Report of the Strategic Planning Committee for Medical Education

June 2010
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This report is available online at [http://medicine.yale.edu/education/strategicplan](http://medicine.yale.edu/education/strategicplan).
Introduction

This report presents the findings and recommendations of The Strategic Planning Committee for Medical Education (“the Committee”). While it is generally acknowledged that the educational program at Yale School of Medicine is exceptional, with many strengths and successes, the purpose of this strategic planning effort was to take a broad and comprehensive look at the state of medical education at Yale, consider ways that it could be improved and set a course for guiding its future direction. Convened in October 2008, the Committee was charged by the Dean to make recommendations that would:

• Renew and refocus Yale’s vision for medical education
• Strengthen the quality of our educational program
• Set clear priorities for moving forward that demonstrate our commitment to excellence and advance our reputation as a leader in medical education

The Committee was comprised of 18 members representing over 10 departments and offices. (Appendix A)

Background and Context

To prepare for this important task, the Committee reviewed extensive materials that provided the context and background for assessing the school’s strengths and weaknesses as well as determining how much and what kind of change is needed. This included information from many sources (journal articles, reports, surveys, websites, etc.) related to:

• The many challenges facing medical education, and the strong national call for reform
• The current state of medical education here at Yale, including curriculum design and content, learning objectives, teaching and assessment methods, faculty teaching effort, accreditation issues, and educational resources
• The mission and core values of the medical school, including the Educational Mission Statement, the School-wide Learning Objectives and the Yale System of Medical Education (“the Yale System”)
• What other schools are doing to reform and improve their educational programs
• The history and recommendations of Yale’s prior strategic planning efforts in medical education

A full listing of the materials reviewed by the Committee, along with sample documents are provided in Appendix B.
In making its recommendations, the Committee took into account that:

- There is concern at a national level that medical school curricula have not evolved sufficiently since the time of Flexner, and as a result students are graduating unprepared to meet the demands and challenges of future medical practice.

- There is evidence that serious curriculum reform has been achieved or is under way at medical schools across the country. These changes are designed to improve integration, better address societal concerns (e.g. communications, professionalism, safety, health disparities), and give new thought to teaching and evaluation methods, the use of technology, and support for faculty.

- Our curriculum, in its current structure, lacks the flexibility needed for innovative curricular reform. In addition, time for students to complete their thesis, participate in research, explore clinical interests, and identify career paths has been greatly diminished.

- At Yale there have been four prior strategic planning efforts in medical education over the past two decades. Strikingly similar conclusions have been reached about the areas in need of improvement, especially integration of our curriculum and enhancing the status of and support for teaching. However, while some improvements came as a result of these prior efforts, much of what has been recommended has not been successfully implemented.

- It is widely recognized, both nationally and here at Yale, that faculty have limited resources to help them develop as educators and are finding it increasingly difficult to find time or support for teaching.

- Accreditation standards are increasingly focused on the need for centralized oversight of the educational program, clear School-wide Objectives that guide the curriculum, integration of topics, and effective assessment of student performance.

**Feedback**

In order to include the broader medical school community in the strategic planning process, a preliminary report of the Committee’s findings and recommendations (The Report of the Strategic Planning Committee for Medical Education: Initial Recommendations, May 2009) was widely distributed to faculty, students, alumni, and staff along with a request for feedback. The initial findings and recommendations were also presented and discussed in a number of settings, including student, alumni, and faculty groups as well as meetings with departmental and educational leadership (Appendix C). Extensive written and verbal feedback, including a response from the Student Liaison Committee on Strategic Planning (Appendix D), was carefully compiled, reviewed and deliberated on by the Committee. This feedback was incorporated into the final report, and we believe that these final recommendations reflect the consensus view and collective wisdom of the broad medical school community and its leadership.
Final Recommendations

The Committee’s final recommendations are based on the following two priorities:

1. Creating a blueprint for curriculum reform using new educational program objectives.

2. Elevating the status of teaching at Yale through the development of programs and initiatives to support and reward teaching.

This report presents an overview of each of these issues followed by the Committee’s findings and recommendations.

Implementation Process

Implementing the recommendations of this Strategic Planning Report will require an inclusive and collaborative process with active participation by departments, clinical and basic science faculty, students, and others. Open discussion, broad-based input and shared responsibility are all essential for curriculum reform to be successful. This approach is especially critical as the school makes important decisions about the content, pedagogy, curriculum structure, specific learning objectives, and evaluation methods needed to ensure that the overarching goals and guiding principles of the new curriculum are met.

All decisions moving forward, including those related to curriculum reform and assessment, must be guided by the fundamental principles and values of the Yale System that give our school its distinct identity and character and make Yale unique among medical schools. It has been described as the school’s “most powerful educational strength,” and is undeniably a major factor in our ability to consistently attract such extraordinarily talented students. The Yale System enjoys widespread and passionate support from our students, faculty, and alumni. The Committee appreciates the depth of this support and shares a strong commitment to the Yale System’s principles and values.

