The US Health Resources and Services Administration previously funded groups in internal medicine and pediatrics to prepare recommended curricula for their respective clerkships to be used as a national resource. Both of these projects had significant influence on the conduct of these clerkships nationally.1,2

At the outset of the Family Medicine Curriculum Resource Project (FMCRP), members of these curriculum projects were recruited to prepare advisory recommendations for pre-clerkship prerequisites, based on their previous experience. These subgroups, composed of four physicians in each discipline along with staff and representing national professional organizations in internal medicine and pediatrics, became permanent members of the final Collaborative Curriculum Project (CCP) or pre-clerkship workgroup of the FMCRP. Together with four family physicians chosen for their experience as clinical course directors in pre-clerkship courses or family medicine clerkships and experience with national curriculum projects, the group was charged by project leadership with identifying clinical competencies that all medical students should achieve prior to beginning the traditional third clerkship year. The CCP also developed a subset of competencies meriting higher priority than currently provided in the pre-clerkship years. These priority areas were empirically validated through a national survey of clerkship directors in six disciplines. The project’s documents are not intended to prescribe curricula for any school but rather to provide curricular decision makers with suggestions regarding priorities for allocation of time and resources and detailed clinical competency statements and other resources useful for faculty developing clinical courses in the first 2 years of medical school.

The Collaborative Curriculum Project (CCP) is one of three components of the Family Medicine Curriculum Resource Project (FMCRP), a federally funded effort to provide resources for medical education curricula at the beginning of the 21st century. Medical educators and staff from public and private geographically distributed medical schools and national specialty organizations in family medicine, internal medicine, and pediatrics developed by consensus essential clinical competencies that all students should have by the beginning of the traditional clerkship year. These competencies are behaviorally measurable and organized into the domains used for the Accreditation Council for Graduate Medical Education (ACGME) core competencies. Exemplary teaching, assessment, and faculty development resources are cited, and attention is given to budgetary considerations, application to diverse populations and settings, and opportunities for integration within existing courses. The CCP also developed a subset of competencies meriting higher priority than currently provided in the pre-clerkship years. These priority areas were empirically validated through a national survey of clerkship directors in six disciplines. The project’s documents are not intended to prescribe curricula for any school but rather to provide curricular decision makers with suggestions regarding priorities for allocation of time and resources and detailed clinical competency statements and other resources useful for faculty developing clinical courses in the first 2 years of medical school.

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Prerequisite Competencies for Third-year Clerkships: An Interdisciplinary Approach

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The Collaborative Curriculum Project (CCP) is one of three components of the Family Medicine Curriculum Resource Project (FMCRP), a federally funded effort to provide resources for medical education curricula at the beginning of the 21st century. Medical educators and staff from public and private geographically distributed medical schools and national specialty organizations in family medicine, internal medicine, and pediatrics developed by consensus essential clinical competencies that all students should have by the beginning of the traditional clerkship year. These competencies are behaviorally measurable and organized into the domains used for the Accreditation Council for Graduate Medical Education (ACGME) core competencies. Exemplary teaching, assessment, and faculty development resources are cited, and attention is given to budgetary considerations, application to diverse populations and settings, and opportunities for integration within existing courses. The CCP also developed a subset of competencies meriting higher priority than currently provided in the pre-clerkship years. These priority areas were empirically validated through a national survey of clerkship directors in six disciplines. The project’s documents are not intended to prescribe curricula for any school but rather to provide curricular decision makers with suggestions regarding priorities for allocation of time and resources and detailed clinical competency statements and other resources useful for faculty developing clinical courses in the first 2 years of medical school.
students should achieve before beginning the clerkship year. These questions referred to students, competencies, and specificity.

What Students?
While the overall project’s goals were to define a 4-year curriculum for students who will enter a family medicine residency and to define the contribution of the family medicine clerkship to all students’ general professional education, the CCP’s focus was on the first 2 years of medical education for all students. Although some schools have innovative mixtures of traditional basic and clinical sciences, most medical students still experience a curriculum that focuses primarily on the traditional basic sciences in the first 2 years, with passage of Step 1 of the US Medical Licensure Exam (USMLE) the transitional step to entering the clerkship year of medical school. We defined our focus as all medical students at their pluripotential (undifferentiated) stage, regardless of what eventual specialty they choose.

What Range of Competencies?
The USMLE Step 1 addresses a broad range of biomedical competencies, from issues at the cellular level to those that focus on the total human organism and human behavior and even some at the societal level. The requirement that students must pass this exam for licensure assures that its objectives are addressed by medical schools, and so most traditional basic sciences have well-defined content at the basic level addressing the USMLE objectives.

Our group agreed that its energies would best be focused in less well-defined areas, especially considering newer developments in the areas of epidemiology, including complex etiology of chronic diseases, population-based sciences, patient safety, and quality improvement. Using Engel’s hierarchy of systems, the focus was defined as clinical competencies at the level of the whole person or higher (dyads, families and other groups, communities, and societies). One effect of this focus was avoiding the challenge of who “owns” the basic science years. It also promoted the concept that clinical or whole-person competencies must be developed early in medical school, in the service of promoting patient-centered rather than disease-centered care.

