. Our identified 20 hours for students on the Lubbock campus and only 12 hours for those on the El Paso or Amarillo campuses, falls short of the recommended minimum. In addition, the lack of coordination regarding the progression of topics over the curriculum does not guarantee that recommended concepts are routinely covered.

The National Board of Medical Examiners includes nutrition-related content in 10 to 15% of questions asked on the U.S. Medical Licensing Examination. Experience indicates that a large percentage of those questions concern deficiency diseases. The subcommittee feels that the current curriculum adequately covers the topics of deficiency diseases through lecture, textbook readings, and handout materials. The group feels that a broader understanding of diet in prevention and treatment of chronic disease, as well as the impact of therapeutic diets on disease is necessary for preparation of a well-informed physician. Therefore, the USMLE should be a guide for only a portion of the nutrition objectives included in the TTUSOM curriculum.

In a 1999 recent survey of fourth-year students graduating from TTUSOM, over 75% of respondents felt that the nutrition education provided during the four years was not adequate and that they would like to see more nutrition information added to the curriculum.

Assessment and comparison of TTUSOM with other medical schools is difficult since there is such wide variation in the quantity, quality, and funding of nutrition programs. This committee believes that nutrition education at TTUSOM is below the minimum recommendations. However, the committee believes that TTUSOM is in a position to improve the effectiveness of nutrition education within the existing curriculum and perhaps offer a leadership role for other medical schools struggling with the same problem.

Since the report to the EPC in 2000 there has been a modest increase in nutrition education at Texas Tech School of Medicine in the following courses: Foundations for Medical Practice, Assessing Medical Evidence, Skills in Patient Assessment, and the Integration and Analysis course. However, there is still no organized integration of the nutrition science subject matter throughout the curriculum.

The following “Template Schools” have a well-developed integrated nutrition curriculum available for online review. In addition, these schools as well as others have published the development and performance of their nutrition curriculum. This provides Texas Tech with a variety of information to utilize in building the nutrition curriculum that is ideal for our school and region. Kansas University Medical Center has examined their curriculum according to the nutrition academic award goals and has provided their spreadsheet for our guidance and use.

Mercer School of Medicine
UCLA School of Medicine

University of North Carolina School of Medicine
University of Kansas School of Medicine

In addition the curriculum and innovative teaching strategies being made available by the 21 NAA medical schools will expedite the integration and strengthening of nutrition science education in our curriculum. Also, for the first time in 2003, the United States Medical Licensing Exam Step I contained a nutrition subscore. This will allow the comparison of Texas Tech students to other medical schools as well as the comparison to other subscored areas in our school such as biochemistry and anatomy.

Certainly the increased availability of nutrition teaching materials and curriculum strategies along with our current curriculum redesign being led by Dean Bickley and the EPC is providing a unique "window of opportunity" that was unavailable in the year 2000. Texas Tech School of Medicine is fortunate to have a cadre of faculty with interest and expertise in the nutritional sciences willing to educate medical students when provided with the appropriate teaching environment.

Nutrition is an important component in preventing major causes of diseases that commonly affect Americans today, that is, hypertension, diabetes, cardiovascular disease and cancer. Yet an in-depth analysis of the role of nutrition medical school and postgraduate education of physicians has reported a large deficit in practical nutrition knowledge in medical care today. Several studies conducted by prestigious medical groups such as the National Academy of Sciences (NAS), the Association of American Medical Colleges (AAMC) and the American Medical Association (AMA) have strongly recommended that nutrition education be expanded within the medical school curriculum and included in residency training programs. The National Heart, Lung and Blood Institute (NHLBI) developed a Nutrition Academic Award (NAA) Program in 1997 to "support the development and enhancement of nutrition curricula for medical students, residents and practicing physicians to learn principles and practice skills in nutrition." This program, cosponsored by the National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK), has now funded 21 medical schools for a 5 year period to pursue this goal.

The most compelling reason for including practical nutrition education in medical school teaching and postgraduate courses for practicing physicians is the worldwide epidemic of obesity that is affecting both pediatric and adult populations. Excessive weight gain resulting in metabolic syndrome is associated with major diseases affecting the general health of Americans such as type 2 diabetes, cardiovascular disease, hypertension and various malignancies such as breast and colon cancer.

- **Curriculum Sequence and Implementation Timeline:** identify topics, teaching formats, competencies, and outcome measures for each year of the curriculum, and suggested 1-5 year timeline for phase-in and implementation

The Nutrition Science Theme Group is fortunate that a Nutrition Curriculum Guide has been developed by the NAA medical schools and. Also, relevant online information is available at: www.nhlbi.nih.gov/funding/training/naa. This curriculum lists content areas and learning objectives written for knowledge, practice behavior skills, and attitudes. This guide allows curriculum areas relevant to nutrition to be rapidly identified. This curriculumThese materials is provided with this report and will be made available atutilized in the medical education summit to integrateintegrating nutrition science into the curriculum at Texas Tech School of Medicine. The following timeline/strategyapproach is suggested:

Year 1

1. Appoint a Nutrition Science Theme Manager with protected time to facilitate the introduction of nutrition into the curriculum. Identify areas in the current curriculum where nutrition can be included or enhanced.
2. Empower a taskforce to work with the Theme Manager to plan logical and progressive nutrition objectives to be incorporated longitudinally in the redesigned curriculum. Supply course and clerkship directors with the objectives, teaching tools, and evaluation for the identified areas.
3. Identify nutrition education “champions” in all four years of the curriculum and on all regional campuses.
3. Provide course and clerkship directors with the curriculum so they can rapidly identify those areas relevant to their course or clerkship.
4. Monitor the effectiveness of the nutrition education in these areas.

Year 2

1. Identify areas in the curriculum where nutrition can be introduced.
2. Develop PBL cases, web-based assignments and other active learning experiences in nutrition for all four years. Supply course and clerkship directors with teaching materials.
3. Incorporate measurable nutrition practice skills in the clinical skills exam for medical students.
3. Provide faculty development to strengthen nutrition education where needed.
4. Monitor the effectiveness of the nutrition education in these areas.
5. Pursue grant funding for development of instructional and technological materials.

Year 3

1. Plan faculty development to strengthen nutrition education where needed.
2. Monitor improvements in nutrition education on the USMLE Step I exam..
2. Develop ongoing evaluations of nutrition knowledge and attitudes of students and appropriateness of curricular objectives.

Year 4

1. Continue and expand clinical applications in the third and fourth years.
2. Integrate medical students into nutrition seminars and research.

- **Bibliography/References:** provide 1 page of sources of curricular materials for this theme

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Population Health Theme in the Curriculum Redesign
Report to Renaissance II Medical Education Summit
April 21, 2004

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I. DEFINITION OF THEME: A range of conditions & factors that determine health, or lack thereof, and the complex interactions that exist among such factors, to be addressed in TTUHSC's Medical Curriculum. Faculty will teach, in each year's syllabus, a group of facts & concepts that allow students to learn how to measure, critique, and positively influence the health of populations over the entire "life course". Clinical preceptors will use evidence-based decisions at every opportunity to identify strategies and priorities which will enable students to improve the health of all populations they serve.

Recommendation 1. The committee recommends as core competencies in population health nearly all of those proposed by the Healthy People Curriculum Task Force of the Association of Academic Health Centers and the Association of Teachers of Preventive Medicine in "Clinical Prevention and Population Health Curriculum"; exception: Communicating Health Information with the Public. One member felt that competencies in "Communicating Health Information with the Public" should be included.

The recommended core competencies include the following broad concepts (list of specific competencies is at Appendix A):

- A. Evidence Base for Practice
 - 1. Epidemiology and Biostatistics
 - 2. Methods for Evaluating Health Research Literature
 - 3. Measuring Health & Health Care Outcomes, including Quality & Costs
 - 4. Health Surveillance
 - 5. Determinants of Health

- B. Clinical Preventive Services - Health Promotion
 - 1. Screening
 - 2. Counseling
 - 3. Immunization
 - 4. Chemoprevention

- C. Health Systems and Health Policy
 - 1. Organization of Clinical Care and Public Health Systems
 - 2. Health Services Financing
 - 3. Health Workforce (Composition and Regulation)
 - 4. Public Policy Process

- D. Community Aspects of Practice
 - 1. Occupational and Environmental Health
 - 2. International (Global) Health Issues
 - 3. Cultural Dimensions of Practice
 - 4. Ancillary Community Services; crisis hot-lines, poison control centers, family services, food banks, prosthetics, disaster preparedness,

bioterrorism, weapons of mass destruction, the physicians role in emergency response systems, etc.

II. RATIONALE FOR THEME: Most experts agree that the reform of healthcare in the future will emphasize the importance of promoting health and preventing disease as crucial elements for the more efficient use of health care resources to reduce inequities among population subgroups. Preventive services are the most cost effective measures to improve the health of populations. In the 21st century, as researchers, health providers, and policymakers continue to search for evidence-based, cost-effective ways to further enhance the length and quality of life, disease prevention and health promotion will receive ever-growing emphasis (11). Physicians of the 21st century must have a thorough understanding of health promotion, disease prevention, and population health.

III. CURRICULUM SEQUENCE:

Recommendation 2.

a. The committee recommends that the core competencies in “Evidence base for practice” be taught in the first two years; that the core competencies in “Clinical preventive services” and “Health promotion” be taught during the third year clinical clerkships in family medicine, internal medicine, obstetrics/gynecology, and pediatrics, using common clinical problems; and that the core competencies in “Health systems and health policy” be taught in the fourth year using case-based and other methods. Core competencies in “Community aspects of practice” will be taught throughout the four year curriculum. To the maximum extent possible, facts and concepts taught in the first two years must be integrated (reinforced) in Years 3 & 4.

b. The committee recommends that the fourth year curriculum topics (core competencies in “Health systems and health policy” and “Community aspects of practice”) be taught using an internet-based model of about eight two-hour modules.

c. The committee recommends that concepts of disaster preparedness, recognition and treatment of common agents of biologic and chemical warfare, and the physician’s role in emergency response efforts, be taught throughout the four year curriculum.

d. The committee recommends that each regional campus have two or more faculty preceptors that would coordinate the population health curriculum taught during the third-year clerkships at that campus, coordinate the fourth year internet-based course at that campus, and be a student resource in the area of population health for that regional campus.

e. The committee recommends that prior to graduation, each student successfully pass an internet-based examination in population health that would be developed by Texas Tech SOM faculty.

