



VitalSigns | Innovations in Clinical Education

Office of Medical Education Research and Development

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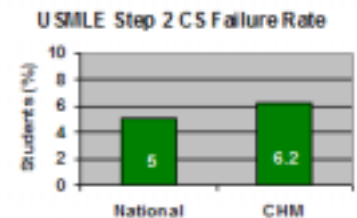
Look What's New

Clinical education is changing. In response to the ACGME Core Competencies, which articulate essential domains of competence for residents, and the new USLME Part 2 Clinical Skills Examination, most U.S. medical schools are developing new instructional and assessment methodologies for educating future physicians. In this issue of Vital Signs we provide some background information on the new national clinical skills examination as well as preliminary data on the performance of our students. We also take this opportunity to present several new innovations in Block III. In the Medicine Clerkship, a PDA-based resource has been adopted to assist students in mastering core clerkship competencies. As part of the Medicaid Managed Care Curriculum, students are learning knowledge and skills to enhance the quality of care to economically disadvantaged patients. Across Block III, clerkships are implementing a new web-based evaluation system designed to integrate collection, analysis and reporting of evaluation data. Finally we revisit the Rural Physician Program and its contributions to training physicians for practice in rural communities.

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The New National Clinical Skills Examination: What have we learned?

From June through December 2004, nearly 15,000 students and graduates of LCME accredited and international medical schools took the USMLE Step 2 Clinical Skills examination. The purpose of the new exam is to assure the public that medical school graduates all possess a certain level of competence in clinical skills. According to the National Board of Medical Examiners, when the first year of testing has been completed it is estimated that the failure rate will be 5% for U.S. and Canadian medical students and 20% for international medical graduates. As of April 15, 2005 the test results for 67 CHM students had been released; four CHM students (6.0%) failed the examination. This suggests that the final CHM failure rate could be above the projected national average when scores for all CHM students are available. More information about the scoring of this examination is found on page 6.



In response, CHM faculty are reviewing taped encounters of failing students who participated in the clinical skills practice examination offered last summer in anticipation of the USMLE Step 2 Clinical Skills examination. A number of common errors are emerging from these taped encounters:

- Not washing hands before the physical examination;
- Conducting the physical examination through the patient's gown;
- Failure to explore relevant social history;
- Lack of empathic responses to the patient;
- Poorly structured patient encounters, often lacking introduction, setting expectations, transitions or a summary.

These findings are surprising since clinical skills instruction has been a traditional strength in our curriculum, and indeed our own assessments have suggested that students excel in these areas. This places us in a difficult situation where we have a curriculum in which students excel and yet in some cases are found wanting on the national competency examination. Even more troubling is the finding that the students who failed the national clinical skills examination had not been previously flagged by any of our assessments. If we are secure in our belief that clinical skills instruction continues to be a curricular strength, then our focus turns to student assessment. Are we providing accurate and appropriate feedback? Are CHM student assessments sensitive enough to detect students of questionable competency, who might need additional instruction and feedback? CHM is establishing a formal process to review the results and make recommendations for the preclinical and clinical curricula to the Curriculum Committee.

Clerkships Adopt On-Line Evaluation System

In fall 2003, the Block III office initiated a project to transition from paper-based evaluations in CHM clerkships to an electronic, web-based delivery of required clerkship evaluations. Encouraged by successful independent implementations of the E*Value evaluation management system in the CHM Surgery clerkships and two CHM residencies, Block III decided it was time for system-wide on-line evaluation. After evaluating the costs, benefits and functionality of the evaluation system solutions available at the time, E*Value from Advanced Informatics was selected as the system-wide platform.

E*Value was originally developed for comprehensive residency management, integrating evaluation data collection, analysis and reporting in an automated, web-based system. More recently, the on-line evaluation system has been modified for undergraduate medical education. The E*Value system supports features such as automated email reminders to evaluators, automated analysis of evaluation data, clerkship notification of low ratings on an evaluation, tracking of form submission and identification of outstanding evaluations.

Block III Director Carrie Thorn recruited Donna Mulder, the department academic administrator in Family Practice, to work with her and Marie Monroe in the Block III office to pilot a full implementation of E*Value in Family Practice. The team worked closely with Advanced Informatics to adapt the E*Value web-based evaluation system for use in the CHM clerkships. Their primary goal was to develop standard evaluation procedures, forms, and timelines to support evaluation delivery, analysis and reporting.