Finally, it should be noted that in order to promote open and creative thinking, the Committee’s charge was to consider what would be best for the school without concern for whether or how specific initiatives would be funded. The Committee recognizes, however, that the allocation of necessary resources is a critical component of any effort to improve medical education at YSM, and it is implicit that developing budgets for our recommendations and obtaining the financial resources needed to implement and maintain them will be an essential next step in moving this strategic plan forward.
Findings and Recommendations

Educational Program Objectives: Creating a Blueprint for Curriculum Reform

Overview

The continuous and at times dramatic changes in science, medical practice, education pedagogy, and accreditation requirements present many challenges to medical education and underscore the need for curriculum reform. To successfully prepare students for careers in medicine, medical schools must consider and take into account:

- The rapid explosion of knowledge in the basic sciences, including remarkable advances in molecular biology (i.e. proteomics, genomics) that increasingly inform our understanding of disease, lead to the development of new treatments, and offer hope for cures

- The evolution in medical practice, including the shift in locus of care from the hospital to the outpatient setting, the increasingly diverse patient population, the growing rates of chronic illness, the need to work in multidisciplinary teams, and the expectations for fiscal accountability

- The advancements in education based on current learning theory, opportunities afforded by rapidly evolving technologies and changing expectations of our students, including greater use of small group interactive teaching, opportunities for Web-based learning, and rapid growth of simulation centers that utilize high-fidelity mannequins, standardized patient programs, etc.

- The impact and importance of evolving accreditation standards

In response, there has been significant curriculum reform at medical schools across the country. To better understand this, the Committee reviewed the mission statements, educational program objectives, and curriculum design and content of 12 other medical schools similar to Yale in mission and academic standing. The data revealed that 10 of 12 have engaged in relatively recent and quite substantial curriculum reform. More specifically, we learned that:

- The number of School-wide Objectives varies greatly in detail, number (9 to 44, average 22), and organization (some based on the Medical School Objectives Project of the AAMC, others moving towards ACGME competencies)

- The integration of topics almost always involves use of blocks, modules, or themes that connect a varying number of courses within a unifying concept

- More than half of the schools have moved up the start date of year one and the start of clinical rotations

- Many schools use “inter-sessions” in both the preclinical and clinical years to incorporate or re-visit special topics, including the basic sciences during clerkships
Of course, the extent to which true integration and reform has been achieved (rather than just a “repackaging” of topics without real change in the teaching or pedagogical approach) is unknown. In addition, the actual success of curriculum reform at other schools is hard to determine, and no clear outcome measures in terms of student learning are available.

With all of this in mind, the Committee conducted a detailed review of the Yale educational program, studied the recommendations of prior strategic planning reports, and considered the areas that have been longstanding concerns of the LCME.

Findings

1. The Committee recognizes the central importance of the School-wide Objectives as the foundation for our educational program. However, Yale’s current School-wide Objectives, while well written and thoughtful, are numerous (38) and contain considerable detail. This makes them difficult to use as overarching guides for the curriculum, and it is challenging to provide meaningful outcome measures for each one, as required for accreditation.

2. The Committee identified a clear need for further integration of our curriculum, increased attention to improving our methods of assessment and much greater flexibility in our curriculum structure.

Recommendations

1. The most effective way to address these findings is to rebuild the curriculum from the ground up. This must begin with the creation of a new set of educational program objectives (“overarching goals”), which will serve as the foundation for our curriculum, define its content, and drive future planning. In addition, there should be a clear set of principles (“guiding principles for renewing the curriculum”) that guide the process, set expectations for educators and students, and inform decisions about curriculum design and structure. These overarching goals and guiding principles should be based on the qualities we expect to see in our graduating students. They will define the educational vision and impart the values of our school that together will serve as the blueprint for our curriculum reform.

2. Given the profound importance of the Yale System to our medical school and recognizing the many challenges we face as we embark on curriculum reform, renewed attention to the Yale System is essential. Despite its many strengths and unique features, throughout its history the Yale System has come to mean different things to different people, and its interpretation has varied over time. At present there is debate in our school about how the Yale System applies in such important areas as attendance, assessment, and the requirement that our students take “more than usual responsibility for their education.” The fundamental principles of the Yale System, including clarification of how they apply in a new, forward-looking curriculum, should be included in the Guiding Principles for Renewing the Curriculum.

Eight newly crafted overarching goals and five guiding principles for rebuilding and renewing the curriculum follow.
Overarching Goals of the Curriculum

The purpose of the Yale School of Medicine curriculum is to educate and inspire students to become physicians who achieve excellence in patient care, understand and advance the science of medicine, and become leaders in their chosen field. Emphasis is placed on goals that meet the growing needs of a changing society and medical practice. A strong foundation in science provides special opportunities for students to participate in creative endeavors that foster the life-long pursuit of scholarship. In order to give an idea of what this involves, some sample implications for implementing each of the overarching goals are included in Appendix E.