The finite amount of time in any medical curriculum creates the necessity to define priorities among the many topics that could be presented to students in the first 2 years. Rather than assuming the sometimes charged debate regarding priorities that is more appropriately entertained by each medical school faculty, we embraced the key perspective of the FMCRP: that our task was to develop a resource for those who would define competencies and develop curricula for their students, rather than to be prescriptive.

What Level of Specificity?
While our task was to define competencies at the end-of-second-year level, we acknowledged that no level of pre-clerkship competency would be irrelevant to students during their clerkships. Moreover, our use of the Accreditation Council for Graduate Medical Education (ACGME) domains for describing learning objectives for first- and second-year medical students emphasized that competencies in each of these areas are part of a spectrum of knowledge, skills, and attitudes/values beginning with students’ life experience prior to medical school and hopefully continuing as long as the physician is active, aware, and reflective.

We based our discussions of competency level on the Dreyfus model (novice, advanced beginner, competent, proficient, and expert) and grappled with how to make explicit, behaviorally based, and therefore measurable competency statements for second-year medical students in clinical areas. Ultimately we agreed on the principles that our description of competencies should (1) be essential for all medical students, (2) be described at a measurable (ie, behavioral) level, and (3) include descriptions of desired values and attitudes, even though these tend to be harder to measure. Ultimately, we often opted for using beginner-level verbs for many competencies (eg, “list,” “discuss,” “describe,” rather than “manage” or “implement”). Because the ACGME domains are directed at the level of residency training and actual care of patients, and most medical students in years 1 and 2 have limited experience with real patients, the task of adapting the ACGME format to this early level of clinical experience was challenging.

The competencies described may at first appear ambitious for first- and second-year medical students, but we attempted to titrate the level of competence described to the foundational, rather than to the practice level. Some competencies not traditionally included at the pre-clerkship level (such as formulating a range of biopsychosocial differential diagnoses or multidisciplinary approaches to treatment) are included. Our rationale was that attitudes are formed from the beginning of medical education, and delaying the discussion of multidisciplinary approaches would lead to students perceiving these approaches as secondary rather than integral to patient-centered care.

How Were Competencies to Start Clerkship Year Developed?
The workgroup developed two documents: (1) a priorities document identifying six areas for greater emphasis in the pre-clerkship curriculum and (2) a competencies document, a detailed description of competencies in the areas of clinical knowledge, skills, and attitudes/values that medical students should achieve prior to their clerkship year to be optimally prepared for learning in the third year of medical school.
Identification of Priority Areas

The workgroup identified current curricular areas in which educational outcomes differ most from those desired, in which the group believed that effort toward curricular change could most productively be invested. The six areas identified as priority areas for greater emphasis within first 2 years of medical school curricula and their relationship to the domains are listed in Table 1. The titles of two of the CCP’s priority areas are the same as the titles of two ACGME domains (communication skills and professionalism); and two priority areas (data gathering and systems of care) overlap significantly with patient care and systems-based practice, respectively. Two priority areas (life cycle/self awareness and probabilistic thinking) do not map easily onto the ACGME domains, but each has some connection to two domains. A summary of rationale and justification for each of these priority areas is found on the Web at www.stfm.org/curricular/index.htm. These summaries are intended primarily for curricular decision makers (curricular deans, curriculum committee chairs and members) in prioritizing curricular time and allocating resources.

To assess the validity of our consensus of a range of deficits in the six priority areas in medical students’ preparation for entering their clerkships, a member of the CCP developed and administered a survey of a randomized group of 190 clerkship directors at 32 medical schools in six major disciplines: family medicine, internal medicine, obstetrics and gynecology, pediatrics, psychiatry, and surgery. With a response rate of 74%, the results validated our perception of deficits in each of the priority areas, including data gathering in the real world, communication skills, professionalism, life cycle/self-awareness, probabilistic thinking, and systems of care. The survey results also revealed that clerkship directors do not prioritize achieving competency in systems of care for beginning third-year medical student (M3) clerkships.

Development of Pre-clerkship Competencies in ACGME Format

Learning in medicine occurs across a continuum, from the life experience gained prior to beginning medical school, through the traditional 4 years of predoctoral education, through residency and perhaps fellowship training, and continually through one’s professional career, and can generally be classified using the ACGME domains for graduate education. In 2002, at the project’s beginning, no model existed for mapping pre-clerkship competencies onto the ACGME domains (patient care, knowledge, professionalism, communication skills, systems-based practice, practice-based learning). Therefore, we began with published year 1–2 clinical curricular objectives and reviewed multiple sets of M3 clerkship objectives to describe prerequisites for beginning the M3 year. These were sorted into the six ACGME domains. Several areas in a predoctoral curriculum overlap with multiple ACGME domain areas, so we chose to describe some competencies under more than one domain as an indication of their importance (eg, communication skills and team-based care are found in several sites). We also noted the underrepresentation of our priority area of life cycle/self-awareness as a significant omission from the ACGME domains and listed it in multiple ACGME domains.