IV. IMPLEMENTATION:

Recommendation 3. The committee recommends that the following steps and resources be developed by Texas Tech SOM in order to implement the teaching of population health. A suggested time of implementation is included in parenthesis for each point:

a. development of the specific modules for the fourth year internet-based course (2007);

b. development of the bank of test questions for the internet-based examination (2007);

c. identification and support of faculty at each regional campus who would coordinate the teaching of population health in the third-year clinical clerkships, and act as preceptors for the fourth-year course (2006);
d. development of a teaching syllabus and other resources for faculty identified as population health preceptors at the regional campuses (2006);
e. identify and support one or two senior faculty members who would coordinate population health activities (teaching, research, and administration) across the four years and across the regional campuses (2005).

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- APPENDIX A - CORE COMPETENCIES IN POPULATION HEALTH [recommended by the Healthy People Curriculum Task Force of the Association of Academic Health Centers and the Association of Teachers of Preventive Medicine]

Evidence Base for Practice

1. Epidemiology and Biostatistics

For example:

- Types of data, e.g., nominal, continuous, qualitative
- Rates of disease, e.g., incidence, prevalence and case-fatality
- Concepts of “causation”; spectrum of both preventive & risk factors
- Statistical concepts, e.g., estimation (relative risk, odds ratio, and number-needed-to-treat or number-needed-to-harm), statistical significance/confidence intervals, adjustment for confounding variables
- Diagnostic probabilities; sensitivity, specificity, predictive values, & likelihood ratios

2. Methods for Evaluating Health Research Literature

For example:

- Study designs, e.g., surveys, observational studies, randomized clinical trials
- Critique studies about: preventive interventions, diagnosis, screening, prognosis, cost effectiveness, “causation”, health determinants, access to care, outbreak investigation, decision analysis, therapy, etc.
- Quality measures, e.g., validity, accuracy, reproducibility, biases
- Sampling and statistical power

3. Measuring Outcomes including Quality and Costs

For example:

- Measures of mortality, e.g., infant mortality rates, life-expectancy
- Measures that include quality of life/utility, e.g., QALYs, DALE, etc.
- Measures that include cost, e.g., cost-effectiveness, incremental cost-effectiveness
- Measures of quality of health care, e.g., HEDIS

4. Health Surveillance

For example:

- Vital statistics/legal documents, e.g., birth certificates, death certificates
- Disease surveillance, e.g., passive surveillance (reportable disease), active surveillance for epidemics and bioterrorism
- Biologic, environmental, genetic, social, and behavioral risk factors

5. Determinants of Health

For example:

- Burden of illness, e.g., distribution of morbidity and mortality by age, gender, race, socioeconomic status, and geography
- Contributors to morbidity and mortality, e.g., genetic, behavioral, socioeconomic, environmental, health care (access and quality)

Clinical Preventive Services - Health Promotion

1. Screening

For example:

- Strategies for testing and screening, e.g., range of normal, sensitivity, specificity, predictive value
- Criteria for successful screening, e.g., effectiveness, safety, cost, patient acceptance
- Evidence-based recommendations

2. Counseling

For example:

- Strategies for behavioral change, e.g., education, motivation, obligation
- Clinician-patient communication, e.g., patient participation in decision making, informed consent, risk communication
- Criteria for successful counseling, e.g., effectiveness, safety, cost, patient acceptance
- Evidence-based recommendations

3. Immunization

For example:

- Strategies for vaccination, e.g., live vs. inactivated vaccine, pre- vs. post-exposure, boosters, herd immunity
- Criteria for successful immunization, e.g., safety, effectiveness, cost, patient acceptance
- Evidence-based recommendations

4. Chemoprevention

For example:

- Strategies for chemoprevention, e.g., pre- vs. post-exposure, time-limited vs. long term
- Criteria for successful chemoprevention, e.g., safety, efficacy, cost, patient acceptance
- Evidence-based recommendations

Health Systems and Health Policy

1. Organization of Clinical and Public Health Systems

For example:

- Clinical Health Services, e.g., continuum of care – hospital, ambulatory, home, long-term care (assisted-living), hospice, etc.
- Public Health Roles: assessment, policy development and assurance
- Relationships between clinical practice and public health

2. Health Services Financing

For example:

- Clinical Services Coverage and Reimbursement, e.g., Medicare, Medicaid, employment-based, the uninsured
- Financing of health care institution, e.g., hospitals, long-term care, community health centers
- Financing of public health services
- Other models, e.g., international comparisons

3. Health Workforce

For example:

- Regulation of health professions and health care, e.g., certification, licensure, institutional accreditation
- Discipline-specific history, philosophy, roles and responsibilities
- Relations of discipline to other health professionals
- Legal and ethical responsibilities of health care professionals, e.g., malpractice, federal regulations such as HIPAA

4. Public Policy Process

For example:

- Process of making health policy, e.g., local, state, federal governments
- Methods for participation in the policy process, e.g., advocacy, advisory processes

Community Aspects of Practice

1. Communicating Health Information with the Public

For example:

- Assessing community needs/strengths and options for intervention, e.g., Community-Oriented Primary Care
- Media communications, e.g., benefits and drawbacks of using mass media
- Evaluating health information, e.g., websites, mass media, patient information

2. Occupational and Environmental Health

For example:

- Risks from employment and environmental exposures
- Methods for evidence-based control of environmental and occupational exposures
- Exposure and evidence-based prevention in health care settings

3. Global Health Issues

For example:

- Roles of international organizations, e.g., WHO, UNAIDS, NGOs
- Disease and population patterns in other countries, e.g., burden of disease, population growth, health, and development
- Effects of globalization on health, e.g., emerging and reemerging diseases/ environmental conditions

4. Cultural Dimensions of Practice

For example:

- Culture: Its influence on clinicians' delivery of health services
- Culture: Its influence on individuals/communities, e.g., health status, health service
- Culturally competent health care

5. Community Services

For example:

- Facilitating access to and partnerships for health care
- Evidence-based recommendations for community preventive services

Definition of Theme

The challenge to American Medical education is how best to teach “professionalism”. How should it be defined? How can this be taught? The Medical Profession has dedicated itself to combining mind and spirit in search of the knowledge, skills and wisdom which bring healing, comfort and relief to mankind. Society has bestowed upon members of the Medical Profession great esteem, respect, and power. This relationship can be used to accomplish many good things for patients and society. Bearing this in mind “...medical professionalism consists of those behaviors by which we—as physicians demonstrate that we are worthy of the trust bestowed upon us by our patients and the public...”¹ The American Board of Internal Medicine in *Project Professionalism* discussed the importance of focusing on the value and assessment of the human qualities of: integrity, respect, and compassion. Although there are many other components, the core values of professionalism in Medicine are: altruism, accountability, excellence, duty, service, honor, integrity, and respect for others.² Integral to the practice of professionalism skills is communication. While good communication is taken for granted, it is a skill that needs to be developed.

The Liaison Committee for Medical Education in its “Function and Structure of a Medical School” defines and describes professional communication in the following paragraph:

“There must be specific instruction in communication skills as they relate to physician responsibilities, including communication with patients, families, colleagues, and other health professionals. The curriculum must prepare students for their role in addressing the medical consequences of common societal problems, for example, providing instruction in the diagnosis, prevention, appropriate reporting, and treatment of violence and abuse. The faculty and students must demonstrate an understanding of the manner in which people of diverse cultures and belief systems perceive health and illness and respond to various symptoms, diseases, and treatments. Medical students must learn to recognize and appropriately address gender and cultural biases in themselves and others, and in the process of health care delivery. A medical school must teach medical ethics and human values, and require its students to exhibit scrupulous ethical principles in caring for patients, and in relating to patients' families and to others involved in patient care.”³

Rationale for Theme

In this light, Texas Tech University School of Medicine is committed to the highest standard of education for its students. The educational process should instill in the medical student the responsibility to be responsive to the health needs of the individual patient as well as society. The faculty is committed to the timely and accurate dissemination of knowledge to benefit the health and welfare of patients. There are specific behaviors particular to medical professionalism that will be taught and modeled by mentors. Patients have the right to expect that physicians will do right and avoid doing wrong. By serving as the patient's advocate, physicians may need to subordinate their own interests. Acting in a professional manner is not always easy. At times there may be conflicts of interest. One of the essential and inescapable virtues is duty. Physicians have a duty to behave in a moral and ethical manner. As the practice of medicine is a human endeavor, necessarily human qualities are required for the effective practice of this profession.

These values are: honesty, integrity, caring and compassion, altruism, empathy, respect for self and others, and trustworthiness. Believing and practicing these values leads to respect and autonomy. To maintain the privilege of autonomy, society expects physician accountability for themselves and their colleagues. Collegiality and meaningful peer evaluation are necessary to ensure high medical standards and demonstrate accountability.

Another important part of professionalism is the commitment to life-long learning. Texas Tech University School of Medicine will foster in its medical students the commitment to excellence that is internally focused to provide the best up-to-date care possible to patients. This involves a commitment to continued scholarship and to advancing the field of medicine. As medicine becomes more complex, the physician must be able to critically reflect upon problem solving skills as a way of improving decision-making. Without the internal desire to do this, no improvement of clinical practice is likely to occur.

Further complicating today's practice of medicine are legal issues affecting both physician and patient. Understanding the relationship between ethics and the law is of utmost importance. As there will be conflicts, knowing how to make appropriate decisions is part of being a professional. Just as important is knowing why a decision is right.

One of the best descriptions of a professional comes from *The American Journal of Medicine*⁴:

“ I knew a doctor once who was honest, but gentle with his honesty, and was loving, but careful with his love, who was disciplined without being rigid, and right without the stain of arrogance, who was self-questioning without self doubt, introspective and reflective and in the same moment, decisive, who was strong, hard, adamant, but all those things laced with tenderness and understanding, a doctor who worshipped his calling without worshiping himself, who was busy beyond belief, but who had time-time to smile, to chat, to touch the shoulder and take the hand, and who had time enough for Death as well as Life....Now there was a professional.”

¹ Swick, Herbert. Toward a Normative Definition of Medical Professionalism. *Academic Medicine* 2000;75:612-616

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**Recommendations from the Pre-Summit
Professionalism-Communication Theme Team April 16, 2004**

The importance of teaching the precepts of Professionalism and the art of Communication can not be over-stated. While there are many opportunities in which students are exposed to professional behavior, there are also missed opportunities that can be salvaged. After many committee meetings and discussions about possible curriculum re-design, the members of the committee would like to make some recommendations.