The E*Value pilot project in the Family Practice clerkship proved to be successful. Peg Thompson, overall director for the Family Practice clerkship, said the E*Value implementation has been beneficial to the clerkship. "Having E*Value as part of the Family Practice clerkship has made a huge difference in the completeness and timeliness of our evaluation system. We are finding that we receive more written comments from preceptors. Even our most computer-reluctant faculty members are finding that using E*Value, they can complete checklists and provide immediate feedback at the time of oral case presentations, which ultimately saves time for them.

Community clinical faculty also have found the system valuable and easy to use. Ralph Harvey, MD, Family

Practice preceptor in the Lansing campus, said, "I strongly prefer, like, and appreciate the web-based clinical performance evaluation (CPE). There are multiple reasons:

- 1) It automatically reminds me to do the form.
- 2) I can't lose the form. In the past, I might get the form in the middle of the rotation, then try to "keep it around" until near the end of the rotation.
- 3) I like the feature of being able to start it, then leave it unfinished & return to it later. On occasion, I have wanted to talk with my partners, or talk with the student before I finish the form. On paper it could easily get lost on my desk.
- 4) I have the belief/hope that by tracking the data electronically, there is a greater likelihood that the data will be more useful... such as looking at aggregate trends in data: Do scores change as the student has had more rotations? What is the variation among different doctors or practices? Does a student score higher, lower or the same when ratings by community docs and MSU full time faculty are compared? The potential for useful data analysis would seem greatly enhanced.

Overall, on a 1-5 scale, with 5 as strongly agree with web-based CPE, I'd give it a 6."

On the heels of Mulder's success in Family Practice, the team has gone on in 2004-05 to work with department academic administrators in Medicine, Pediatrics, OB and Psychiatry to implement E*Value in Lansing clerkships. Debby Sleight, PhD, faculty member in OMERAD, joined the project team in early 2005 to assist with the rollout of E*Value for college evaluations throughout the CHM community campus system and with the implementation of additional functionality. The team has a number of goals for the 2005-06 academic year:

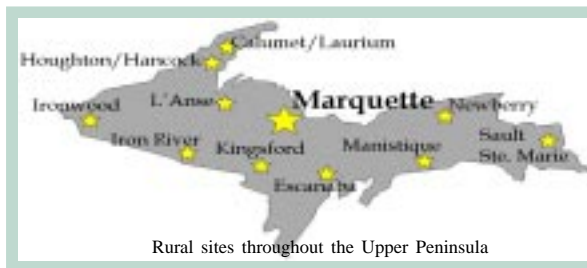
- Complete implementation of E*Value for college evaluations in all required clerkships across the CHM communities.
- Implement online evaluations in CHM elective clinical clerkships, and explore implementation in Block III core competency modules.
- Work with departments who wish to implement departmental clerkship evaluations on E*Value.

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The Rural Physician Program: Meeting The Mission In The Upper Peninsula

David Luoma, M.D., Community Assistant Dean for the Upper Peninsula

Each year eight CHM-admitted students are selected for the Rural Physician Program (RPP). These students will spend their clinical years in Michigan's Upper Peninsula, headquartered at the Upper Peninsula Health Education Corporation in Marquette. Most of the clinical training is at Marquette General Hospital's Regional Referral Center. A unique feature of the program is an eight week Rural Family Practice experience at the end of the third year. Many dedicated family physicians in small communities of the Upper Peninsula serve as exemplary role models and educators for these students. This Rural Family Practice experience is the vital distinguishing feature of the Upper Peninsula Campus and is consistently noted by students as a highlight of their medical education.



As part of the CHM secondary application, students interested in the RPP submit two additional essays outlining their interest in rural medicine. Those students admitted to CHM are then given the opportunity for additional interviews with the Upper Peninsula Campus. Applicants are judged on a number of criteria including previous rural life experiences, initiative, ability to work in small groups and potential to become excellent physicians and community leaders. Ultimately it is hoped that training in the Upper Peninsula Campus will encourage aspiring students to serve the people of rural areas with particular emphasis on the Upper Peninsula and small town Michigan.