<table>
<thead>
<tr>
<th></th>
<th>Health Promotion and Disease Prevention</th>
<th>Students apply scientific knowledge and use clinical skills to promote health and prevent disease in individuals and communities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Mechanisms and Treatment of Disease</td>
<td>Students acquire knowledge at the molecular, cellular, organ-system, whole body, and societal levels, and integrate this knowledge with clinical science and skills to diagnose and treat disease.</td>
</tr>
<tr>
<td>3</td>
<td>Clinical Reasoning</td>
<td>Students exercise clinical judgment based on a thorough understanding of the patient, application of sound scientific principles, and knowledge of the health care systems. Clinical reasoning is learned through practice, self-reflection, and feedback.</td>
</tr>
<tr>
<td>4</td>
<td>Patient Care</td>
<td>Students achieve competency in the care of patients at a level required to excel in residency.</td>
</tr>
<tr>
<td>5</td>
<td>Professionalism and Communication</td>
<td>Students demonstrate respectful and ethical behavior in all of their professional interactions and provide compassionate, empathic care to patients and families. Professionalism and communication skills are acquired through practice, self-reflection, and feedback.</td>
</tr>
<tr>
<td>6</td>
<td>Responsibility to Society</td>
<td>Students learn to practice medicine with cultural competence and fiscal responsibility in preparation for work in a society characterized by diverse populations and economic constraints.</td>
</tr>
<tr>
<td>7</td>
<td>Creation and Dissemination of Knowledge</td>
<td>Students manifest independent and creative thinking fostered by a collaborative graduate school environment. They perform mentored scholarly research culminating in a formal written thesis to promote critical thinking, understand the scientific method, and contribute to medical knowledge.</td>
</tr>
<tr>
<td>8</td>
<td>Physician as Scientist</td>
<td>Students learn to approach medicine from a scientifically minded perspective and are educated and mentored by leading scientists. This prepares them for careers in biomedical science and as medical practitioners, and to become the next generation of medical scientists and leaders in academic medicine.</td>
</tr>
</tbody>
</table>
Guiding Principles for Renewing the Curriculum

1. Integration

Basic, clinical, and social sciences are integrated throughout all years of the curriculum. This requires that:

- The design and implementation of the curriculum are interdisciplinary and interdepartmental.
- Basic scientists and clinicians plan and teach together to assure that the curriculum repeatedly emphasizes and demonstrates the importance of the basic sciences in understanding and practicing clinical medicine.
- Educators* understand how their teaching fits into the goals and content of the overall curriculum and communicate this perspective to students.
- Residents and faculty model and reinforce the skills and professional attitudes we want our students to emulate.
- Students understand the structure of the curriculum and their professional responsibility within it.
- Students have early clinical experiences to provide inspiration and context for learning the scientific foundations of medicine.

2. Learning Environment

Yale’s distinct identity among medical schools is built on the principles and values of the Yale System of Medical Education. Respect for student initiative and maturity, close faculty mentoring, and a required thesis to promote scientific inquiry are all hallmarks of our unique learning environment. Students are assessed based on their performance, but there is no class rank and efforts are made to minimize competition. Emphasis is placed on collaboration, self-directed learning, and the expectation that students take more than the usual responsibility for their education. Creating this learning environment, and preserving the values of the Yale System in a renewed forward-looking curriculum, is a responsibility shared by students and faculty, and will require that:

- The curriculum design be flexible and provide opportunities as well as time for students to explore their interests and pursue individual goals.
- Students accept their responsibility to actively participate in the curriculum and recognize that certain activities require their presence and engagement in order for effective learning and meaningful assessment to take place. This becomes increasingly important as the curriculum continues to shift toward small groups that rely on interactive discussion and collaborative case-based learning.
- Assessment methods emphasize an ability to correlate and apply knowledge rather than recite information, and include multiple opportunities for direct observation by and feedback from faculty and other educators*. Students embrace the importance of feedback as a means of assuring they have acquired the knowledge, skills, and professional attributes to prepare them for residency and exceptional medical practice.
- Faculty continue the close mentorship and guidance of students that occurs within as well as outside the scheduled hours of the curriculum and commit to the increasing use of small group interactive learning.
- Institutional and departmental leadership recognize, encourage, and support the substantial commitment of faculty.
3. **Scholarship and Creative Thinking**

The curriculum is built on the scientific foundation of medical knowledge in which independent, scholarly research is required. The myriad of opportunities for research under the mentorship of skilled faculty makes our school unique and special, and requires that:

- Sufficient time be provided in the curriculum to allow the pursuit of scholarship.
- Faculty remain committed to mentoring students to become creative thinkers and contributors to the many fields of medicine.

4. **Assessment and Reflection**

The school has a responsibility to society to ensure that its students demonstrate proficiency in competencies related to health care delivery. The school also reaffirms the importance of preparing the student for life as a physician in which continued assessment, feedback, and reflection are woven into the fabric of one’s professional life. Meeting these dual responsibilities requires that:

- Multiple opportunities for assessment are imbedded in the curriculum, allowing students and educators* to determine that the overarching goals and specific learning objectives of the components of the curriculum are being met.
- Students, through ongoing feedback and reflection, use the results of assessment to evaluate their progress and identify areas in need of improvement.
- Educators* use feedback from multiple sources in order to improve the curriculum.
- Educators* and students, through mentoring and dialogue, continually reflect on their experiences to improve their performance as professionals.

5. **Educator Development**

The institution must provide formal preparation and training of faculty, residents, and other educators* so that:

- Educators* possess expertise in effective teaching and assessment methods.
- Educators* involved in curriculum design are able to create learning objectives, associated learning activities, and corresponding methods of assessment to achieve the overarching goals of the medical school curriculum.
- Residents understand their unique influence and impact on the education and professional development of medical students.