1. One way to impress upon the medical students the values of Professionalism and Communication are to make the Medical Student Orientation mandatory (required for graduation). The importance given to what it means to be a professional will be emphasized at this time.
2. Another defining moment in the education of medical students is a required "Capstone" during the fourth year that will not only summarize principles and concepts, but will allow the students to discuss their experiences during their training.
3. There needs to be added emphasis on the values of Professionalism in which each faculty member can show what professionalism means by example.
4. While there are many toxic factors today that have caused a deterioration of professionalism in Medicine, these can be addressed by Faculty Development. Unless the faculty "buy-in" to the reasons to practice professionalism, then the students will either miss opportunities to learn or at the worst may learn unprofessional behavior.
5. Each rotation should have at least one lecture on professionalism or ethics in that specialty. Addressing these topics further emphasizes how these values and principles are applicable across disciplines.
6. The consistent contribution of mentors during the entire four years of training can not be over-emphasized. The availability of mentors can serve as a sounding-board for medical students especially during times of conflicting messages.
7. The systematic evaluation of Professionalism and Communication skills must be made every step of the way during the entire four year curriculum of medical school. The faculty must be taught how to use a tool that will not have any variation of values.
8. A "Capstone" at the end of the curriculum is essential to complement the medical student experience for what it means to be professional. This opportunity should be mandatory for all fourth year students, perhaps in March, when all have returned to the campus.

PROPOSED PROFESSIONALISM-COMMUNICATION CURRICULUM

**April
17, 2004**

YEAR ONE

MSI Orientation (MANDATORY)

- Curriculum:
 - Professional Code explained and discussed
 - Students meet in small groups as assigned for Foundations Course
- Activities:
 - In small group settings, students discuss ideas of professionalism and write professionalism oath for the class
 - White Coat Ceremony at conclusion of Orientation; oath is recited

Foundations for Medical Practice (course covers fall and spring semesters) – 6 credit hours

- Curriculum:
 - History of the profession (2 hours)
 - Professionalism & Communication (2 hours)
 - End of life issues (2 hours)
 - Ethical issues (2 hours)
 - Legal issues
 - Relating to other health care professionals (2 hours)
 - Spirituality and Medicine (4 hours)
- Activities:
 - Lecture
 - Panel discussions
 - Small group discussions
 - Shadowing
 - Individual meetings with faculty mentors
 - Written assignments
- Assessment:
 - Students are assessed on professional behavior by small group leaders

YEAR TWO

Skills in Patient Assessment (course covers fall and spring semesters) – 4 credit hours

- Curriculum:
 - Physical exam and history taking
 - Communication Workshops
- Activities:
 - Individual meetings with faculty mentors
 - Shadowing
 - Small group discussions
- Assessment:
 - Students are assessed on professional behavior by small group leaders

YEAR THREE

Third Year Lecture Series (2 hours per month during year) - for credit

- Curriculum:
 - Ethics and Professionalism (8 hours)
 - Practice Management (8 hours)
 - Career Planning (8 hours)

- Activities:
 - Lecture
 - Small group exercises
 - Group discussions
- Assessment:
 - Role-playing
 - Small group sessions
 - Student simulated patient interactions
 - Agenda –led outcome based feedback
 - OSCE's to asses skills in communication & History taking

Junior Clerkships

- Curriculum:
 - Family Medicine, Internal Medicine, Surgery, Pediatrics, Psychiatry, OB/Gyn Clerkships
- Activities:
 - Inpatient and Outpatient clinical responsibilities
 - Didactic lectures
 - Rounds
 - Ethics Roundtable
- Assessment:
 - Student Clinician's Ceremony
 - Students are evaluated on clinical skills and professional behavior by faculty during each clerkship (Assessment tool attached)
 - These professionalism assessments are instrumental in constructing the students' Medical Student Performance Evaluation (MSPE – better known as the Dean's letter).

YEAR FOUR

- Curriculum:
 - Required clinical rotations
 - Electives
 - Career planning
 - Capstone (Reinforcement of Ethics & Professionalism)
- Activities:
 - Clinical responsibilities
 - Lecture
 - Group discussion
 - Individual meetings with mentors
- Assessment:
 - Students are evaluated on clinical skills and professional behavior by faculty

MISCELLANEOUS

Medical Ethics and Humanities Group – membership is open to all interested medical students & Faculty. Quarterly Seminars open to entire Health Science Center

PROPOSED ADDITIONAL IMPROVEMENTS

- Make MSI Orientation mandatory. This will help reinforce to the students the idea that the orientation activities are valued by the school and its faculty and are integral to the training of physicians.
- Expand the discussion of professionalism during orientation by creating a Professionalism Day in the schedule. Include panel discussions by faculty, basic science researchers, medical students, and others.
- Schedule professionalism components of the Foundations course at the beginning of the course, so there is continuity from the orientation activities that focus on the subject.
- Increase awareness and understanding of professionalism and ethical issues in faculty, residents, and staff by a series of workshops. This will help create a culture of professionalism within the institution.
- Expand teaching tools in the settings that already exist (Foundations, SPA, MS III lecture series) to include role-playing, group projects, and more case studies.
- Create an elective called **“Working with Professionals”** for 4th year students that provides exposure to other health care professionals. Students can spend time with physical therapists, respiratory therapists, clinical lab scientists, social workers, etc. to gain an understanding of their roles. This exposure should result in a respect for the skills and knowledge of other members of the health care team and foster professionalism and collegiality in the way student physicians interact with other professionals.

Professionalism and Communication Assessment Form

please circle the

number that corresponds to your assessment of the student's behavior in each category

PROMPTNESS / RELIABILITY

1	consistently late - patients, colleagues, or other physicians kept waiting	2	routinely punctual - uses time effectively	3	too early - wastes time waiting for others to be "on time"
---	--	---	--	---	--

RESPONSIBILITY / DEPENDABILITY

1	complete lack of accountability - actively avoids responsibility and seeks easy tasks	2	has team or patient care as clear priority, but can balance own life appropriately	3	so obsessed with performance that other aspects of his/her life are damaged
---	---	---	--	---	---

RESPECT FOR OTHERS / TEAMWORK

1	actively disrespectful of patients or coworkers	2	very respectful of others - even the downtrodden and abused or abusive	3	so respectful of others that little or no self-respect exists
---	---	---	--	---	---

HUMILITY

1	arrogant toward everyone, especially subordinates; clearly has superior attitude	2	understands his/her privileged position, but unpretentious	3	so humble as to appear meek - undermining confidence
---	--	---	--	---	--

ALTRUISM

1	concern for self supercedes concern for others in nearly all situations	2	perfect balance between concern for self and concern for others	3	concern for others supercedes concern for self in nearly all situations to detriment of own well-being
---	---	---	---	---	--

COMPASSION / EMPATHY

1	total lack of compassion for others - at times "heartless"	2	truly empathetic toward others - sensitive and perceptive	3	unduly empathetic resulting in inability to be objective
---	--	---	---	---	--

COMMITMENT TO COMPETENCE AND EXCELLENCE

1	low standards of achievement - strives to just pass	2	always seeking additional knowledge and skills - lofty goals toward perfection	3	driven to excellence to detriment of self and family
---	---	---	--	---	--

SELF ASSESSMENT / ASSESSMENT OF OTHERS

1	utterly lacks insight - poor judge of others' abilities - consistently overrates own performance	2	assesses own and others' performance with objectivity and accuracy	3	has a self opinion which grossly underrates their talent and skills
---	--	---	--	---	---

ACCOUNTABILITY / CONFIDENTIALITY

1	cannot be fully trusted with duties or confidential information about patients - publicly discusses patients by name	2	can be relied on to carry out duties and be trusted with confidential information - reminds others of same	3	goes overboard in policing everyone
---	--	---	--	---	-------------------------------------

RESPECT FOR PATIENTS' AUTONOMY AND BELIEFS / TOLERANCE

1	has outright bias against persons with differing beliefs or cultures	2	extremely tolerant of others - tries to be nonjudgmental	3	so tolerant of others as to have no personally held strong beliefs
---	--	---	--	---	--

SENSITIVITY TO PATIENTS' AND SOCIETAL NEEDS

1	totally oblivious of the needs of others	2	a true patient advocate - helps patients with health care system when possible - actively seeks societal and public health changes	3	gets so involved politically to detriment of patient, family, and colleague needs
---	--	---	--	---	---

PREPARATION FOR LEARNING ACTIVITIES

1	totally unprepared for assignments	2	well-prepared for activities, knows answers to questions at level evident of advance preparation	3	spends inordinate time in preparation for assignments to detriment of self and family
---	------------------------------------	---	--	---	---

PATIENT COMMUNICATION / LISTENING SKILLS

1	inadequate verbal and nonverbal communication skills to effectively communicate with patients	2	listens actively to patient, restates for understanding	3	passively listens - the patient controls time/pace of interview completely
---	---	---	---	---	--

adapted from AAMC

Year 1 Integration

Clinical Anatomy of the Human Body

Structure and Function of Cells and Tissues

Structure and Properties of Cellular Macromolecules

Nucleic Acids

Structure of Purines and Pyrimidines the Building

Blocks of Nucleic Acids

The Structure of Nucleic Acids

DNA Structure

Single and Double Stranded DNA

Stabilizing Forces

Supercoiling

RNA

Proteins

Chemistry of Amino Acids

Principles of Protein Structure and Folding

Proteins as Catalysts (Introduction to Enzymology)

Kinetics

Reaction Mechanisms

Regulatory Properties

Structural and Regulatory Proteins

Ligand Binding

Self-Assembly

Providing Energy to Sustain Cellular Functions

Introduction to Thermodynamics

High Energy Phosphate & the Concept of Coupled Reactions

Conversion of Biological Fuels to Acetate

Glycolysis and the Oxidation of Pyruvate

Oxidation of Fatty Acids

Ketogenesis

Metabolism of Ketogenic Amino Acids

The Oxidation of Acetate (The TCA Cycle)

Capturing the Energy of Burning Hydrogen (Electron Transport & Oxidative Phosphorylation)

An Alternative Route for the Oxidation of Glucose (The Pentose Phosphate Pathway)