At the annual AAMC meeting in November 2004, data about the Rural Physician Program were compiled and presented by Dr. David Luoma, Community Assistant Dean of the Upper Peninsula and Dr. Christine Shafer, Assistant Dean for Admissions. RPP students were more likely to be Upper Peninsula residents or from other rural areas compared with their counterparts at other community campuses. Perhaps reflecting the population of these areas, fewer RPP students identified themselves as under-represented minorities and, surprisingly, tended to be younger than their downstate counterparts. While entering MCAT and GPA's were similar, the Step I and Step II mean scores were significantly higher in the Upper

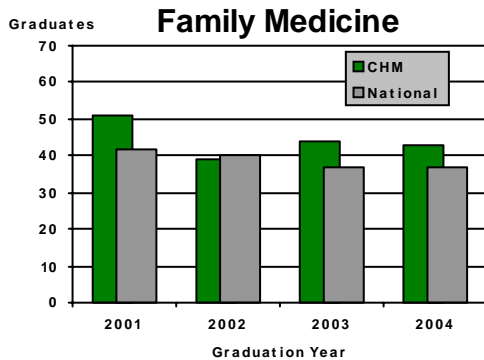
Peninsula students. Historically, RPP students have selected Family Practice as a specialty almost twice as frequently as other CHM students.

Analyzing trends in recent years and through personal contact with alumni, it appears that a significantly higher number of students will be staying in or returning to Michigan and the Upper Peninsula in years to come. This is perhaps reflective of a renewed focus through the RPP in meeting the mission of retention of students for these areas, which is influenced by the selection criteria. Fifty-three percent of the RPP graduates have returned to practice in Michigan; 22% of the Upper Peninsula graduates have returned to practice in the Upper Peninsula. Of the 29 graduates currently in residency training it

is estimated that two-thirds will practice in Michigan with 11 indicating intent to return to the Upper Peninsula and 9 elsewhere in Michigan. There has also been a strong upward trend in retention of Upper Peninsula graduates in the Marquette Family Medicine Residency Program, which also is administered by the U.P. Health Education Corporation. It is gratifying to see that about one of every six physicians practicing in the Upper Peninsula is a product of these small but important programs.

The Rural Physician Program strives to offer an educationally sound, personalized education to medical students regardless of their background or future specialty plans. It is clear that one of the missions is to provide primary care physicians or a specialty mix to serve the needs of rural Michigan, including the Upper Peninsula. The RPP continues to successfully advance the CHM mission. With the dedication of the many teaching physicians in the rural sites, elective experiences for students from other campuses are readily available to not only provide an outstanding educational experience for the students but to expose even more students to the rewarding life and practices in these smaller communities. Several RPP graduates have returned to become teachers of the latest generation of RPP students, promising the continued success of this unique and valued program.