* The term “educator” refers to faculty, residents, fellows, nurses, physician associates, and all others who provide educational experiences for our students.
Elevating the Status of Teaching at Yale: Developing Programs and Initiatives to Support and Reward Teaching

Overview
Through their teaching and other important roles in planning and organizing the curriculum, faculty provide the foundation of our educational program. However, it is increasingly difficult for them to find time or secure support for teaching and other educational activities. Many factors contribute to this, including:

- Uncertainty about the value of teaching and educational activities in the reappointment and promotions process
- Strict reporting requirements on grants
- Increasing clinical demands

This increasing pressure on and reduced availability of faculty is of great concern because it jeopardizes the quality and consistency of our educational program.

Findings
1. The need to better recognize, support, and reward teachers and educators has emerged as a central theme and clear recommendation of this strategic planning process, just as it had in each of the four prior strategic planning efforts. These issues must be addressed if successful curriculum reform and meaningful improvement in education is to be achieved.

Recommendations
1. The importance of educational leadership roles in each department must be acknowledged and the time and effort it takes to do them well and successfully must be recognized and protected.

2. The value of teaching and other contributions to medical education must be recognized and consistently rewarded in the reappointment and promotions process.

3. The medical school must provide educator development opportunities, access to expertise in education, and reliable assessment data about faculty teaching that can be used in the reappointment and promotions process.

The following initiatives are designed to fulfill each of these recommendations.
“The importance of educational leadership roles in each department must be acknowledged and the time and effort it takes to do them well and successfully must be recognized and protected.”

1) For each educational leadership role (Director of Medical Studies [DMS], Course Director, Module Director, Clerkship Director, Electives Director), there must be a clear job description outlining the responsibilities of the position and the time it takes to perform these critical functions must be protected. The amount of time needed must take into account participation in central School of Medicine educational activities and be adjusted based on the department’s overall teaching contribution. This will require a collaborative mechanism involving both departmental and central educational leadership to ensure that these job descriptions and expectations realistically meet the educational needs of the school and its curriculum.

2) To ensure central oversight and promote integration, the DMSs as well as the Course, Module, Clerkship, and Electives Directors, should be directly accountable to the Deputy Dean for Education for the portion of their time allocated to these important educational roles. The Deputy Dean for Education will collaborate with the Department Chairs in choosing the appropriate individuals.

3) The establishment of a more consistent structure for facilitating educational activities across departments will be important in creating and implementing a new and more fully integrated curriculum. To accomplish this, there must be renewed attention to the central role of the Director of Medical Studies in medical student education.
   - There must be a single individual in each department who is responsible for: 1) overseeing medical student education; 2) participating in medical school activities designed to enhance the coordination and integration of the curriculum across all four years; and 3) organizing, supporting, and guiding the activities of the faculty and residents who are teaching.
   - The Department Chair and Deputy Dean for Education must ensure that the DMS has the appropriate authority to carry out these responsibilities.
   - A council, convened by the Deputy Dean for Education and comprised of the DMSs from each department, should be created and meet regularly. This will serve as a forum for communication, and promote sharing of information about our curriculum and other important issues in medical education.

4) The issue of protected time for teaching is equally important and complex, and will require further discussion involving the Dean, the Deputy Dean for Education, and the Department Chairs. There must be a mechanism to ensure sufficient participation of faculty so that the teaching needs of the school and its curriculum are met.
“The value of teaching and other contributions to medical education must be recognized and consistently rewarded in the reappointment and promotions process.”

1) In order to provide information that is useful to the reappointment and promotions committees, better metrics for defining and measuring faculty effort and accomplishment in medical education must be developed.

2) The Deputy Dean for Education should continue to be a member of the reappointments and promotions committees. For those faculty seeking reappointment or promotion based on achievement in education, the Deputy Dean for Education should be prepared to evaluate their contribution based on the metrics identified above.

3) The availability of basic science teachers is critically important to our curriculum. Opportunities for reappointment or promotion based on their contribution to the education of our students needs to be examined. This will require further discussion involving the Dean and the Department Chairs.

“The medical school must provide educator development opportunities, access to expertise in education, and reliable assessment data about faculty teaching that can be used in the reappointment and promotions process.”

1) Create a “Teaching and Learning Center” at Yale School of Medicine that has dedicated resources, education experts, and a clear mission to promote excellence in medical education. The Center will have three critical components:

- Educator Development – Programs (seminars, workshops, and individual consultations) that focus on important topics in medical education such as teaching skills, curriculum development, assessment methodology, and scholarship in education.

- Assessment – Centralized resources and expertise focusing on activities such as:
  - evaluating the effectiveness of the curriculum, the knowledge and skills of our students, and the quality of faculty teaching.
  - developing effective methodologies for providing students with interactive and constructive feedback needed for self-assessment and to enhance their development as future physicians.
  - developing mechanisms for collecting evaluation data, organizing results, and providing feedback to faculty and committees.
  - providing faculty and education committees with help developing new and reliable methods of assessment, as well as guidance in understanding, interpreting, and effectively utilizing the results.