Energy Storage

Glycogen

Fat

Production, Recycling and Disposal of Cellular Constituents

Carbohydrates

Lipids

Dyslipidemias

Carnitine Deficiency

Adreogenital Syndrome

Amino Acids

Purines and Pyrimidines

Proteins

Production of Messenger RNA

Enzymatic reactions

RNA degradation

Regulation of transcription

Cis-regulatory elements

Transcription factors

Enhancers

Promoters

Silencers
Repressants

RNA processing
Defects in transcription and RNA processing
Translation of Messenger RNA
The genetic code
Structure and function of tRNA
Structure and Function of Ribosomes
Protein synthesis
Regulation of translation
Post-translational Events

Phosphorylation
Addition of carbohydrate
Protein Folding
Protein Trafficking

Defects in translation and protein structure
Protein Degradation

Cell Architecture and the Boundaries Between Cells
Structure and Composition of membranes
The Cytoskeleton
Composition and Structure
Cell Movement
Intracellular Transport
Organelles
Endoplasmic Reticulum
Golgi Complex
Mitochondria
Lysosome, Peroxysome, Endosome
Centriole, Microtubule
Ribosomes, Polysomes
Inclusions, Vacuoles
Cytoplasm
Nucleus
Chromatin
Nucleolus
Nuclear Envelope
Nuclear Matrix
Cell Interfaces
Surface Specialization
Intercellular Junctions
Gap Junctions
Desmosomes
The Extracellular matrix
Fibroglycans
Hydrators
Proteoglycans
Fibronectins
Ground Substance
Nexins
Adhesion Molecules
Annexins
Turnover of Matrix Components and Associated
Diseases
Movement of Materials Into and Out of Cells
Ion Channels
Pumps
Active Transport Facilitated Diffusion

Pinocytosis
Secretion
Exocytosis
Endocytosis
Production of New Cells (The Cell Cycle)
Structure and Replication of the Genetic Material
Chromosomes
Centromere
Telomere
DNA replication
Mutation
DNA repair
Recombination, insertion sequences, transposons
Mechanisms of Genetic Exchange
Transformation
Transduction
Conjugation
Cross-over
Recombination
Linkage
di- and trinucleotide repeats
Mitosis
Meiosis
Structure and regulation of the mitotic spindle
Control of cell division
Organization of Cells Into Tissues and Tissue Responses to Disease
Structural and Functional Characteristics of Endothelium, Epithelium and Mesothelium
Cartilage
Epithelium
Connective Tissue
Bone
Muscle
Structure and Regulation of Contractile Elements
Excitation-Contraction Coupling
Ryanodine Receptors
Causes of Injury
Ischemia and Reperfusion
Oxygen Radicals
Free Radicals
Excitotoxic Amino Acids
Inflammation
Acute inflammation
Vasoconstriction
Vasodilation
Hyperemia
Transudation
Edema
Cell-derived Mediators
Plasma Factors
Arachidonic Acid Metabolites
Lysosomal Enzymes
Reactive Oxygen Metabolites
Chronic Inflammation
Fibrosis
Systemic Manifestations
Fever

Leukocytosis
Leukemoid reaction
Chills

Repair and Regeneration

Reparative processes

Extracellular matrix

Collagen

Basement membranes

Elastic fibers

Fibronectin

Proteoglycans

Factor VIII (antihemolytic factor)

Fibrin

Wound and Injury healing

Hemorrhage

Clot formation active fibroblasts

Phagocytosis

Granulation tissue

Angiogenesis

Scar formation

Cell migration mechanisms

Regenerative processes

Adaptation to Chronic Injury

Cell Death (apoptosis)

Genetics and its Application to Human Disease

Analysis of DNA

Sequencing

Restriction Analysis

PCR amplification

Hybridization

Human Genome Expression

Transcription of DNA into RNA

Recombinant DNA Technology

Plasmids and bacteriophages

DNA Diagnostics

Cell Growth and Cancer

Genetic Diseases & Gene Therapy

Gene Analysis

Pedigree Analysis

Genetic Markers

Linkage Analysis

Gene Mapping

Sequential Expression

Population Genetics

Hardy-Weinberg Law

Founder Effects

Mutation-Selection Equilibrium

Chromosomal Abnormalities

Translocations

Deletions

Duplications including Nucleotide Repeats and Inversions

Missense

Nonsense

Imprinting and Mosaicism (eg Prader-Willi Syndrome)

Single Gene Defects

Homozygosity, Heterozygosity

Autosomal Dominant

Autosomal Recessive
X-linked
Phenotypic Variation

Pleiotropy
Variable Expression
Delayed Onset
Anticipation

Genetic Diseases in USMLE Topic Outline

Hemoglobinopathies
Familial Hypercholesterolemia
Cystic Fibrosis

Structure, Function and Introduction to Clinical Disorders of Organ Systems
Command and Control

The Endocrine System

Organ structure and function

Hypothalamus, posterior and anterior pituitary gland
Thyroid gland
Parathyroid glands
Adrenal cortex, adrenal medulla
Pancreatic islets
Ovary and testis
Adipose tissue

Cell/tissue structure and function (eg, hormone synthesis, structure, storage, secretion, regulation, transport, and metabolism; hormone actions: receptors, second messengers intracellular actions, whole body effects)

Peptide hormones
Steroid hormones, including vitamin D
Thyroid hormones
Catecholamine hormones
Renin-angiotensin system

Disorders of metabolic and regulatory processes

Diabetes mellitus, (types 1 and 2), ketoacidosis, hyperosmolar coma
Pituitary, hypothalamus (eg, diabetes insipidus, syndrome of inappropriate secretion of ADH, hypopituitarism, acromegaly)
Thyroid (eg, hypothyroidism, thyrotoxicosis), "euthyroid sick syndrome"
Parathyroid (eg, hyperparathyroidism, hypoparathyroidism), hypocalcemia, hypercalcemia, metabolic bone disorders (eg, osteomalacia)
Pancreatic islet disorders (eg, hyperinsulinism)
Adrenal disorders (eg, Cushing's syndrome, adrenocortical insufficiency, hyperaldosteronism)
Ectopic hormone production
Obesity
Dyslipidemia

The Nervous System

Embryonic Development, Fetal Maturation and Perinatal Changes

Neural Tube Derivatives
Cerebral Ventricles
Neural crest derivatives

Organ Structure and Function (gross, microscopic and blood supply)

Spinal cord, including spinal reflexes
Brain stem, including cranial nerves, ascending and descending systems, and reticular formation
Brain

including hypothalamic function
higher functions: cognition, language, memory

limbic system and emotional behavior
circadian rhythms and sleep
control of eye movement

sensory systems

general sensory modalities

proprioception
pain

special sensory modalities

vision
hearing
balance
taste
olfaction

motor systems

somatotopic localization
upper and lower motor neurons
reflexes
posture
locomotion

basal ganglia and cerebellum
autonomic nervous system, including sympathetic and parasympathetic nervous systems

Cell/Tissue Structure and Function

Axonal transport
Excitable properties of neurons, axons and dendrites, including channels
Synthesis, storage, release, reuptake, and degradation of neurotransmitters and neuromodulators

Pre- and postsynaptic receptor interactions, trophic and growth factors

Brain metabolism and nutrition

Glia, myelin

Brain homeostasis

Blood-brain barrier

Cerebrospinal fluid formation and flow, choroids plexus

Repair, regeneration, and changes associated with stage of life

Genetic disorders

Congenital disorders

Neural tube defects

Cerebral palsy

Mental retardation

Infectious, inflammatory, and immunologic disorders

Infectious disorders

Conjunctivitis, otitis, mastoiditis

Acute and chronic meningitis

Parenchymal disorders, including abscess, encephalitis, neurosyphilis

Manifestations of AIDS

Spinal cord, peripheral nerve, neuromuscular junction

Demyelinating disorders, including multiple sclerosis, Guillain-Barre syndrome

Myasthenia gravis

Traumatic and mechanical disorders

Brain, brain stem, (eg, subdural and epidural hematomas, increased ICP), and spinal cord (eg, cord compression)

Peripheral nerve

Special sense, trauma to eye and ear

Neoplastic disorders

Primary (eg, meningioma, astrocytoma)

metastatic

Metabolic and regulatory disorders, including vitamin deficiencies and effects of alcohol

Vascular disorders

Cerebrovascular occlusion

Venous sinus thrombosis

Arterial aneurisms

Brain hemorrhage

Systemic disorders affecting the nervous system (eg, diabetes mellitus)

Degenerative disorders, including peripheral neuropathy, Alzheimers and other dementias, Parkinson's disease, and amyotrophic lateral sclerosis

Paroxysmal disorders, including pain syndromes

Epilepsy

Headache (eg, migraine, tension)

Sleep disorders, narcolepsy

Disorders of special senses

Papilledema, optic atrophy, macular degeneration

Glaucoma, cataracts, blindness

Auditory and vestibular disorders, including dizziness

Disorders of olfaction, taste

Survival of the Species

The Reproductive System

Female

Hormone Production and Properties

Structure

Storage

Secretion

Regulation

Transport

Metabolism

Hormone Actions

Receptors

Second messengers

Intracellular actions

Whole body effects

Pregnancy

The Puerperium

Neonatal Physiology

Female Organ Function

Oogenesis

Follicle Development

Ovulation

Menstruation

Menstrual Cycle

Corpus Luteum

Male

Hormone Production and Properties

Structure

Storage

Secretion

Regulation

Transport

Metabolism

Hormone Actions

Receptors

Second messengers

Intracellular actions

Whole body effects

Male Organ Function

Spermatogenesis

Maturation and Delivery of Sperm

Semen

Capacitation

Defense Against Invasion

The Immune System

Production and Function of Granulocytes, Natural

Killer Cells and Macrophages

Production and Function of T Lymphocytes, T

lymphocyte Receptors, Lymphokines, Cytokines

Production and Function of B Lymphocytes and Plasma

Cells

Immunoglobulins and Antibodies

Structure

Classes

Molecular Bases of Specificity

Receptors

Antigenicity and Immunogenicity

Host Defenses and Immune Responses

Accessory Cells and Factors

Primary and Secondary Responses

Central Mechanisms

Passive Transfer of Immunity

Mother to Infant

Antibody-Antigen Reactions in vitro

Complement and Cell-Mediated Reactions in vitro

Diagnostic Tests

Tolerance

Clonal Deletion

Immunologic Mediators

Chemistry

Function

Molecular Biology

Classic and Alternative Complement Pathways

Arachidonic Acid Metabolites

Histamine

Nitric Oxide

Cytokines

Chemokines

Immunogenetics

MHC structure and Function

Class I and II Molecules

Erythrocyte Antigens

Transplantation

Vaccines, Protective Immunity

Alterations in Immunologic Function

T & B Lymphocyte Deficiencies

Deficiencies of Phagocytic Cells

Combined Immunodeficiency Disease

HIV infection/AIDS and other Acquired Disorders of Immune Responsiveness

Drug-induced Alterations in Immune Responses, Immunopharmacology

The River of Life

The Cardiovascular System

The Heart and Blood Vessels

Embryonic Development, Fetal Maturation and Perinatal Changes

Organ Structure and Function

Chambers Valves and Blood Vessels

Cardiac Cycle, Mechanics, Heart Sounds, Cardiac Output

Hemodynamics (systemic, pulmonary, coronary) and Blood Volume

Circulation in Specific Vascular Beds (eg splanchnic)