In each of the ACGME domain areas, the competencies required for beginning the M3 clerkship year are introduced with a brief rationale that highlights applicability of the ACGME domain structure to pre-clerkship experience, cited as a global competency statement (example from practice-based learning and improvement: “Students must be committed and able to appraise and assimilate scientific evidence for improvement of patient care practices.”), as broad goals (eg, “Learn to direct own learning about patient’s problems.”) and specific objectives (“Assess own learning needs,” “List perceived personal gaps in knowledge,” “Describe strategies for finding and assessing necessary information.”). The following is an example of rationale from “Medical Knowledge” that highlights how the CCP’s work focuses on clinical competencies at the level of the whole-person and larger systems:

When entering core clerkships, students must be prepared to apply knowledge of pathology and pathophysiology to patients’ clinical problems. Typically,
basic science faculty members teach these concepts in disciplinary courses or in courses organized by organ systems. However, many concepts do not fit well into an organ system or discipline-specific teaching but instead require a knowledge base that crosses several disciplines, areas, and systems. Students should understand the effect of diseases on the entire person, family units, communities, and the environment, as well as how the entire person, the family unit, communities, and environment affect the identified patient. Students ought to be able to differentiate among disease, illness, and health. They should understand processes that affect patients that are not usually considered “disease” (e.g., aging, pregnancy, violence, sexual dysfunction, and chronic pain). Students must understand how lifestyle issues affect an individual’s and a community’s health and may be the most important factor affecting health and disease other than genetics (e.g., substance abuse, obesity, nutrition, or exercise.) Students should understand how gender, race, culture, social economic status, and health beliefs affect the presentation and understanding of disease processes and, therefore, adherence issues . . .

The example of the competency statement and goals for “practice-based learning and improvement” is provided in Table 2. The complete list of competency statements, goals, and objectives in all six domains can be found at the STFM Web site at www.stfm.org/curricular/index.htm. To locate the CCP’s documents, click on “Collaborative Curriculum Project (Pre-clerkship),” then scroll down the text to find hot text at the bottom. Click on either “Competency-based curriculum resource for pre-clerkship education” or “Areas for greater M1–2 curriculum emphasis . . . ”

### Table 2

**Practice-based Learning and Improvement**

**Competency**
- Students must be committed and able to appraise and assimilate scientific evidence for improvement of patient care practices.

**Goals**
- Demonstrate commitment to personal role in providing health care outcomes.
- Effectively use recursive strategy for lifelong learning.
- Learn to direct own learning about patient’s problems.
- Learn to locate, appraise, and assimilate evidence from clinical guidelines, systematic reviews, and articles related to patients’ problems.
- Learn to apply knowledge of study designs and statistical methods to appraise information about diagnostic tests and therapeutic interventions.

**Objectives**
- A total of 30 detailed objectives are listed under Goals.

Throughout all domains, the following themes are highlighted. First, that the patient’s concerns, values, and outcomes must be the center of care. Second, that improving the process of care and health outcomes is the physician’s responsibility and requires both a systems approach and partnering with an activated patient. Third, that self-awareness and being an activated learner is essential to becoming and remaining an effective physician. Finally, that the first 2 years of medical school are only the foundation of an active learning process for which the student of medicine will be responsible throughout professional life.

“Competencies” Document as a Resource for Medical Educators

The workgroup’s “Competencies” document (www.stfm.org/curricular/index.htm) was designed to be useful for all faculty developing clinical curricula for medical students in their first 2 years and for basic science faculty desiring to frame their teaching within a clinical context, not just in courses presented by departments of family medicine. The document cites examples of best practices with regard to teaching methods, student assessment, resources required, and faculty development, including diverse populations and optimal settings for preparing students for medical practice in the 21st century in the United States. Because of increased educational costs associated with distributed sites, smaller preceptor-to-student ratios, and active learning methods that characterize our recommendations, we included comments on budgetary requirements for addressing our recommendations during a time of increased clinical pressures on faculty and decreased degrees of freedom for educational budgets. Lastly, recognizing that the debate regarding relative importance of curricular content would play out at each school around the issue of time requirements in generally packed curriculum schedules, we specified opportunities for integration of our recommendations within current courses and clinical experiences.

### Conclusions

The CCP workgroup of the FMCRP, an interdisciplinary group of medical educators, described clinical competencies that all medical students should achieve prior to beginning the third (clerkship) year of medical school, for an optimal orientation that is patient centered, focusing on active learning and continuous improvement of patient outcomes. That the competencies are patient oriented affirms the importance of early clinical experience with patients from the beginning of medical school, with clinical role models and opportunities to relate learning in the traditional basic sciences to its application to patient care. The time demands of clinical experience in the crowded schedules of years
1 and 2 make ongoing discussion of priorities at each school inevitable. We hope that the resources provided will assist medical educators in sorting through these priorities.

Students absorb the lessons of patient-centered care versus disease-centered care or physician-centered care, responsibility for improving outcomes, and benefits of a reflective practice through their experience with explicit learning objectives from the beginning of medical school and perhaps even more so through the role modeling of their faculty. Therefore, both modeling these precepts and the design of effective educational experiences are necessary to prepare students for a seamless transition to learning in their clerkship year and beyond.

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