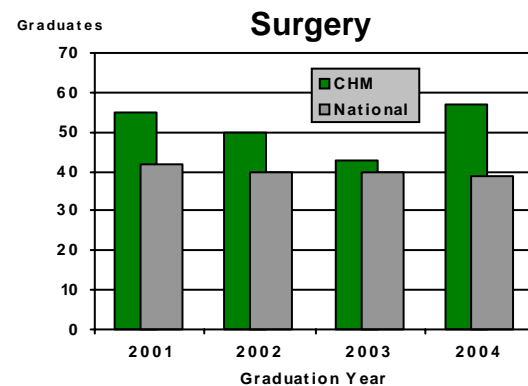
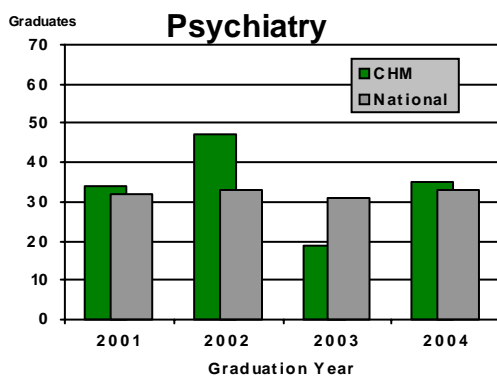
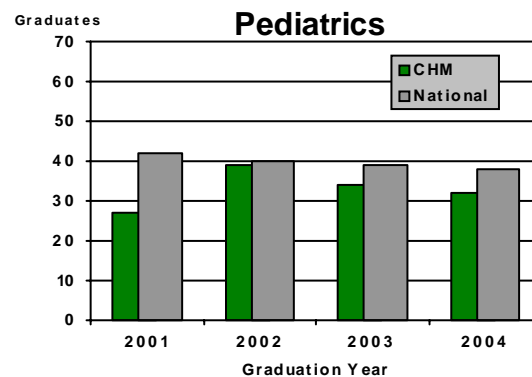
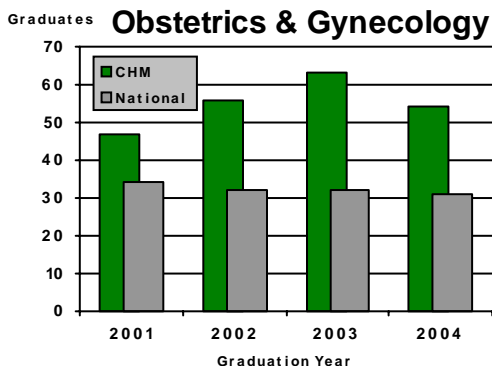
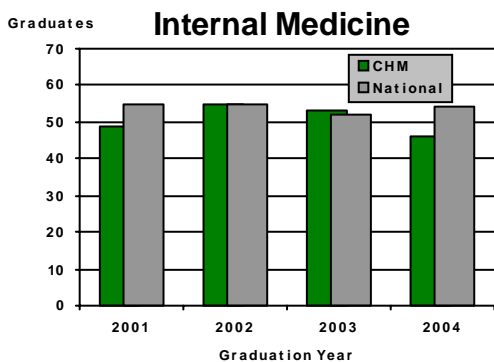
Striving for Excellence: Graduates' Ratings of their CHM Clerkship Experiences



Each year, graduating medical students are asked to complete a Graduation Questionnaire distributed and compiled by the Association of American Medical Colleges. The questionnaire includes items related to the quality and content of each clerkship. These graphs indicate the proportion of graduates who rated their clerkship educational experience as *excellent*. The data for both CHM graduates and all graduates nationally are provided for the past four years. The trends shown are similar to those found when the proportions of both *excellent* and *good* ratings are presented.

The factors that contribute to students' ratings of excellence include the diversity of patients encountered, quality of resident and attending faculty teaching, adequacy of performance feedback and clarity of learning objectives.

The results show the relative comparisons of students' ratings of excellence for the six required CHM clerkships. Both OB-GYN and Surgery typically exceed the national ratings, while Internal Medicine, Family Medicine and Pediatrics are close to the national averages. The ratings for some CHM clerkships are fairly stable over time while others tend to be more variable.



CHM Medicaid Curriculum: Providing Care to Economically Disadvantaged Citizens

It is no secret that the College of Human Medicine is committed to serving all patient populations with compassion and excellence. A humanistic, patient-centered philosophy has been a hallmark of the College since its inception.

Now, with funding from the Michigan Department of Community Health, the College is enhancing its curriculum to produce graduates who are even better prepared with the knowledge, skills and attitudes needed to provide quality health care to individuals covered by Medicaid and others who are economically disadvantaged. This project, led by Jane Turner, M.D., Assistant Dean for the Preclinical Curriculum, involves faculty responsible for several courses in the preclinical curriculum as well as all the core clerkships of Block III and two fourth-year clerkships. Content in the Core Competency seminar series of Block III is also being altered.

When the first phase of the curriculum modification is complete, nearly 20% of the first-year program and 25% of the second-year program will be enhanced, providing students with a solid foundation of attitudes and skills on which to build in the clerkships and beyond. Changes were implemented in the Block I curriculum beginning in academic year 2002-03, Block II in 2003-04 and changes in the core clerkships of Block III are being implemented this academic year. Modifications for year four required clerkships are under development at this time.

The new initiative provides an opportunity to examine CHM's curriculum in the light of current needs. A recent report of the Institute of Medicine highlights the importance of behavioral and social science content in medical education. This project is very nicely aligned with the goals and strategies identified in that report.