Cell/Tissue Structure and Function

Heart Muscle, Metabolism, Oxygen Consumption, Biochemistry and Secretory Function (eg atrial natriuretic peptide)

Endothelium and Secretory Function, Vascular Smooth Muscle, Microcirculation and Lymph Flow

Neural and Hormonal Regulation of the Heart Blood Vessels, and Blood Volume, Including Responses to Change in Posture, Exercise, and Tissue Metabolism

Blood and Blood Cells: Structure, Production and Function

Erythrocytes

**Hemoglobin
O₂ & CO₂ Transport
Transport Proteins**

Platelets

Leukocytes and the Lymphoreticular System

Coagulation and Fibrinolytic Factors

Anemias and Cytopenias

Hematopoiesis

Hemostasis

The Respiratory System

Organ Structure and Function

Mechanics of Breathing

Ventilation and Regulation

Perfusion

Pleura and Fluid Formation

Upper Airways (eg Larynx and Vocal Cords)

Trachea and Bronchi

Cell/Tissue Structure and Function

Gas Exchange

Biochemical and Endocrine Functions

Metabolic and Regulatory Disorders

Neonatal Respiratory Distress Syndrome

Pulmonary Response to Acid/Base Imbalance

Abnormal Gas Exchange (Oeg Hypoxia, Hypercarbia)

Ventilation-Perfusion Imbalance

Central Hypoventilation

High Altitude Sickness

Import, Export, and Environmental Protection

The Renal/Urinary System

Kidneys, Ureters, Bladder, Urethra

Glomerular Filtration and Hemodynamics

Nephrotic Syndrome

Tubular Reabsorption and Secretion

Urinary Concentration and Dilution

Renal Mechanisms in Acid-Base Balance

Renal Mechanisms in Body Fluid Homeostasis

Micturition

Renal Metabolism and Oxygen Consumption

Hormones Produced by the Kidney

Hormones Acting on the Kidney

Renal Transport Processes and Proteins

The Gastrointestinal System

Mouth

Pharynx

Esophagus

Stomach

Small Intestine

Large Intestine

Liver and Biliary System

Pancreas

Anus

Gastrointestinal Motility, including Vomiting and

Defecation

Digestion and Absorption

Enterohepatic Circulation
Gastrointestinal Hormones
Endocrine and Neural Regulatory Functions, including
Paracrine
Salivary, Gastrointestinal, Pancreatic, Hepatic
Secretory Products (eg enzymes, proteins, bile salts) and
Processes
Synthetic and Metabolic Functions of Hepatocytes
Function of the Gallbladder and Bile Ducts
Human Nutrition
Generation, Expenditure, and Storage of Energy at the
Whole Body Level
Caloric and Nitrogen Balance
Functions of Essential Nutrients
Protein-Calorie Malnutrition
Vitamin Deficiencies and Toxicities
Vitamin A
B vitamins
Vitamin C
Vitamin D
Vitamin E
Vitamin K
Mineral deficiencies and Toxicities

Preliminary Year 1 Calendar

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Clinical Anatomy							
Foundations of Medical Practice							
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
of the Human Body				Structure & Function of			
Foundations of Medical Practice							
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
Cells and Tissues			Endocrine			Nervous System	
Foundations of Medical Practice							
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30		
Nervous System						Immune	
Foundations of Medical Practice							
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	Week 40
Cardiovascular		Respiratory		Gastrointestinal		Renal	
Foundations of Medical Practice							

MEMO

Date: April 21, 2004

To: Lynn Bickley, MD
Dean of Curriculum

From: Second Year Course Directors (Drs. David Straus - Chair, Dolores Buscemi, Suzanne Graham, Barry Lombardini, Robin Hilsabeck, Ron Warner and Kathryn McMahon)

Re: Year 2 Integration Team

In response to your request to develop a year 2 Integration plan, we have provided the following.

- A. A year 2 curriculum proposal. This outlines a plan for content integration for year 2. It gives the names of the various topics or blocks to be covered and their appropriate order.
- B. A chart showing a potential "typical" week.
- C. We recommend that year 2 be broken up into the following twelve different topics: General principles, Endocrine, Hematology, Cardiovascular, Respiratory, Skin & Connective Tissue, Neuropsychiatry, Renal & Urinary Tract, Female Reproductive System, GI, and Musculoskeletal.
- D. There will be an examination at the end of each section.
- E. Microbiology and Immunology will run through the entire 2nd year. Ten hours of Immunology will be moved to year 1. Microbiology and Immunology questions will be on the exam at the end of each section.
- F. Infection therapy (antibiotics) and Infectious Diseases will be taught as their own sections.
- G. Assessment of Medical Evidence and Skills of Patient Assessment will be taught throughout the entire 2nd year. They will each average about 1 ½ hours per week and will alternate weeks.
- H. The current lecturers of the section topics will meet and choose the section leader/coordinator from within that group. The appointed section leader will be responsible for calling meetings of the Instructors. It is the responsibility of each coordinator to make sure that all necessary and required material is covered in that section.
- I. The year 2 course Directors felt it was important that the authority to enforce faculty compliance reside with the Dean's Office and/or the Dean of Curriculum's office as we do not feel that we have, nor do we want, this authority.
- J. The task of assigning exactly where the themes of genomics, geriatrics, nutrition, population health, medical informatics, professionalism, communication, and cultural competence should appear in the curriculum will have to be done by the specific section coordinators since they will be responsible for their own section content.

YEAR 2 Curriculum Proposal

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Micro - Immunology	General Principles Micro-Immunology	Micro-Parasites	Micro - Parasites	Endocrine Micro-Bact. Phys	Micro - Bact Phys	Hemo Micro - Mol Biol	Micro - Mol Biol
Micro - Bugs	Micro - Bugs	Cardiovascular Micro - & MORE bugs	Micro - etc	Micro	Micro	Respiratory Micro	Micro
Micro Skin/Conn Tiss	Micro	HOLIDAY	HOLIDAY	Micro	Micro	Neuropsychiatry Micro	Micro
Micro	Neuropsychiatry Micro	Micro	Micro	Micro	Renal/Urinary Micro	Infection Therapy	Reprod Infection Therapy
Infection Therapy	Infection Therapy	GI Infectious Diseases	Infectious Diseases	Infectious Diseases	Musculoskel Infectious Diseases	USMLE STUDY WEEK	HOLIDAY

Potential “typical” week

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00					
9:00					
10:00		Lecture			Interactive
11:00					
12:00					
1:00			Clinical		
2:00					
3:00					
4:00					

PROPOSED PRE-CLINICAL SKILLS CURRICULUM

YEAR 1 – FALL	YEAR 1 – SPRING	YEAR 2 – FALL	YEAR 2 – SPRING
Introduction to Communication Skills	Introduction to Physical Exam Skills	Introduction to Psychiatry	Introduction to Clinical Reasoning
<p><u>Lecture Topics:</u> The Patient’s Story Communication Techniques Challenging situations Ethics Professionalism The Life Cycle Childhood Young adults Middle-aged Seniors</p>	<p><u>Lecture Topics:</u> <u>Physical Exam by region:</u> General Survey/Skin/HEENT Thorax & Lungs Cardiovascular Abdomen Peripheral Vascular Neurologic Musculoskeletal Pediatric examination</p>	<p><u>Lecture Topics:</u> Medical Interview Mental Status Exam Introductory Psych topics</p> <p>Review the complete physical exam</p>	<p><u>Lecture Topics</u> Fatigue Weakness Dizziness Shortness of Breath Chest Pain Abdominal Pain Headache</p> <p>Medical Record Documentation</p>
<p><u>Small Group case-based discussions:</u></p> <ul style="list-style-type: none"> • Medical student professionalism • Ethical concepts • Spirituality • Cultural sensitivity • End-of life • Career counseling 	<p><u>Small Groups:</u> Physical examination skills practice in pairs</p>	<p><u>Small Group discussion topics:</u></p> <ul style="list-style-type: none"> • Medical student professionalism • Physician professionalism • Cultural barriers • End-of-life care • Career counseling • Multi-disciplinary teams in patient care 	
<p><u>Clinical Experiences:</u> Observe faculty interview patients in class</p>	<p><u>Clinical Experiences:</u> Physical examination of partners</p>	<p><u>Clinical Experiences:</u> <u>Shadowing:</u> <u>8 hrs/block</u></p> <p>Psych small groups: 8 hrs</p> <p>Outpatient clinics: 8 hrs: Internal medicine, family medicine, pediatrics (Each student does 2 patient write-ups)</p> <p>Other: 8 hrs: Labor and delivery; O.R.; E.R.; specialty practice</p>	<p><u>Clinical Experiences:</u> <u>Direct patient contact:</u> <u>4 hrs/block</u></p> <p>Three hospital patient interviews + write-ups 2 exams will be supervised by faculty Students verbally present patients right after the patient encounter</p> <p><u>Specialty Workshops:</u> Pelvic exam Ophthalmology</p>
<p><u>Continuity of Care Experiences:</u> Follow a pregnant patient from start to finish and be at the delivery – students can be excused from class to be present at the patient’s appointments. Follow a geriatric aged patient:</p>			

Obtain their life story and make return visits over the next 2 years for: a home assessment; medication assessment; and a preventive medicine prescription visit
 Follow an infant from birth through first 2 years of life – students can be excused from class to be present at the patient’s appointments.
 ? Develop the Free Clinic for indigent care and have students sign up for time at the clinic

