VitalSigns

Preparing for the Future

Office of Medical Education Research and Development Fall 2005

Change Is in the Air

This past year, 22 of the nation's 125 allopathic schools expanded their class size by 5% or more, with seven schools boosting their class size by more than 10%. Recent workforce projections for Michigan suggest a specialty care physician shortage by 2012 and a primary care physician shortage in 2018. It is within this context that we are engaged in self-study for accreditation and preparing for an expansion to Grand Rapids.

This edition of Vital Signs reflects on the current state of our educational program, with an eye to the future. Many of the issues and achievements that have come to define our identity as a medical school have been captured by SCRIPT, a scheme for organizing our educational competencies. The AAMC Matriculating Student Questionnaire provides a student's perspective on the features that distinguish us from other medical schools. We also document our success educating medical students with highly varied backgrounds and life experiences. Our 2004 graduates provide their perspective on curriculum content based on their ratings of preparation adequacy and compared to those of medical school graduates nationally. Finally, we revisit the USMLE Step 2 CS results after the first year of testing as well as new CHM initiatives in performance assessment. As we prepare for change, let us take stock of what we have done to date.

An Exciting Time for Educators

Aron Sousa, Acting Associate Dean for Academic Affairs

You need only glance at the newspapers to know that this is a busy time for faculty and administration at the College of Human Medicine (CHM). Since the last issue of Vitals Signs, Marsha Rappley became Acting Dean, the stakeholders of a CHM expansion in Grand Rapids announced their support of a plan to add 50 and then 100 students to the school (mostly in West Michigan), and the faculty began its self-study for next fall's Liaison Committee for Medical Education (LCME) accreditation visit. Our "to do" list is long and challenging, but this work gets to the core of why CHM was founded and what medical education is all about.

The self-study portion of the accreditation cycle calls for the faculty to review the structure and function of the school; this process itself is a valuable and rewarding experience. It is always interesting to look at the variety of data we collect to see our successes and challenges. We've confirmed, or rediscovered, how well our communities work together in the clerkships, how well-integrated our preclinical curriculum is, and how well we support our students through Student Affairs.

The accreditation cycle has also given us the opportunity to continue the implementation of our competency-based curriculum initiative that started with the Innovations in Medical Education Task Force. The Task Force recommended aligning the curriculum along the Accreditation Council for Graduate Medical Education (ACGME) competencies, making them more "CHM-like." This fall the CHM community endorsed a more "CHM-like scheme" of institutional objectives represent by SCRIPT, which stands for Service, Care of Patients, Rationality, Integration, Professionalism, and Transformation. Most of the concepts in the SCRIPT scheme are pretty straight forward, but there are a few special features worth emphasizing.

Service has long held a special place for CHM and indeed our motto "Serving the People" implores us to engage in the community beyond the ivory tower. We construe service broadly to include intellectual, clinical, and educational service to the community, nation, and world. We hope to make service more prominent in our curriculum and are starting some pilot projects in service learning.

Care of Patients is pretty much just that – the core of what we do and expect of our students.

The word **Rationality** was picked in part because of the ongoing discussion in the medical community of "rational prescribing habits," and also holds within it our

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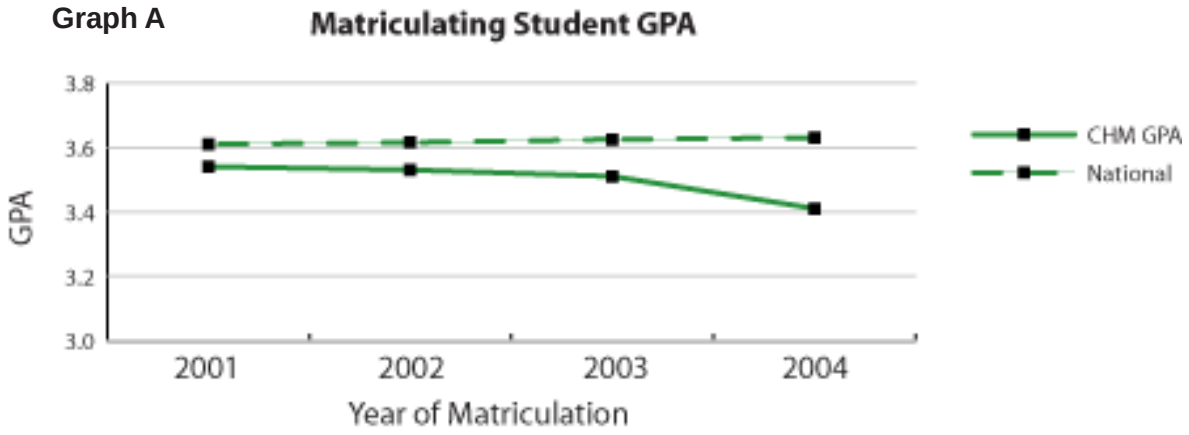
Maintaining Diversity, Upholding Academic Excellence, and Addressing Access to Care: Managing Competing Goals