In many ways, of course, caring for an economically disadvantaged patient is no different from caring for any other patient. Faculty members who are involved in the project have worked to identify knowledge and skills that are particularly important when providing health care to economically disadvantaged individuals and groups.

“For one thing, there is more chronic illness among people on Medicaid and poor people generally,” said Turner, including diabetes, hypertension, asthma, psychiatric illnesses, and chronic lung disease, among other conditions.

Patients without jobs have more difficulty keeping appointments; those without cars might have trouble getting to the doctor's office because they must rely on public transportation or the availability of friends or relatives for a ride.

A patient's economic status might also affect whether he or she can obtain prescribed medications. “You may prescribe a medicine that is ideal for the person's health condition, but if they can't get it, it doesn't do much good,” said Turner. “The doctor is limited to a different formulary.”

A physician who is knowledgeable about resources available in the community can help by referring patients to programs that can help them secure medications or other services.

One place to address issues relating to disadvantaged patients is the Block I interviewing course in Clinical Skills where students learn to interact with patients by working with simulated patients. In response to this project, some of the patient scenarios have been modified to add more social and economic content to the patient's story.

“You might see on the videotape of the interviews one student recognizing and drawing out the patient's economic circumstances and another student where it just goes right by,” said Turner. “You can use that as a teaching moment.

I remember watching one student, on learning that the patient was on Medicaid and didn't have a car, on wrapping up said, ‘I'll pass all the information on to the physician, and I'll be sure to mention that if we need to refer you to a specialist, that we look for someone where you can get to the office by bus.’ It was very gratifying to see the student really tuned into that.”

An example from the clerkships is the *Competency for Socioeconomic Issues in Healthcare*, developed by the directors of the pediatric clerkship, that focuses on children with chronic health conditions. Each pediatric clerkship student is required to assess the impact of a child's chronic health condition on a family with socioeconomic stressors.

The exercise has been designed to increase sensitivity to socioeconomic factors as they impact adherence to treatment regimens and to stimulate creative approaches to working with families to overcome barriers to adherence.

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Scoring of the USMLE Step 2 Clinical Examination

The medical profession has always distinguished between the cognitive skills needed to recognize and understand medical conditions and the clinical and communication skills needed for data gathering, diagnosis and treatment. The best multiple-choice examinations cannot adequately assess clinical and communication skills. Research has shown that a small but significant number of examinees who pass the multiple-choice exams lack the basic clinical and communication skills necessary to practice medicine.

The USMLE Step 2 Clinical Skills (CS) examination is another step towards protecting patient safety by asking physicians in training to meet a minimum national standard for clinical and communication skills. The exam comprises 12 standardized patient cases, each 15 minutes in duration. Examinees are expected to establish rapport with the standardized patients, elicit pertinent historical information, perform focused physical examinations, communicate effectively, and document findings and diagnostic impressions. After each encounter, examinees have 10 minutes to record a patient note, including pertinent history and physical examination findings, diagnostic impressions, and plans for further evaluation if necessary. The cases cover common and important situations that a physician is likely to encounter in a general ambulatory clinic.

The USMLE Step 2 Clinical Skills examination is a pass/fail examination. Examinees are scored in three separate subcomponents: Integrated Clinical Encounter (ICE), Communication and Interpersonal Skills (CIS), and Spoken English Proficiency (SEP). Each of the three subcomponents must be passed in order to achieve a passing performance on Step 2 CS.

The ICE subcomponent includes assessment of:

- Data gathering - patient information collected by history taking and physical examination;
- Documentation - completion of a patient note summarizing the findings of the patient encounter, diagnostic impression, and initial patient work-up

Data gathering is scored by checklists completed by standardized patients. The checklists comprise the essential history and physical examination elements for specific clinical encounters. The patient note is scored by trained physician raters.