All efforts at effective, accurate assessment, including the development and use of new methods, must be consistent with the Yale System of education, highlight the importance of feedback and preserve the collaborative, collegial learning environment we cherish.
• Technology – Expertise focusing on the role of technology in medical education. The purpose is to ensure that the school is informed and up to date about opportunities to use new and evolving technologies in curriculum development, Web-based learning, simulation, and assessment. Consultation to faculty and education committees will be provided, along with direct assistance in the development and implementation of new pedagogies and other “technology-based” initiatives.

2) The Society for Distinguished Teachers should be incorporated into the “Teaching and Learning Center,” and its purpose and mission clarified. The funds of the Society can be used to support and reward teaching in a number of ways, including grants for innovative curriculum projects or research in medical education.
Appendices

A. The Strategic Planning Committee for Medical Education

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Administrative Coordinators:
Jennifer Frahm
Dorothy Meyer
B. Full Listing of Materials Reviewed by the Committee

Yale School of Medicine

Educational Program Documents and Data

3. Curriculum: Overview and Structure
4. School-wide Objectives and Related Outcome Measures
5. Course Hours and Teaching Methods (2008-2009)
6. Methods of Assessment
8. Education Committee Structure for Oversight, Management & Review of the Educational Program (2008)
9. Liaison Committee on Medical Education (LCME): Findings from the YSM Accreditation Site Visit, November 2007
11. Composition of Faculty (2008)
14. Match Results for Classes of 2006-2008
17. Data About Medical Student Research Activities & Academic Careers after Graduation (2008)

Educational Strategic Planning Reports

2. 1990 Academic Plan for the Yale University School of Medicine (“The Rosenberg Report”)
Review of Peer Institutions

Educational Mission Statements, Program Objectives and Curriculum Design

1. Case Western Reserve University School of Medicine
2. University of Chicago Pritzker School of Medicine
3. Columbia University College of Physicians and Surgeons
4. Weill Cornell Medical College
5. Duke University School of Medicine
6. Harvard Medical School
7. Johns Hopkins University School of Medicine
8. University of Pennsylvania School of Medicine
9. University of Pittsburgh School of Medicine
10. University of Rochester School of Medicine and Dentistry
11. Stanford University School of Medicine
12. Washington University School of Medicine

Literature Review, Publications and Reports

National Issues in Medical Education and the Call for Reform

2. Initiative to Transform Medical Education: Recommendations for change in the system of medical education. The American Medical Association, 2007
8. Joint Educational Program of the AMA Council on Medical Education and Section on Medical Schools, American Medical Association, 2005
9. Is It Time to Transform Medical Education? The American Medical Association, 2008 (Web Archive)
10. Recommendations for Clinical Skills Curricula for Undergraduate Medical Education, Association of American Medical Colleges, 2005
13. Report to the American Association of Medical Colleges, Update on New LCME Standards and Policies. Dan Hunt, MD, MBA, LCME Secretary, 2008-2009

**Education Pedagogy and Technology**

2. Millennial Behaviors and Higher Education Focus Group Results: How are Millennials different from previous generations at the same age? Richard Sweeney, New Jersey Institute of Technology, 2007 (Web Archive)

**Funding of Medical Education**

3. Kennedy, DW, Johnston, E, Arnold, E. Aligning academic and clinical missions through an integrated funds-flow allocation process. Acad Med. 2007; 82:1172-77
Presentations to the YSM Strategic Planning Committee for Medical Education

1. The Case for Change: A Review of the National Call for Reform, LCME Accreditation Standards and Policies, YSM Curriculum, Assessment Methods and Faculty Teaching Efforts
3. A Look Outside the Hallowed Halls: A Review of What Other Schools are Doing to Change, Reform and/or Improve Their Educational Programs
4. Education Finances at YSM: A Review of Income, Expenses, Operating Budget and Line of Business for MD Degree Program
C. Methods to Obtain Feedback

1. Written Responses to Request for Feedback: E-mails and letters

2. Presentations and Discussions at Meetings:

   A. Student Groups:
      - Medical Student Council Meeting
      - Medical Student Leadership Meeting
      - Town Hall Meeting
      - Student Liaison Committee

   B. Alumni Focus Groups:
      - Boston
      - New York City
      - New Haven

   C. Department Chairs:
      - Individual meetings with all Department Chairs (27)
      - Chairs and Deans Meeting

   D. Faculty Groups:
      - YSM Library
      - Child Study Center
      - Emeritus
      - Department of Immunobiology
      - Department of Pathology

   E. Education Leadership and Administration:
      - Clerkship Directors Meeting
      - Course Directors Meeting
      - Module Directors Meeting
      - Joint Educational Policy and Curriculum Committees Meeting
      - Graduate Medical Education Meeting
      - Clerkship Administrators Meeting
      - Office of Education Full Staff Meeting
D. Student Liaison Committee Report

February 11, 2010

STUDENTS’ PERSPECTIVE:
Curricular Reform at the Yale School of Medicine

FOREWORD
The Yale School of Medicine fosters a learning environment that is unique among medical schools. As stated in the Educational Philosophy of the Yale System, “[t]he fundamental element of the system is the concept that medical students are mature individuals, strongly motivated to learn, requiring guidance and stimulation rather than compulsion or competition.” Students thrive in this collaborative, non-competitive atmosphere that facilitates our growth as leaders in medicine. To maintain our position at the forefront of medical education, Yale must periodically reevaluate its educational strategy. Therefore, the Student Liaison Committee to the Education Strategic Planning Process recognizes the importance of curricular reform. As we move forward, we believe it is crucial to reemphasize the values of the Yale system that students hold dear.