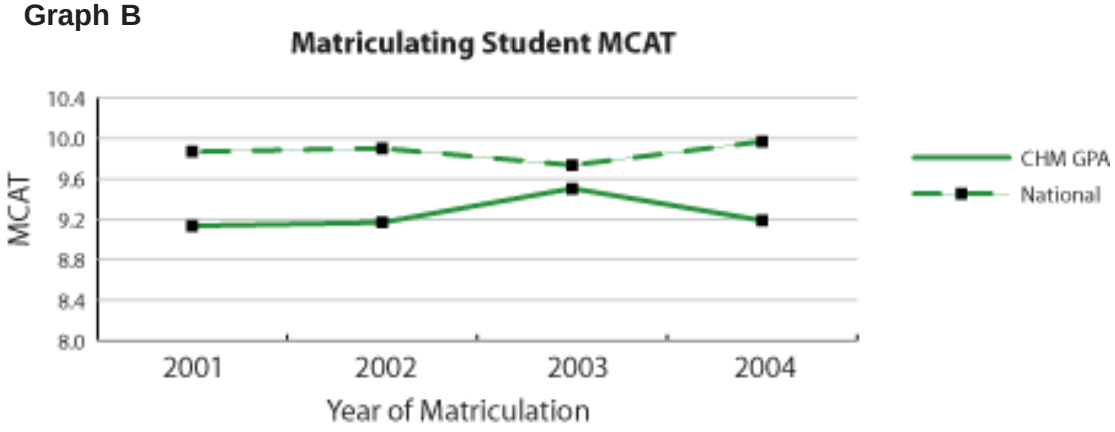
The mission of the College of Human Medicine (CHM) at Michigan State University is to educate and develop exemplary physicians, create and disseminate new knowledge, and provide service to the people of the State through education, research, clinical and outreach programs that are: integrated with and responsive to communities, and their systems of health care; focused on meeting the primary health care needs of patients, families and communities; considerate of the dignity, diversity, needs and values of individual patients; and responsive to the unmet needs of medically underserved populations.

Meeting the competing goals of CHM's mission requires balancing priorities. In keeping with MSU's land grant philosophy, CHM strives to maintain a diverse student body which in turn, we believe, helps CHM's mission of providing sensitive and appropriate care for the diverse population of our state. Our success in maintaining a diverse student body is evident. CHM has consistently accepted a higher percentage of female matriculates compared to other American medical schools achieving gender equity since the mid-1980s. Over the last 10 years 20% of the CHM matriculating class has consisted of under-represented minority students as defined by the Association of American Medical Colleges (AAMC). This is substantially higher than most medical schools. CHM also strives to include other under-represented groups of people within its student body such as people from rural backgrounds, and individuals who are the first person in their family to receive a college education. Over the last 10 years, approximately 12% of the matriculating class has come from rural backgrounds as defined by the AAMC.

Graph A



Graph B



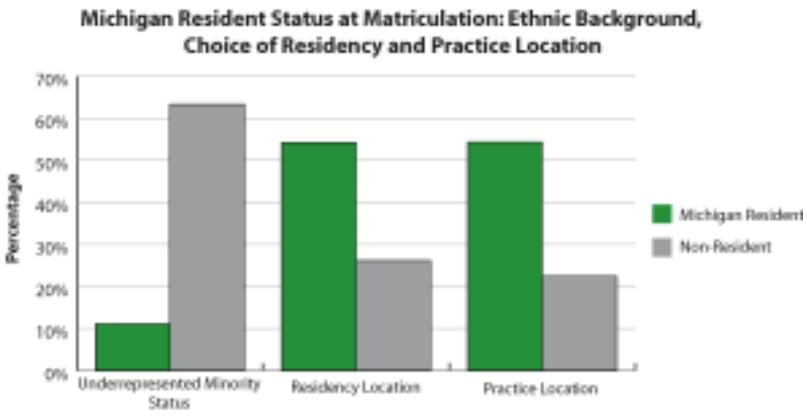
As can be seen in the graphs, in order to achieve a diverse student body and matriculate students with excellent personal as well as academic characteristics, CHM accepts students who score somewhat lower than the national average on traditional measures of academic performance such as grade point average and scores on the Medical College Admissions Test (MCAT). To help ensure that students entering CHM are successful, CHM has instituted programs such as the Advanced Baccalaureate Learning Experience (ABLE). ABLE is designed to enhance the preparation for medical school of under-represented minority applicants who appear promising to the Admissions Committee, but who would not be admitted without successful completion of the experiences that ABLE provides. CHM's ability to accept promising applicants and providing the educational programs that help ensure their success is evident in the fact that while CHM's matriculating classes have lower than average college grades and MCAT scores, their pass rates on the United States Medical Licensure Examination (USMLE Step 1) has tended to be at or slightly above the national average as can be seen in graph C.