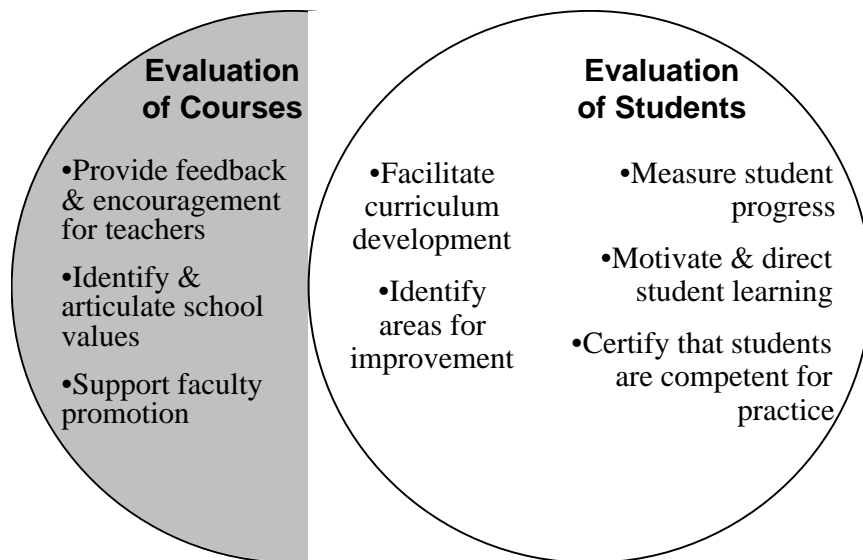
<u>Assessment:</u> Student Portfolios Class observation of patient interviews	<u>Assessment:</u> Physical Exam OSCE Complete Partner Exams	<u>Assesment:</u> Outpatient Write-ups Introduction to Psych Final Exam	<u>Assessment:</u> Inpatient Write-ups Standardized Patient OSCE NBME in Physical Diagnosis
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Evaluation is a systematic approach of review and data collection for the purpose of decision-making.

In an educational setting, *evaluation* refers to the assessment of two overlapping, but complementary, areas:

- The *process* by which learning is delivered—evaluation of courses and clerkships
- The *product* of that learning—evaluation of student competencies

Figure 1. Goals of Evaluation in Medical Education



The document that follows is a reference guide to the evaluation of medical education. Key sections include:

	Page
Evaluation Overview	2
Evaluation of Courses	3
<i>Highlights:</i>	
▪ Table 1: Common beliefs & misconceptions about student ratings	3
Evaluation of Students	5
<i>Highlights:</i>	
▪ Table 2: Assessment tools and learning outcomes/student performance.....	7
▪ Table 3: Categories of assessment instruments	8
▪ Table 4: Recommended assessment methods for learning outcomes.....	10
References	12

Evaluation Overview

Evaluation Working Definitions

- **Course Evaluation:** Appraisal and assessment of the course, clerkship, or other learning activity by students, faculty, administrators, or external reviewers
- **Student Evaluation:** Outcome-based measures of learners, driven by accepted standards for those learners' knowledge, skills, behaviors and attitudes
- **Formative Evaluation:** Prospective, on-going and continuous assessment to monitor development and identify areas for remediation
- **Summative Evaluation:** Retrospective assessment of concrete achievements based on the results of learning experiences

Evaluation Criteria

- **Reliable:** The results should be consistent over time and from course to course or campus to campus
- **Valid:** The results should be meaningful
- **Acceptable:** Implementing the evaluation process should be feasible and receive maximum cooperation from all stakeholders
- **Efficient:** Implementing the evaluation process should require reasonable cost and resources
- **Purpose:** The process should be suitable for formative and/or summative assessments
- **Impact on Learning:** The effect of the evaluation itself on the learner, the content and format of the curriculum, and the frequency of assessment should be reasonable and constructive.

Evaluation Key Issues (from Morrison 2003)

Evaluation should:	<ul style="list-style-type: none"> ▪ Be a positive process that contributes to the academic development of a medical school
The goals of an evaluation should:	<ul style="list-style-type: none"> ▪ Be clearly articulated ▪ Be linked to the outcomes of the teaching
When carrying out an evaluation:	<ul style="list-style-type: none"> ▪ Use more than one evaluation method and/or source and type of information ▪ Provide participants with the results of the evaluation and details of the resulting action
Learners need:	<ul style="list-style-type: none"> ▪ To be involved in developing an evaluation ▪ To feel their time is respected ▪ To know their opinions are valued and acted on
Evaluators must:	<ul style="list-style-type: none"> ▪ Act on the results of the evaluation to correct deficiencies, improve methods, and update content ▪ Repeat the process

Emerging Issues in Evaluation

Nationally	TTUSOM
<ul style="list-style-type: none"> ▪ Public demand for physician competence ▪ USMLE Step IIB Exam ▪ Disciplinary certification ▪ Evaluation of Professionalism ▪ Use of new technologies 	<ul style="list-style-type: none"> ▪ Comparability of experiences across campuses ▪ Comparability with national norms ▪ Institutional OSCE ▪ Evaluation-driven curriculum

Evaluation of Courses

LCME Requirements for "Evaluation of Program Effectiveness"

ED-46 To guide program improvement, medical schools must evaluate the effectiveness of the educational program by documenting the extent to which its objectives have been met.

ED-47 In assessing program quality, schools must consider student evaluations of their courses and teachers, and an appropriate variety of outcome measures.

Among the kinds of outcome measures that serve this purpose are data on student performance, academic progress and program completion rates, acceptance into residency programs, postgraduate performance, and practice characteristics of graduates.

ED-48 Medical schools must evaluate the performance of their students and graduates in the framework of national norms of accomplishment.

Assessment Tools

- Student Satisfaction Surveys, via paper and pencil or on-line
- Faculty Satisfaction Surveys, via paper and pencil or on-line
- Self-Study
- Peer Review
- Focus Groups
- External Review

Table 1. Common Beliefs & Misconceptions About Student Ratings

1. Students cannot make consistent judgments about the instructors and instruction because of their immaturity, lack of experience, and capriciousness.	Many studies indicate that the correlation between student ratings of the same instructors and courses range from 0.70 to 0.89.
2. Only colleagues with excellent publication records and expertise are qualified to teach and evaluate their peers' instruction.	Research is divided: some have found weak positive correlations between research productivity and teaching effectiveness, while others have found no significant relationship.

<p>3. Most student rating schemes are nothing more than a popularity contest, with the warm, friendly, humorous instructor emerging as the winner every time.</p>	<p>Much of the research indicates that students are discriminating judges of instructional effectiveness: Aleamoni (1976) found that students frankly praised instructors for their warm, friendly, humorous manner, but if their courses were not well organized or their methods of stimulating students to learn were poor, students equally frankly criticized them in those areas.</p>
<p>4. Students are not able to make accurate judgments until they have been away from the course, or away from the university, for several years.</p>	<p>Conducting research on this belief is difficult because it is hard to obtain a comparative and representative sample in longitudinal follow-up studies. The few studies done show that alumni who have been out of school 5 to 10 years rate instructors much the same as students currently enrolled.</p>
<p>5. Student rating forms are both unreliable and invalid</p>	<p>True for most of the student rating forms used today, which are "home-made" and thus haven't followed the rigorous psychometric and statistical procedures required to produce a well-developed instrument. Well-developed instruments have been shown to be both reliable and valid.</p>
<p>6. The size of the class affects student ratings.</p>	<p>The research literature does not support the belief that a consistent relationship between class size and student ratings of any sort exists.</p>
<p>7. Students tend to rate higher those faculty who are of their same gender.</p>	<p>No consistent relationship between gender of the student and the instructor in student ratings has emerged in the literature.</p>
<p>8. The time of day the course is offered affects student ratings.</p>	<p>The limited research in this area indicates that the time of day the course is offered does not influence student ratings</p>
<p>9. Whether students take the course as a requirement or as an elective affects their ratings.</p>	<p>The bulk of the literature supports this belief: students who are required to take a course tend to rate it lower than students who elect to take it.</p>
<p>10. Whether students are majors or non-majors affects their ratings.</p>	<p>The limited amount of research in this area indicates that there are no significant differences and no significant relationships between student ratings and whether they were majors or non-majors.</p>
<p>11. The level of course affects student ratings.</p>	<p>The majority of studies on this issue tend to support this belief. Some investigators report that graduate students and/or upper division students tend to rate instructors more favorably than did lower division students.</p>
<p>12. The rank of the instructor affects student ratings.</p>	<p>The literature does not support this belief because no consistent relationship between faculty rank and student ratings has been found.</p>

13. The grades students receive in a course are highly correlated with their ratings of the course and the instructor.	This is the single most frequently researched issue on student ratings. Correlational studies have reported widely inconsistent grade-rating relationships.
14. Student ratings on single general items are accurate measures of instructional effectiveness.	The limited amount of research suggests that the use of single general items should be avoided, especially for tenure, promotion or salary considerations.
15. Student ratings cannot meaningfully be used to improve instruction.	The key finding is that ratings can be used to improve instruction if used as part of a personal consultation between the faculty member and a resource person.

Source: Adapted from R.A. Arreola

Evaluation of Students

LCME Requirements for "Teaching and Evaluation"

ED-26 The medical school faculty must establish a system for the evaluation of student achievement throughout medical school that employs a variety of measures of knowledge, skills, behaviors, and attitudes.

Evaluation of student performance should measure not only retention of factual knowledge, but also development of the skills, behaviors, and attitudes needed in subsequent medical training and practice, and the ability to use data appropriately for solving problems commonly encountered in medical practice.

The LCME urges schools to develop a system of evaluation that fosters selfinitiated learning by students and disapproves of the use of frequent tests which condition students to memorize details for short-term retention only.

ED-27 There must be ongoing assessment that assures students have acquired and can demonstrate on direct observation the core clinical skills, behaviors, and attitudes that have been specified in the school's educational objectives.

ED-28 There must be evaluation of problem solving, clinical reasoning, and communication skills. ED-29 The faculty of each discipline should set the standards of achievement in that discipline.

ED-30 The directors of all courses and clerkships must design and implement a system of formative and summative evaluation of student achievement in each course and clerkship.

Those directly responsible for the evaluation of student performance should understand the uses and limitations of various test formats, the purposes and benefits of criterion-referenced vs. norm-referenced grading, reliability and validity issues, formative vs. summative assessment, etc. In addition, the chief academic officer, curriculum leaders, and faculty should understand, or have access to individuals who are knowledgeable about, methods for measuring student performance. The school should provide opportunities for faculty members to develop their skills in such methods.