VALUES
The Yale System is an environment of medical education. It is a direct product of four key principles:

1) STUDENT VOICE
A unique attribute of the Yale School of Medicine is the faculty and administration’s respect for student input and involvement. This facilitates an environment where students have an unusual level of responsibility for their education. We urge the administration to reaffirm their commitment to enfranchising student voice throughout all aspects of education at the School of Medicine.

2) COLLABORATIVE LEARNING ENVIRONMENT
A collaborative, non-competitive atmosphere develops in the absence of grades and class rank. Genuine interest and self-motivation guide the students’ pursuit of knowledge. Students embrace the need for constructive feedback to further their development as future physicians. We feel that evaluation should preserve the principles of our collaborative, non-competitive, self-motivated community.

3) INDEPENDENCE & FLEXIBILITY
A fundamental goal of the Yale System is the development of lifelong learners. In giving independence and flexibility, Yale engenders in its students an unusual amount of responsibility to
seek out the learning modalities that best meet their individual needs. This equips students with the most effective skills and techniques required of a lifelong commitment to learning.

The Student Liaison Committee recognizes the concerns between faculty and students that may develop as a result of this independence. We understand the disrespect a faculty member may feel after preparing a lecture that only a few students attend. However, we believe it is important to preserve student flexibility in choosing their preferred learning modality. We fear that some faculty might mistake student attendance as a barometer of commitment to learning. Rather, attendance and self-assessment exams are merely one approach in a spectrum of learning styles. Yale must protect student independence and flexibility during the implementation of curricular reform in a way that preserves a collegial student/faculty relationship.

4) **THESIS REQUIREMENT**
Yale’s thesis requirement embodies independence, collaboration and self-directed learning. It provides an opportunity where students engage in analytical thinking and problem solving in an effort to advance medical knowledge. Not only do students appreciate the process by which knowledge is created, they engage in it.

The thesis requirement creates the most unique relationship between faculty and students. Students and faculty mutually seek each other as colleagues in their research. This provides for a dynamic student/faculty exchange that is a hallmark of the Yale curriculum.

Annual Student Research Day highlights the importance Yale places on student research and illustrates the role the thesis requirement plays in developing student/faculty collaboration. Furthermore, it allows for students to engage in the act of disseminating knowledge, a crucial aspect of being a leader in medicine.

**TRAINING OF FUTURE LEADERS IN MEDICINE**
The Yale environment promotes independence, self-directed learning and motivated problem solving. These qualities are integral in training future leaders in medicine with a passion for furthering medical knowledge. We strongly feel that Yale must continue to set the standard in the training of future leaders in medicine. To remain at the forefront of training leaders in medicine, Yale must reaffirm its commitment to student voice, a collaborative learning environment, independence and flexibility, and a rigorous thesis requirement.

**FUTURE DIRECTIONS**
We have identified two areas of improvement that will advance our educational system while preserving our unique environment at the School of Medicine.

The first is the development of a centralized system of medical education within the Office of Education. The system will place value on teaching students core principles that are vital for their maturation as doctors. We value the leading research conducted by the faculty members at Yale and believe that it should also play an important role in our education. Vertical integration of education between the preclinical and clinical years will ensure that student knowledge is accumulated in a progressive manner. Furthermore, this system will emphasize, support and elevate teaching as an important aspect in the life of an academic faculty member.
The second is the development of a system of dynamic feedback. We welcome increased opportunity for interactive and constructive feedback as long as it preserves the core principles of Yale’s educational environment.

**SUMMARY**

The Student Liaison Committee of the Education Strategic Planning Process strongly believes that educational reform is needed at the Yale School of Medicine. We urge that this process be carried out in a manner dedicated to preserving the fundamentals of what makes the environment at Yale unique: student voice, collaborative learning environment, independence and flexibility, and a thesis requirement. It is this environment that creates leaders in medicine who engage in lifelong learning. As this process unfolds and continues to progress, we urge the faculty committee to incorporate student input and involvement.

Sincerely,

*The Student Liaison Committee to the Education Strategic Planning Process:*

Daniel M Balkin, *Committee Chair*
Jacob Appelbaum
Feras Akbik
Jason Bae
Jonathan Belman
Catherine Dailey
Chineme Enyioha
Aaron Feinstein
Nupur Garg
Benjamin Goldberg
Barbara Hirschman
Bryan Hong
Matthew Hornick
Scott Hunter
Terri Huynh
Jeremy Jacox
Yoshio Kaneko
Hadiza Kazaure
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Cheryl Maier
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Monica Mix
Joshua Motelow
Regina Myers
Alexi Nazem
Charles Odonkor
Daniel Okin

Henry Park
Michael Peluso
Katherine Rose
Talia Rosenberg
Dionne Rudison
Christopher Sauer
Rajendra Sawh
Sachin Shah
Michael Soule
Alla Smith
Elizabeth Wahl
Molly Weiner
Kathryn Wynne
E. Implications for the Overarching Goals

Throughout these implications, educator refers to faculty, residents, fellows, nurses, physician associates, and all others who provide educational experiences for our students.