The CIS subcomponent includes assessment of:

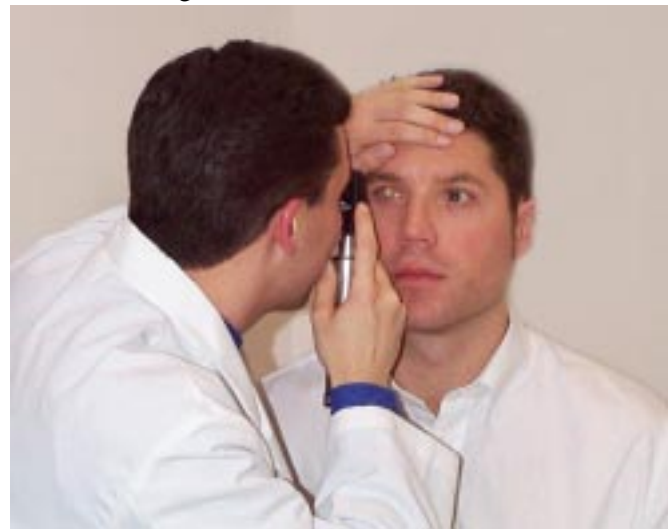
- Questioning skills (e.g., use of open-ended questions, transitional statements, not interrupting the patient);
- Information sharing skills (e.g., avoidance of jargon, responsiveness to patient questions or concerns, provision of counseling when appropriate)
- Professional manner and rapport (e.g., concern for patient's comfort and modesty, examinee's attention to personal hygiene, expression of interest in the impact of the illness)

CIS performance is assessed by standardized patients using rating scales, derived from the scales used in the Clinical Skills Assessment (CSA) of the Educational Commission for Foreign Medical Graduates, with enhancements based upon national consensus statements on essential communication skills and upon review of other commonly used rating forms.

The SEP subcomponent includes assessment of:

- Clarity of spoken English communication within the context of the doctor-patient encounter (e.g., pronunciation, word choice, and minimizing the need to repeat questions or statements).

SEP performance is assessed by standardized patients using rating scales and is based on the frequency of pronunciation or word choice errors that affect comprehension, and the amount of listener effort required to understand the examinee's questions and responses. For more information visit the USMLE website: www.usmle.org.



Just-in-Time Internal Medicine (JIT IM)*

Gary Ferenchick, MD

The Clerkship Directors of Internal Medicine (CDIM) curriculum guide (AKA the Guide) was developed to explicitly emphasize the “learning of basic generalists competencies” for students during the Internal Medicine (IM) clerkship. This national collaborative project was funded by the Health Resources and Services Administration (HRSA) and addresses curricular objectives through several dozen core **clinical training problems**. Examples of such training problems include patients presenting with a “sign or symptom” such as chest pain, dysuria and cough, and patients presenting

competency and provide him or her with appropriate feedback at the point of the patient encounter. Increasing the portability of the Guide may increase its value to medical educators.

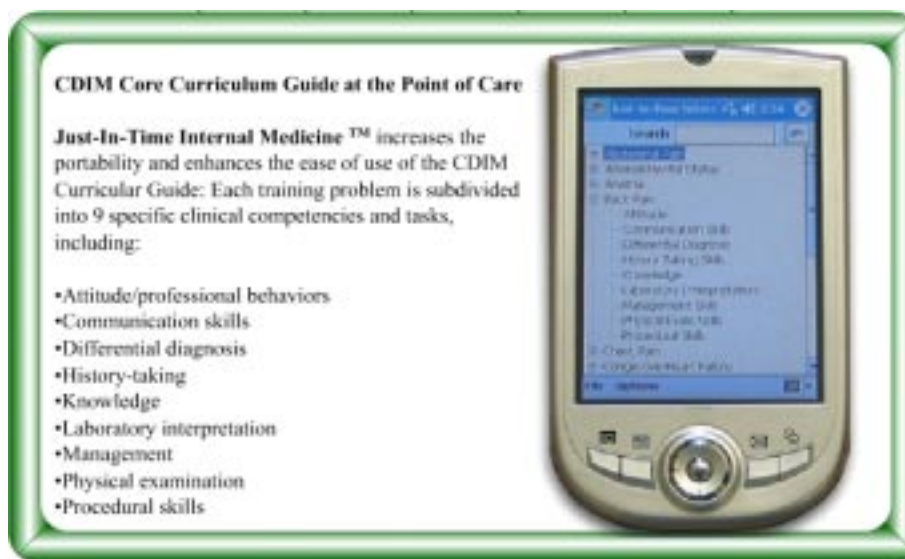
Within this past year, with the help of programming expertise in the College of Veterinary Medicine, we have developed a software interface to be used with a PDA (Pocket PC) that increases the portability and ease of use of the CDIM curriculum. This interface subdivides each

training problem into nine competency categories (e.g., attitude, communication skills, differential diagnosis, etc.) that are quickly accessed using a touch screen feature, increasing the speed and accuracy in accessing these curricular objectives when they are needed most, at the point of contact between the patient and student.