Graph C

CHM students also take somewhat longer on average to graduate compared with national data for all medical schools. Based on the most recent data available, 76.7% of CHM students graduate in four years as compared with a national average of 81.8%. After five years, however, 88.7% of CHM students have graduated as compared with a national average of 91.1% and if national data were available on graduation rates after six years, CHM students would come even closer to the national average.

One of the ways CHM is able to maintain a diverse student body is by accepting a relatively high percentage of under-represented minority students from outside of Michigan. The first set of bars in graph D compares the percentage of under-represented minority students among Michigan resident and nonresident students. Approximately 10% of the in-state students are from an under-represented ethnic background while over 60% of the out-of-state students fall into this category.

Graph D



While matriculating applicants from outside Michigan have helped CHM maintain a diverse student body, it appears to have resulted in a higher percentage of CHM graduates leaving Michigan for graduate training and practice. The next two sets of bars in graph D show the percentage of instate and out-of-state students who receive their residency training in Michigan and eventually practice in Michigan. Not surprisingly, graduates of CHM who were Michigan residents when they matriculated were substantially more likely to complete their residency training in Michigan and eventually practice in the state.

It is difficult to balance the various goals that make up CHM's mission. The College appears to have succeeded in developing educational programs that meet the needs of our diverse student body and facilitating the successful completion of their training. Our ability to ensure a high percentage of CHM graduates practicing in Michigan, however, is somewhat at odds with the goal of maintaining the ethnic diversity of our students.

New Initiatives in Performance Assessment

This has proven to be a productive year for performance assessment. Block III students performed well on the first administrations of the United States Medical Licensing Examination (USMLE) Step 2 Clinical Skills Examination (CS). The Learning and Assessment Center (LAC), a new 8,000 square foot facility, is expected to open in early 2006, led by a core team of professionals with expertise in assessment, standardized patient training, procedural skills and applications of educational technology. Also the College is creating a new system for performance assessment, currently named the Gateway Assessment System, that begins pilot-testing this spring. This new system is partially funded by the Health Resources and Services Administration (HRSA) and will be CHM's first event to be implemented through the new LAC.

USMLE Step 2 Clinical Skills Performance Update

Recently the USMLE provided U.S. medical schools results of the first administration of the CS Step 2 examination for June 2004-June 2005. The purpose of this national performance exam is to assure the public that all medical school graduates possess a minimal level of competence in clinical skills. Students complete 12 standardized patient cases that require them to: establish rapport; obtain relevant historical information; perform a focused exam; communicate effectively and document findings in a post-encounter note. Examinees are scored in three subcomponents: the integrated clinical encounter; communication and interpersonal skills and spoken English proficiency. All subcomponents must be passed. Results for CHM appear below.

Five percent of CHM students failed the exam on the initial administration, a failure rate predicted by the USMLE for all examinees. All four who re-tested the exam passed. It is interesting to note that four CHM students failed the Communication and Interpersonal component of the test, competencies that are generally considered a strength of CHM graduates as reported by the Graduation Questionnaire and the Residency Director's Follow-up Survey. The College will continue to monitor student performance on the sub-components of the CS Step 2 to determine if there are any weaknesses in the curriculum that may explain the results.