1. Health Promotion and Disease Prevention

Students apply scientific knowledge and use clinical skills to promote health and prevent disease in individuals and communities.

*Examples of implications for the curriculum, educators, and students include the following:*

<table>
<thead>
<tr>
<th>CURRICULUM</th>
<th>EDUCATORS</th>
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</tr>
</thead>
<tbody>
<tr>
<td>• Opportunities for involvement in multidimensional patient assessments that include and address:</td>
<td>• Educators acquire or enlist the necessary expertise to include health promotion and disease prevention in their curricular design</td>
<td>• Students consistently address issues of health promotion and disease prevention as an integral part of their encounters with patients</td>
</tr>
<tr>
<td>o Genetic determinants</td>
<td>• Educators include faculty from and work in collaboration with the School of Public Health</td>
<td>• Students learn the skills necessary to counsel patients for health promotion and disease prevention</td>
</tr>
<tr>
<td>o Nutrition</td>
<td>• Educators observe and give feedback to students counseling patients for health promotion and disease prevention</td>
<td>• Students practice these skills with direct educator observation and feedback</td>
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<tr>
<td>o Life style behaviors</td>
<td></td>
<td></td>
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<tr>
<td>o Environmental factors</td>
<td></td>
<td></td>
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<tr>
<td>• Coverage of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Use of screening tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Mechanisms of prevention</td>
<td></td>
<td></td>
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<tr>
<td>o General public health education</td>
<td></td>
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</tr>
<tr>
<td>• Opportunities to learn the counseling skills needed to promote health, prevent disease, and provide patient education</td>
<td></td>
<td></td>
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<tr>
<td>• Attention to physician health and well-being</td>
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</tbody>
</table>
2. Mechanisms of Disease and Treatment

Students acquire knowledge at the molecular, cellular, organ-system, whole body, and societal levels and integrate this knowledge with clinical science and skills to diagnose and treat disease.

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| • New frameworks to ensure that the relationships between the scientific foundations of medicine and clinical practice are emphasized throughout all four years  
• Coverage of the multiple mechanisms, including societal influences, that lead to chronic and complex diseases  
• Attention to the mechanisms that link stress and other psychological factors to disease  
• Opportunities for students to observe how an understanding of physiologic mechanisms informs clinical decision making and treatment | • Clinicians and basic scientists collaborate to identify the basic science concepts and knowledge essential for future physicians  
• Educators commit to integrating basic science concepts with clinical teaching | • Students continuously apply their knowledge of basic science as they learn about the clinical manifestations of disease and participate in patient care |
3. **Clinical Reasoning**

Students exercise clinical judgment based on a thorough understanding of the patient, application of sound scientific principles, and knowledge of health care systems. Clinical reasoning is learned through practice, self-reflection and feedback.

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</thead>
<tbody>
<tr>
<td>• New frameworks to ensure that the scientific foundations of medicine are integrated with and emphasized during clinical training</td>
<td>• Educators are skilled at observing student performance and providing feedback</td>
<td>• Students develop and apply the skills of scientific and clinical reasoning to:</td>
</tr>
<tr>
<td>• Opportunities for educators and students to recognize and address gaps in their knowledge</td>
<td>• Educators are skilled at facilitating small-group interactive learning</td>
<td>o Care for patients</td>
</tr>
<tr>
<td>• Emphasis on interactive learning in small groups</td>
<td></td>
<td>o Critically evaluate the medical literature using their knowledge of basic science, biostatistics and study design</td>
</tr>
<tr>
<td>• Experiences in outpatient settings where there are repeated opportunities to observe and practice the skill of clinical reasoning</td>
<td></td>
<td>• Assimilate new developments into their understanding of medical practice</td>
</tr>
</tbody>
</table>
4. **Patient Care**

Students achieve competency in the care of patients at a level required to excel in residency.

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<tr>
<td>• Multiple opportunities to practice and develop clinical skills through supervised interactions with real and simulated patients.</td>
<td>• Educators acquire precepting skills including:</td>
<td>• Students develop and practice the skills to:</td>
</tr>
<tr>
<td>• Frequent opportunities for structured assessment and feedback by educators</td>
<td>- Role-modeling</td>
<td>- Establish rapport and gather information using patient-centered interviewing and physical exam skills</td>
</tr>
<tr>
<td>• Experiences with patient assessment in a variety of settings from home to hospital emphasizing:</td>
<td>- Direct observation</td>
<td>- Organize and share patient information using presentation and documentation skills</td>
</tr>
<tr>
<td>- Function</td>
<td>- Formative feedback</td>
<td></td>
</tr>
<tr>
<td>- Rehabilitation</td>
<td>- Summative assessment</td>
<td></td>
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<tr>
<td>- Pain and symptom management</td>
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<td></td>
</tr>
<tr>
<td>- Death and dying</td>
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<tr>
<td>- Prioritization of treatment goals</td>
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<td></td>
</tr>
<tr>
<td>- Use of complementary and alternative medicine (CAM) by patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Activities that promote reflection and discussion among students and educators on the meaning of service</td>
<td>- Educators consistently observe students and provide feedback as they interact with real and simulated patients</td>
<td>• Students access bibliographic resources to deepen their understanding of clinical issues</td>
</tr>
<tr>
<td>• Opportunities to effectively use bibliographic resources at the point of care</td>
<td>- Educators collaborate with residency program directors to ensure that our curriculum prepares students with the knowledge, skills, and professional attitudes expected of beginning residents</td>
<td>• Students behave in ways that reflect altruism, compassion, scientific integrity, and respect for patients and their autonomy</td>
</tr>
</tbody>
</table>
5. **Professionalism and Communication**

Students demonstrate respectful and ethical behavior in all of their professional interactions and provide compassionate, empathic care to patients and families. Professionalism and communication skills are acquired through practice, self-reflection, and feedback.