This Just-in-Time Internal Medicine (JIT IM) program includes many built-in features, including expanded explanations via pop-ups and hyperlinks, over 200 references and clinical images, radiographic images, electrocardiographic tracings, clinical rules and calculators, and files for heart and lung sounds, along with

“test your knowledge” questions from the Medical Knowledge Self Assessment Program (MKSAP) for students.

JIT IM will be a required resource for students beginning July 2005. Future enhancements to the software will include: a “built-in” program for students to track their clinical experiences, collaboration with the American College of Physicians PIER data base (an evidence-based electronic text on problems seen in Internal Medicine), and expanded clinical decision aids (rules, calculators and algorithms). We are additionally studying the question of whether access to information via a PDA in the course of student’s educational endeavors improves their performance. In doing so we hope to define an area of added value for the use of PDA’s in medical education, and open new opportunities for the use of electronic learning resources for CHM students.



with a “known condition” such as congestive heart failure, chronic obstructive pulmonary disease, and diabetes mellitus. Each training problem is further defined by learning objectives that were explicitly defined to help students master the clinical core competencies. From a content perspective, the training problems and their respective objectives clearly reflect important competencies that should be taught and evaluated in the Internal Medicine clerkship.

The Guide has received wide acceptance among clerkship directors with up to 92% indicating familiarity with the guide and a similar percentage indicating they used the guide for general clerkship planning. However, specific use of the Guide’s clinical training problems occurs infrequently, in spite of the fact that the majority of clerkship directors rate this feature of the guide as useful. The description of the training problems requires 61 pages. Given this volume of information it is difficult to evaluate a third-year student’s

*The JIT IM project was funded in part by grant number 1 D16 HP 00119 from the Division of Medicine, Bureau of Health Professions, Health Services and Resources Administration. JIT IM is under commercial development by Dr. Ferenchick and Michigan State University.

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Directors of the Medicine clerkship are teaching students to use the Medicaid formulary as they choose medications for their patients. As students work through a computerized case that challenges their diagnostic reasoning skills, the costs of the tests they order are tracked to help them learn to think about the cost of their evaluation plan. These are just two examples of new content added to the Medicine clerkship.

Content has also been added to the Family Practice, Obstetrics & Gynecology, and Surgery clerkships. Under development are new units or assignments for Advanced Surgery and Advanced Medicine. A new seminar for the Core Competency program will be piloted later this spring.

The project has a rigorous evaluation component built in to assess the effectiveness of the curriculum enhancement overall and to assess individual curricular units so they can be revised if they are not effective. Student feedback about courses and units within courses is gathered through online evaluations and focus groups. Student performance within courses is carefully monitored. Student attitudes are investigated both through surveys of the class as a whole and through in-depth interviews with twenty students chosen randomly from the class that entered in 2002. As students graduate and move into residencies across the nation, the project evaluation team plans to keep in touch with them to learn how the curriculum changes have influenced their career decisions and patient care behaviors.

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- Develop custom reports for departments and the Block III office to facilitate the analysis of evaluation data.
- Explore downloading of E*Value data to support college and departmental data systems.
- Explore using E*Value for clinical student logbooks.

Thorn said the pilot implementation of E*Value has already had benefits in terms of faculty compliance in submitting clinical performance evaluations, faculty willingness to submit comments about student performance, and automated calculation of the clinical performance evaluation aggregate score for students. She said an unexpected benefit of the implementation is that the conversations she and the project team have had with department administrators has brought to light inconsistencies in the way evaluations are handled across the system, and have provided insight about policy and procedural issues that need to be addressed.

“I expect CHM to reap significant benefits from an online evaluation system in the clinical education program,” Thorn said. “We have a great deal of work to do to complete the implementation of the system for maximum benefit, but the potential for effecting consistent evaluation procedures, program and outcome reporting is tremendous.”

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MICHIGAN STATE UNIVERSITY

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