An important element of the system of evaluation should be to ensure the timeliness with which students are informed about their final performance in the course/clerkship. In general, final grades should be available within four to six weeks of the end of a course/clerkship.

ED-31 Each student should be evaluated early enough during a unit of study to allow time for remediation.

It is expected that courses and clerkships provide students with formal feedback during the experience so that they may understand and remediate their deficiencies. Courses or clerkships that are short in duration (less than 4 weeks) may not have sufficient time to provide structured formative evaluation, but should provide alternate means (such as selftesting or teacher consultation) that will allow students to measure their progress in learning.

ED-32 Narrative descriptions of student performance and of non-cognitive achievement should be included as part of evaluations in all required courses and clerkships where teacher-student interaction permits this form of

assessment.

Student Outcomes

The process of evaluating of student competencies is the effort to assess student mastery of a hierarchy of abilities that demonstrate increasing professional authenticity. As the following tables indicate, varying methods are appropriate to evaluate these competencies:

- | | |
|---|--|
| 10. Competence in clinical skills | 17. Ability to apply social, basic and clinical sciences |
| 11. Competence in practical procedures | 18. Approach to practice with appropriate attitudes, ethics and legal responsibilities |
| 12. Competence in patient investigation | 19. Approach to practice with appropriate decision making, clinical reasoning and judgment |
| 13. Competence in patient management | 20. Appreciation for the doctor's role in the health care system |
| 14. Competence in health promotion and disease prevention | 21. Aptitude for personal development |
| 15. Competence in communication | |
| 16. Competence in handling & retrieving information | |

Learning Outcomes for Medical Students

(from Miller 1990)

Does	Personal Development Role of Doctor Decision Making Attitudes/Ethics
Shows How	Information Handling Communication Health Promotion Practical Procedures Clinical Skills
Knows How	Management Investigation
Knows	Medical Sciences

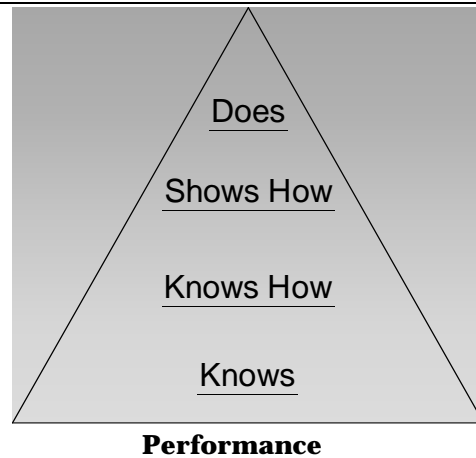


Figure 2. Learning Outcomes and Medical Student Performance

Table 2. Assessment Tools & Learning Outcomes/Student Performance
 From Shumway & Harden, 2003

(Highest Professional Authenticity)			(Lowest Professional Aut
DOES	SHOWS	KNOWS HOW	KNOWS
<i>Doctors as professi</i>			
<i>What the doctor is able to do</i>			
<u>Personal Development</u>	<u>Information Management</u>	<u>Patient Management</u>	
Portfolio	Portfolio	Written exam	
Observation	OSCE	OSCE	
Peer/self assessment	Observation	Observation	
OSCE	Written exam	Portfolios	
Written exam			
	<u>Communication</u>	<u>Patient Investigation</u>	
<u>Role as a Professional</u>	OSCE	Written exam	
Observation	Observation	OSCE	
Peer/self assessment	Peer/self assessment	Observation	
Portfolio	Portfolio	Portfolio	
OSCE			
Written exams	<u>Health Promotion &</u>		
<i>Approach to practice</i>	<u>Disease Prevention</u>		<i>Approach to practice</i>
<u>Decision Making, Clinical</u>	OSCE		Principles of Social, Basic &
<u>Reasoning & Judgment</u>	Portfolios		Sciences
Portfolio	Observation		Written exam
Observation	Written Assessment		Portfolios
Written exam			Observation
OSCE	<u>Practical Procedures</u>		OSCE
Peer/self assessment	OSCE		
	Portfolios & logbooks		
<u>Attitudes, Ethics & Legal</u>	Observation		
<u>Responsibilities</u>	Written exam		
Observation			
Portfolio	<u>Clinical Skills</u>		
Peer/self assessment	OSCE		
OSCE	Observation		
Written exam	Logbooks		
	Written exam		

Table 3. Categories of assessment instruments (From Shumway & Harden, 2003)

Assessment Category & Description	Representative Instruments	Strengths & Weaknesses	Impact on Learning	Practicality & Cost
<p>Written Assessments</p> <ul style="list-style-type: none"> Assess what students <i>know</i> The most commonly used form of assessment in medical education Not limited to paper & pencil; may include computer administration 	<ul style="list-style-type: none"> Essay Short Answer Questions Completion Questions Multiple Choice Questions (MCQs) Extended Matching Items (EMIs) Modified Essay Questions (MEQs) Patient Management Problems (PMPs) Progress Test Dissertation Report 	<ul style="list-style-type: none"> High reliability Efficient & convenient to administer, but time consuming to construct Objective because no judgment about the quality of an answer Emphasis on recall May emphasize trivial or superficial knowledge 	<ul style="list-style-type: none"> Significant impact because students learn to pass the test rather than learn information as an integrated whole Instruction is designed around preparing students to pass exams 	<ul style="list-style-type: none"> Design and construction of MCQs is costly MCQs can be shared between institutions Large-scale administration and grading is less expensive than other methods
<p>Clinical/Practical Assessments</p> <ul style="list-style-type: none"> Used to measure clinical competence, clinical reasoning, examination skills, patient management, and performance of procedures Concerned with what students can do, as opposed to what they know 	<ul style="list-style-type: none"> Long Cases Practical Examination Spot Examination Objective Structured Clinical Examination (OSCE) Objective Structured Practical Examination (OSPE) Objective Structured Long Examination Record (OSLER) Group Objective Structured Clinical Examination (GOSCE) 	<ul style="list-style-type: none"> Allows opportunity to assess competence without putting learner or patient at risk Instant feedback is possible The greater the number of exam stations, the greater its reliability and content validity Reliability is improved with good training for standardized or simulated patients (SP) 	<ul style="list-style-type: none"> Positive impact on learning Students' attention is focused on acquiring clinical skills Provides formative evaluation as the student participates in it Potentially negative impact when students prepare by focusing on narrow skills 	<ul style="list-style-type: none"> Time and resources required to administer are major costs SP recruitment, training and payment, scheduling may be costly Special facilities may increase costs Institution-wide testing may lead to economies of scale

Assessment Category & Description	Representative Instruments	Strengths & Weaknesses	Impact on Learning	Practicality & Cost
<p>Observation</p> <ul style="list-style-type: none"> • Predominant method for assessment in clinical clerkships • Students measured against expected learning outcomes 	<ul style="list-style-type: none"> • Tutor's report • Checklists • Rating scales • Patient report 	<ul style="list-style-type: none"> • Poor reliability due to limited contact to make an informed judgment about abilities • Requires rater training to ensure consistency • Reliability is better for knowledge issues than for communication skills 	<ul style="list-style-type: none"> • Observations over a period of time may lead to improved student attention to some outcomes otherwise ignored • Summative evaluations may lead students to hide weak-nesses rather than reveal them so they can be rectified 	<ul style="list-style-type: none"> • Good faculty observation requires high commitment of time and practice
<p>Portfolio and Other Records of Performance</p> <ul style="list-style-type: none"> • Documentation of achievements and reflection on those achievements • Collection of evidence that learning has taken place 	<ul style="list-style-type: none"> • Logbooks • Portfolios • Procedural Logs 	<ul style="list-style-type: none"> • Valuable tools to assess critical thinking and self-assessment • Record of performance over time • Reliability improves with agreement on standards and evidence from other sources • Logbooks do not document quality and may not be accurate 	<ul style="list-style-type: none"> • Positive impact because of documentation of learning and reflection on accomplishment • Provides a whole story of learning development 	<ul style="list-style-type: none"> • Requires staff time and resources • External review and grading may be costly • Electronic portfolios & logbooks require development costs, but are generally justifiable

Assessment Category & Description	Representative Instruments	Strengths & Weaknesses	Impact on Learning	Practicality & Cost
<p>Peer and Self-Assessment</p> <ul style="list-style-type: none"> • Learner's peer and learners themselves assess ability to complete tasks • Typically used in conjunction with other evaluation methods • Often used to assess attitudes and communications skills 	<ul style="list-style-type: none"> • Peer report • Self-report 	<ul style="list-style-type: none"> • Peer evaluations correlate highly with faculty evaluations • Self-assessments correlate moderately with trained examiner ratings • Benchmarks or standard levels of performance are necessary for reliability • Need further study & development 	<ul style="list-style-type: none"> • May have profound impact on learning • May have the power to change students' perception of examination • Develops skills of self-appraisal • If done poorly, may cause mistrust, suspicion and rivalry • Difficulty to predict whether impact will be positive or negative 	<ul style="list-style-type: none"> • Main cost and time commitment is training of peers and learners to be reliable raters

Table 4. Recommended assessment methods for the 12 learning outcomes of a competent and reflective physician.