LEARNING AND ASSESSMENT CENTER

The purpose of the LAC is to enhance health professions education, increase patient safety, stimulate the development of a performance-based curriculum, and serve as a regional resource for the continuous development of practicing professionals. The LAC is designed to provide task-specific assessments of MSU's health professions students and to prepare graduates to be "practice-ready," according to Ruth Hoppe, M.D., Director of the LAC. Funded through a consortium of MSU's four health professions schools, the LAC will address assessment needs for those colleges as well as MSU's affiliated residency training programs. Even though the facility will not be completed until early 2006, over 200 medical students have participated in LAC-facilitated clinical assessment events offered in the temporary facility in the clinical center. As the licensure process is requiring more tangible evidence that students are ready for the next level of training, assessment centers such as ours are becoming central to the medical education enterprise. Practicing physicians may also become candidates for proficiency testing. As we learn more about what our students can and cannot do, that information will inform future curriculum evaluation and faculty development endeavors, completing the education-assessment cycle. For more information visit the LAC web site at www.lac.msu.edu

Gateway Assessment System

As a result of CHM's 2004 strategic planning process, the College endorsed a plan to implement a new Gateway Assessment System. For CHM this concept of Gateway Assessment includes summative assessments of required competencies emphasizing core clinical skills and several ACGME Competencies. The system will involve assessment events in Block II and Block III and possibly in Block I. Students will be required to demonstrate basic proficiency in a defined number of skill areas before progressing to the next phase of education. Building on the competency movement and the soon to be completed LAC, CHM expects that this new assessment system will allow monitoring our students' progress as they gain new clinical competence. Also it will provide important evidence supporting graduation to residency training. The Gateway Assessment System will more explicitly link programs such as clinical skills, clinical clerkships and problem-based learning under one assessment system, allowing better informed curriculum evaluation and accountability. In 2005 CHM received funding from HRSA to support development of patient cases and implementation of the system. The grant is jointly directed by Mary Noel, Ph.D., Department of Family Practice and Chris Reznich, Ph.D., OMERAD, in conjunction with the Gateway implementation team.

The goal of the Gateway Assessment System is to support development and comprehensive assessment of clinical competence through the application of multi-method performance assessments, including standardized patients, simulations and web-based activities.

Progress to Date

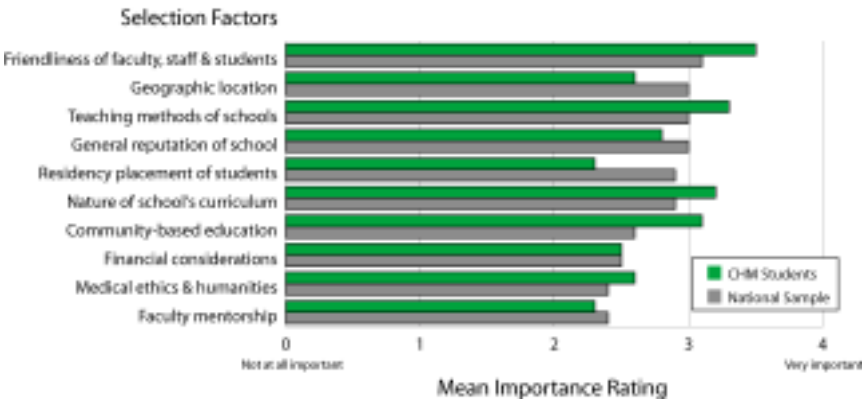
- Convened Gateway Planning and Design Group
- Created an understanding of what Gateway Assessment System should be
- Developed list of essential clinical tasks to be assessed
- Created a blueprint of core clinical problems from the required six clerkships
- Met with Block III to discuss progress and invite participation in defining problems and developing clinical cases
- Met with Community Administrators Group to discuss progress and seek guidance on long term scheduling of Gateway events
- Met with LAC administrators to discuss case development, standardized patient training, checklist development and implementation
- Plan scheduling of case development workshops

Next Steps

- Continue case development
- Recruit and train standardized patients
- Develop checklists/rating forms for encounters
- Seek continued feedback from clinical skills and clerkship directors on progress
- Implement pilot of Block II Gateway- Spring 2006
- Implement pilot of Block III Gateway –Summer 2006

Why Students Select CHM as their Medical School

Each year, students entering U.S. medical schools complete the Matriculating Student Questionnaire, sponsored by the Association of American Medical Colleges. As part of this questionnaire, new matriculants are asked to rate the importance of a variety of factors in their decision to attend the specific medical school they are entering. Students rate 30 factors on a five-point scale, ranging from 0=*not at all important* to 4=*very important.* The data for the 2004 matriculants is based on approximately 11,200 respondents. The highest rated factor was the *friendliness of faculty, staff and students* (mean=3.1), whereas the lowest rated factor was *combined baccalaureate-MD program* (mean=0.3). The graph above shows the ten most important factors from the 2004 questionnaire for CHM students and the national sample.