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<tbody>
<tr>
<td>• Emphasis on patient-centered medicine* at all levels of the curriculum</td>
<td>• Educators emphasize and consistently model professionalism, recognizing the profound effect this has on the professional development of students</td>
<td>• Students know and meet their educational requirements, cognizant of their responsibility in a flexible environment</td>
</tr>
<tr>
<td>• Opportunities for students to observe the modeling of professionalism and participate in discussions about professional behavior are provided throughout all four years</td>
<td>• Educators create and participate in opportunities for self-reflection</td>
<td>• Students participate in guided, ongoing assessment, feedback, and self-reflection to attain the highest standards of professionalism in medicine</td>
</tr>
<tr>
<td>• Programs and experiences that demonstrate the interdisciplinary team approach to patient care and research as well as teach the communication skills required to work collaboratively</td>
<td>• Academic Advisors follow and monitor the academic progress and professional behavior of students</td>
<td>• Students develop an awareness of the ethical and moral challenges in medicine</td>
</tr>
<tr>
<td>• Mechanisms to address unprofessional practices and behavior</td>
<td>• Educators incorporate content and encourage discussions about professionalism in their courses, modules, clerkships and electives</td>
<td>• Students understand the unique role of and demonstrate respect for each member of the interdisciplinary team</td>
</tr>
<tr>
<td></td>
<td>• Educators acquire or enlist the necessary expertise to address unprofessional behavior</td>
<td>• Students understand that the doctor-patient relationship is a partnership, advocate for their patients, and place patient needs above their own</td>
</tr>
</tbody>
</table>

*Patient-centered medicine is medicine focused on the patient and family in which the overall well-being of the patient is the first priority*
6. **Responsibility to Society**

Students learn to practice medicine with cultural competency and fiscal responsibility in preparation for their work in a society characterized by diverse populations and economic constraints.

*Examples of implications for the curriculum, educators, and students include the following:*

<table>
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</table>
| • Multiple opportunities to learn about:  
  o Cultural competence and respect  
  o Economic and regulatory constraints on the practice of medicine  
  o Advocacy and health care policy  
  o Global health  
  o Health care disparities  
  o Patient safety and prevention of medical errors | • Educators acquire or enlist the necessary expertise to create and implement a curriculum in health care disparities, cultural competence and cost effective medicine  
• Educators emphasize the impact of diverse cultural perspectives on patient care | • Students integrate knowledge of the social, cultural, political, and economic determinants of health and disease into their work with patients  
• Students reflect on health and illness from the perspective of their own and other cultures  
• Students recognize the responsibility of physicians to take a leadership role in shaping health care policy and practice |
7. **Creation and Dissemination of Knowledge**

Students manifest independent and creative thinking fostered by a collaborative graduate school environment. They perform mentored scholarly research culminating in a formal written thesis to promote critical thinking, understand the scientific method, and contribute to medical knowledge.

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<tr>
<td>• Explicit support and time allocated for medical student research and the M.D. thesis program</td>
<td>• Educators are committed to close mentorship and guidance of students</td>
<td>• Students use the time allocated for research responsibly, cognizant of other educational requirements and interests</td>
</tr>
<tr>
<td>• Sufficient flexibility in the schedule so that students can identify research interests and find appropriate mentors</td>
<td></td>
<td>• Students create and disseminate knowledge by publishing, presenting at meetings, teaching and communicating their scientific thoughts and findings with the broader community</td>
</tr>
</tbody>
</table>
8. **Physician as Scientist**

Students learn, in preparation for careers in biomedical science and as medical practitioners, to approach medicine from a scientifically minded perspective and are educated and mentored by leading scientists. This prepares them to become the next generation of medical scientists and leaders in academic medicine.

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<tbody>
<tr>
<td>• New frameworks to ensure that the scientific basis of medicine is taught as an integral part of clinical training</td>
<td>• Educators mentor students in the scientific basis of medical practice</td>
<td>• Students are committed to using and continuously updating their knowledge of biomedical science as they learn clinical medicine and care for patients</td>
</tr>
<tr>
<td>• Opportunities and time for students to explore their career interests and pursue individual goals</td>
<td>• Educators serve as role models for students as they pursue careers in medical science</td>
<td>• Students learn to evaluate evidence to ascertain that it is scientifically valid</td>
</tr>
<tr>
<td>• Opportunities to learn the concepts and practice the skills needed to become effective leaders</td>
<td>• Educators communicate the limits of scientific knowledge in the practice of medicine</td>
<td>• Students seek opportunities to learn, practice and develop leadership skills</td>
</tr>
<tr>
<td></td>
<td>• Educators develop and model leadership skills</td>
<td></td>
</tr>
</tbody>
</table>