Learning outcome	Definition	Assessment methods
<i>What the doctor is able to do</i>		
1 Clinical Skills	The doctor must be able to take a complete & focused history, perform an appropriate physical exam, interpret findings & formulate an action plan to characterize the problem and reach a diagnosis	OSCE Observation Logbooks Written examination
2 Practical Procedures	The doctor should be able to undertake a range of procedures on a patient for diagnostic or therapeutic purposes.	OSCE Portfolios and logbooks Observation Written examination
3 Patient Investigation	The doctor should be competent to arrange for an interpret appropriate investigations for a patient.	Written examination OSCE Observation Portfolio
4 Patient Management	The doctor should be competent to identify appropriate treatment for the patient and to deliver it personally or refer the patient to an appropriate colleague.	Written examination OSCE Observation Portfolios
5 Health Promotion and Disease Prevention	The doctor should recognize threats to the health of individuals or communities at risk and implement the basic principles of disease prevention and health promotion.	OSCE Portfolios Observation Written Assessment
6 Communication	The doctor must be proficient in a range of communication skills, including written and oral, both face-to-face and by telephone, with patients and their relatives, as well as colleagues.	OSCE Observation Peer/self assessment Portfolio
7 Information Management Skills	The doctor should be competent in retrieving, recording, and analyzing information using a range of methods, including computers.	Portfolio OSCE Observation Written examination
<i>How doctors approach their practice</i>		
8 Principles of Social, Basic and Clinical Sciences	The doctor should understand the basic, clinical and social sciences that underpin the practice of medicine, including an awareness of the psychosocial dimensions of medicine.	Written examination Portfolios Observation OSCE

Learning outcome	Definition	Assessment methods
9 Attitudes, Ethics and Legal Responsibilities	The doctor should adopt appropriate attitudes, ethical behavior, and legal approaches to the practice of medicine, including issues related to consent, confidentiality and cultural competence.	Observation Portfolio Peer/self assessment OSCE Written examination
10 Decision Making, Clinical Reasoning and Judgment	Doctors should apply clinical judgment and evidence-based medicine to their practice, understanding research and statistical methods and coping with uncertainty and ambiguity, to determine appropriate action.	Portfolio Observation Written examination OSCE Peer/self assessment
<i>Doctors as professionals</i>		
11 Role as a Professional	Doctors should understand the healthcare system within which they practice and the roles of health professionals within the system, as well as the doctor's role as physician, teacher, manager and researcher.	Observation Peer/self assessment Portfolio OSCE Written examination
12 Personal Development	The doctor should be a self-learner and should be able to assess his or her own performance, taking responsibility for personal and professional development.	Portfolio Observation Peer/self assessment OSCE Written examination

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EDUCATIONAL SUMMIT

Hindrances to Successful Implementation of a New Curriculum

Introduction

Successful implementation of curriculum change must include all relevant parties. This includes encouragement and support from the administration, protection of professor time and encouragement from the chairmen, a direct involvement and facilitation by the course coordinator coupled with enthusiastic participation and involvement of each and every faculty member involved in the teaching process. The need and value of curriculum change must be made evident to the students. Their involvement and participation should be sought and valued in each step of the curriculum development process.

Curriculum change for the sake of change alone can harm rather than facilitate student learning. Careful consideration of each proposed curriculum alteration must be reviewed and each step evaluated carefully both before and after its implementation. The evaluation process must involve student input, peer input and student performance.

Every course in every medical school has its own strengths and weaknesses. No one curriculum change is best suited for all programs. Minimizing weaknesses and maximizing the strengths of a program allows that program to capitalize on the assets it possesses which can be used to facilitate the learning process. Preparing students to pass subject exams and ultimately USMLE tests is of paramount importance; however, it does not represent the sum total of all educational needs. For example, active learning is an integral part of the educational process and can be facilitated in a PBL setting. However, not all schools are able to use this method due to limited faculty availability and other constraints placed on faculty and student time.

While it is difficult to determine exact figures, each contact hour with the medical school class has an estimated value of \$10,000 to \$15,000. This financial investment warrants careful attention to broad aspects as well as specific details.

Six separate but interrelated areas have been identified that pose a hindrance to the successful implementation of curriculum change and development. These include:

- I. The perception that teaching is a second rate occupation in the medical school.**
- II. Allocation of state funding.**
- III. Hiring, promotion, and tenure.**
- IV. Educational evaluation.**
- V. The evaluation process.**
- VI. Improvement of teaching and teachers.**

I. The perception that teaching is a second rate occupation in the medical school.

Education at TTUHSC School of Medicine has recently received a significant boost with the opening of new classroom facilities and the appointment of an Associate Dean for Curriculum Development. When coupled with already available resources, this substantially improves the perception that education is of value at our institution. These new activities have helped level the playing field by proving that education is respected at the administrative level and providing an infrastructure to support this activity. Despite these substantial investments and commitments made by the school, the perception remains that teaching is not rewarded at the faculty level.

For approximately thirty years the education process was conducted in a space that was inadequate and with the office of student affairs providing support that stretched their limited resources. We have made significant steps to help resolve these issues. However at the faculty level teaching remains a diminished status. It is something akin to building a new stadium and hiring a new athletic director with the anticipation that the players will perform without individual support and recognition of their individual effort and performance.

II. Allocation of State Funding

State funding is given to the medical school for medical student education. Its distribution supports education, research, clinical medicine and administration. All of the above activities are needed to maintain an active medical school environment; however, additional steps are needed to separate and reward those providing increased development of excellence in teaching and curriculum. Undoubtedly, the allocation of funds is a complicated process and cannot be casually addressed in a brief statement. Despite this, care should be taken to insure that excellence in teaching is rewarded financially with funds provided for these activities.

Clinical faculty can augment their salaries with money generated in their medical practice, researchers can augment their laboratory funds with money refunded to them from salary and indirect costs produced by grants, but the excellent educator does not have the same opportunities. While it is true the base salary of many faculty members is from state support, the same support is given to all with no attempt to recognize or reward excellence in teaching. Why is the clinician who can augment his or her salary given substantial state support even though their participation in educational activities is minimal? The same argument can be made for the researcher who receives state-based raises for success in gaining grant support, but spends little time with teaching responsibilities. As long as this and similar practices continue, education will continue to be a second rate activity.

III. Hiring, Promotion, and Tenure

New employees in the basic science departments are often requested to give seminars describing their research interests. A quick review of their CV will provide evidence of current and previous grant funding and their publication record. Repeated scrutiny of these activities is made when the individual is considered for tenure and promotion. Very few faculty members receive such attention with respect to their teaching abilities either at hiring or at the time they are considered for promotion and tenure. We have been giving lip service to the proverbial "three legged stool" that describes a faculty member's value to the university. Although the three legs are service, teaching and research, it is well known that research is the biggest of the three and size does matter. In fact, research often becomes a pedestal for the stool allowing the individual to be hired, promoted, and tenured without providing evidence of acceptable performance in the other areas. This encourages the perception that those faculty members who engage in education are second-rate citizens in the medical school and are not rewarded in a manner similar to the rewards given to the basic science researcher or the clinician with exceptional expertise in a given medical specialty.

Excellence in research in the basic science departments and professional expertise in clinical departments remains the most commonly used methods for hiring, promoting, and/or granting tenure to a faculty member.

IV. Evaluation of Faculty Teaching

There remains a need to effectively evaluate teaching. Previously, this has not been undertaken with enthusiasm. The most frequent reason given is the belief that education and teaching is difficult to accurately evaluate. In addition, there has been no real impetus to encourage teaching evaluation. Excellence in teaching has not been significantly rewarded and therefore there has been no real need to separate between poor, fair, good and excellent teaching. Often, those individuals who teach are recognized based on their contact hours with little or no attention paid to their effectiveness or creativity. This presents at least two problems. Those who devote time and energy and are excellent teachers are not recognized. At the opposite end of the spectrum, those who fall short in teaching skills are not given the needed assistance required to improve their teaching skills. No mechanisms have been in place to evaluate and reward excellent teaching or remediate poor teaching. In fact, those individuals who enjoy teaching and perform well are often encouraged to take on a greater teaching load while those who cannot teach are rewarded by being removed from additional teaching responsibilities. This somewhat inverted system coupled with the reward offered to researchers and clinicians encourages teachers to spend more time in these activities and less in teaching endeavors.

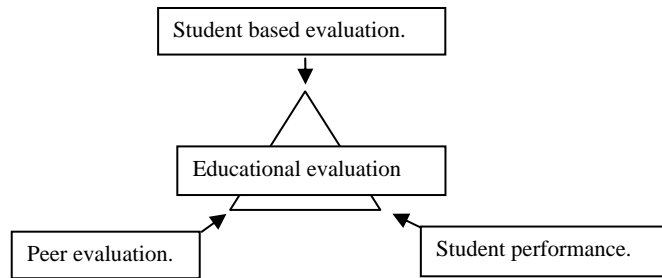
V. The Evaluation Process of Faculty Teaching

No professor in the medical school has contact hours in the classroom, laboratory or clinical setting that are equivalent to many undergraduate professors and certainly not public school teachers. This being the case, medical school professors engaged primarily in the educational process should have the time and commitment to develop new teaching tools, curriculum, and to publish in these areas. The development of an evaluation process would encourage these educational activities and would be useful in differentiating professionalism of individual professors.

Undoubtedly teaching encompasses many subjective variables, but these can be evaluated, albeit, not as precisely as the counting of dollars generated from grants or clinical activities. In qualitative research, investigators use triangulation of data to more effectively evaluate a given situation. A similar approach could be used in the evaluation of the teacher. The points of triangulation could include; 1) student evaluation, 2) peer evaluation, and 3) student performance. A tool developed by Dr. Lutherer and colleagues provides easy access for teaching evaluation by students. This gives students the ability to express their opinions anonymously and at their own convenience. Other techniques such as focus groups have also been found effective in assessing student opinion.

Peer evaluation could include input from the course director, the office of curriculum development, and other professors teaching in the same course or academic area. Student performance is determined annually using subject exams and USMLE scores. These scores reflect on the school and the individual student. Without a doubt they should be considered in the final evaluation process. Assigning each professor their appropriate level of credit for a student's success or failure on these tests is difficult but necessary in the overall evaluation process.

When combined, input from the students, peers and student performance will provide a more effective method of evaluating each professor's teaching activities. Once this has been done, steps can be taken to reward excellence in teaching, in curriculum development, and to remediate those professors who need assistance in improving their teaching skills.



The “People First” program encourages us to view medical students as our “customers” but then we ignore or downplay their input in the teaching evaluation process. In the role of customer, the student wants to do well in class and will respond to whatever helps them achieve these goals. Their evaluations must be taken seriously.

VI. Improvement of Teaching and Teachers

Researchers willing to improve their competitiveness can do so by requesting time for a sabbatical. Such sabbaticals help the investigator learn new techniques and/or improve their likelihood of obtaining grant funding. A similar system for educators would be of great benefit and could help improve the perception that teaching is a valued occupation in the medical school.

In addition, improvement of teaching activities can be encouraged at the local level. It is hoped that the office of curriculum development and other resources within the medical school can be used to improve teaching performance in our classroom, laboratories, small group sessions, clinical settings, etc. When one considers the financial investment made for each contact hour it becomes obvious that this type of expenditure is a valuable investment for the medical school and its students. Once again, this will increase the value of the individual faculty member in the teaching process. It will provide the support that is needed at the individual level to help encourage the classroom and clinical teacher. The entire process will be strengthened by providing educational support to the individuals most directly involved in the teaching process.