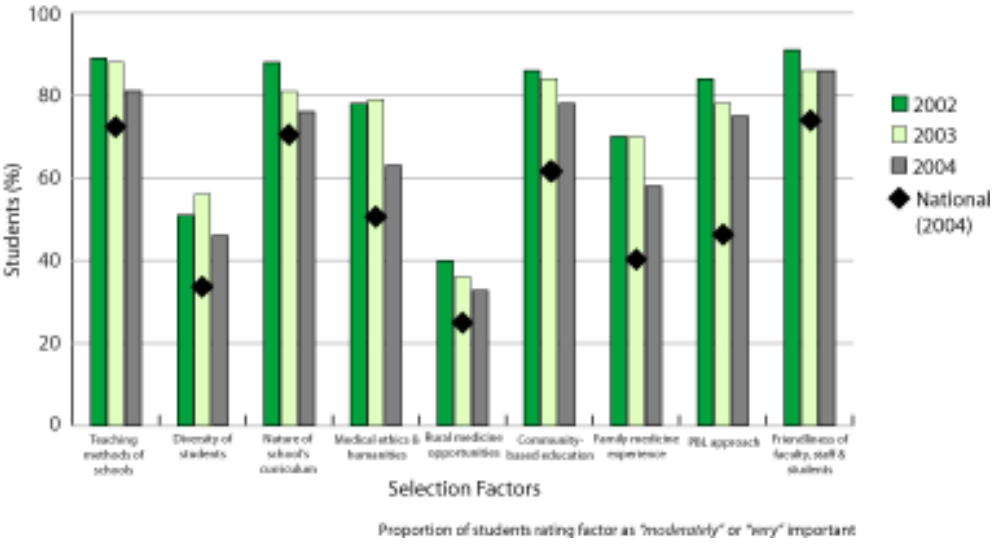


The top ten factors reflect the complexity of students' decisions, balancing financial, educational, social, geographic and reputational factors into their decisions.

When the rankings of CHM matriculants are compared to the national sample, eight of their top ten factors are the same. The two new factors that appear for CHM students are the *problem-based learning approach* (mean=3.1) and *family medicine experience/opportunities* (mean=2.6). These two items ranked 12th and 13th respectively based on the national ratings.

Based on the mission and tradition of the College of Human Medicine, there are a number of factors that we would expect to receive high importance ratings from our students. These factors are illustrated in the graph below, which compares the ratings provided by the CHM matriculating classes of 2002, 2003 and 2004 to the 2004 national sample of matriculants. The graph illustrates the proportion of students rating each factor as "*moderately*" or "*very*" important.

Clearly, CHM matriculants value many features of our medical school including our teaching methods, curriculum, community-based model and PBL approach. It is interesting to note that over the last three years, the importance ratings of many of these factors have been falling compared to the national sample, which has remained unchanged over the same period of time. This suggests that in the eyes of students, the perceptions of CHM are changing. This might reflect a change in what is valued by students, or it might be that areas of traditional strength—still valued by students—might not be as robust as in the past. Over the past few years the College as a whole has been engaged in discussions regarding the CHM mission, the expansion to Grand Rapids and changes in leadership. These discussions have likely had an impact on how we see ourselves as well as how medical school applicants might see us. To the extent that we value our distinctiveness in these areas, then the changes in students' perceptions merit concern.



Balancing Curriculum Content: Our Graduates' Perspective

Each spring graduating students at LCME-accredited medical schools in the U.S. and Canada are surveyed by the Association of American Medical Colleges. Although the questionnaire covers many aspects of medical students' experiences, one section focuses on medical students' perceptions of the adequacy of their preparation. Students are presented with a list of content areas and asked to rate the adequacy of preparation in each area as *inadequate*, *appropriate* or *excessive*. When medical schools later receive a summary of the responses from their graduates, the aggregated responses for a particular school can be compared to those for all graduating medical students.

The table at the right shows each of the 53 content areas. Content areas where the pattern of responses for CHM graduates is similar to those of the national sample are listed in the column labeled *appropriate*, along with the percentage of CHM graduates indicating that rating. This was true for 22 content areas listed. In some cases, more CHM students gave ratings of *appropriate* than students in the national sample; these content areas are indicated with asterisks, with each asterisk indicating an approximate 5% increase above the national sample. For example, 91% of CHM students rated their preparation in **Continuity of care** as adequate, and this proportion was about 10% greater than that reported for the national sample. **Occupational medicine** was the content area where we had the largest difference (~25%) from the national sample in the *appropriate* column.

There were a number of content areas where CHM students were less likely to rate their preparation as

Clinical Decision Making and Clinical Care		
Inadequate	**Appropriate**	**Excessive**
nutrition (68) ***	care of hospitalized patients (97)	primary care (26) ***
management of disease (14) *	care of ambulatory patients (93) *	ethical decision making (26) ***
	clinical reasoning (93)	patient interviewing skills (25) ***
	continuity of care (91) **	
	diagnosis of disease (91)	
	teamwork with other health professionals (88)	
	patient follow-up (86) ***	
	long-term care (83) ***	
	geriatrics (81) **	
	pain management (67) **	
	clinical pharmacology (67)	
Evidence Based Medicine		
Inadequate	**Appropriate**	**Excessive**
literature reviews/critiques (30) **	interpretation of laboratory results (81)	
interpretation of clinical data (25) *	decision analysis (81)	
	public health/community medicine (68)	
Population Based Medicine		
Inadequate	**Appropriate**	**Excessive**
	screening for disease (95)	
	health promotion/disease prevention (91) *	
	infectious disease prevention (90)	
	culturally appropriate care (86) ***	
	occupational medicine (83) *****	
	women's health (83)	
	clinical epidemiology (75)	
	underserved populations (75)	
	role of social service agencies (72) *	
	biostatistics (72)	
Practice of Medicine		
Inadequate	**Appropriate**	**Excessive**
practice management (67) *	patient privacy (77)	
	health care systems (67) ***	
	medical record-keeping (58)	
	cost effective medical practice (58) *	
	quality assurance in medicine (58)	
	managed care (49)	
Other Medical Topics		
Inadequate	**Appropriate**	**Excessive**
law and medicine (75) ****	end of life care (93) ***	professionalism (42) ******
complem/alternative medicine (56) ***	drug and alcohol abuse (91)	cultural competency (16) **
pharmacogenetics (54) ***	palliative care (90) ***	behavioral sciences (12) *
	medical genetics (88)	
	biomedical ethics (86)	
	family/domestic violence (86) *	
	human sexuality (84) *	
	family dynamics (83) **	
	genetic testing & counseling (70)	

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appropriate. For eight areas they were more likely to rate themselves as *inadequately* prepared than the national sample. Again, the asterisks indicate the relative proportion of the CHM sample compared to all graduates nationally. **Law and medicine** was the area of inadequate preparation where we differed most (20%) from the national sample. Similarly, there were six areas where CHM students were more likely to rate their preparation as *excessive*. Based on our students' ratings we differed most from the national sample (30%) in the area of **Professionalism.**

Overall, this view of the curriculum from the student perspective suggests an appropriate content coverage that meets or exceeds the national average for 39 (74%) of the areas listed. Those areas that were rated excessive by our students represent areas central to the college mission that are emphasized within the curriculum. As for the areas rated as inadequate, they were also rated as inadequate by a significant proportion of students nationally. Taken together, the information provides a view across the curriculum and the trade-offs that have been made within the curriculum. It can also provide a baseline as we consider updates to the curriculum and the opportunities provided by the expansion of the medical school to Grand Rapids.

VitalSigns is written by Rebecca Henry,
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Production by Karen Boatman

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expectations for evidence-based medicine and practice-based learning and improvement.

With our long experience in problem-based learning, the **Integration** section of SCRIPT is probably the essential strength of our curriculum. We will continue to improve the integration of social sciences and the biopsychosocial model of care though all of our upcoming transitions.

The vast majority of the SCRIPT objectives already exist and require little or no change in our curriculum, and the **Professionalism** section is an excellent example of this, since the Virtuous Physician program needs little alteration.

Transformation is more complex than the others since it has a dual role. First, medical education is about transforming biological and social knowledge into clinically relevant skills, knowledge and attitudes. That is a transformative process. Second, medical school—like all education—is transformative for the student (and faculty and patients); we have chosen to include this more personal and reflective meaning in the Transformation section as well.

In the next few years we will be expanding our class size, changing our campus structure, and beginning to develop a new curriculum. I fully expect SCRIPT to help direct and shape our activity over that time. More students, new structures to build, a new curriculum: it all can seem a little daunting especially for those with a long "to do" list. But really, what could be more exciting for educators?

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In This Issue of *VitalSigns:*