INDIANA UNIVERSITY

OFFICE OF UNDERGRADUATE MEDICAL EDUCATION

School of Medicine

Planning for Learning and Assessment:

A Report Submitted to the Program Review and Assessment Committee

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The Indiana University School of Medicine (IUSM) is responsible for delivering medical education within the state of Indiana. This report examines IUSM's core competencies and the Office of Undergraduate Medical Education's (UME) approaches to assessing medical student learning during the 2011-2012 academic year.

1. What general outcomes are you seeking?

IUSM offers a competency based curriculum for Undergraduate Medical Education, providing our students with scientific, clinical and interpersonal knowledge and skills they will need as practicing physicians. The general outcomes we are seeking align with the core competencies for medical students: (a) effective communication; (b) basic clinical skills; (c) using science to guide diagnosis, management, therapeutics and prevention; (d) lifelong learning; (e) self-awareness, self-care and personal growth; (f) social and community contexts of health care; (g) moral reasoning and ethical judgment; (h) problem solving; and (i) professionalism and role recognition.

2. How will we and the students know the outcomes if we saw it?

Looking at the specific knowledge and skills associated with these nine core competencies, the competent IUSM graduate:

a. Listens and shares information effectively.
b. Performs and documents medical histories, physical examinations and routine clinical procedures.
c. Manages the common health problems of individuals, families, and communities.
d. Actively sets and pursues clear learning goals and applies the knowledge gained to the practice of his/her profession.
e. Approaches the practice of medicine with awareness of his/her limits, strengths, weaknesses and personal vulnerabilities.
f. Demonstrates an understanding of the relationship between the patient, community, and healthcare system and recognizes the impact of factors, such as culture and spirituality, on those relationships.
g. Identifies and addresses ethical issues of medical practice and health policy and applies ethical information to the treatment of patients.
h. Develops informed plans of action, acts to resolve problems, and assesses the results of his/her action.
i. Behaves professionally.

3. How will we help students learn it?

The primary area where we help students acquire this knowledge and skills is through our competency-based curriculum. Medical students achieve level one knowledge and skills in all nine competencies through their coursework in the first two years of the curriculum. An example is in the first year during *The Patient-Doctor Relationship: An Introductory Course for First Year Indiana University Medical Students* (ICM 1) where students gain experience in completing formal medical histories (Basic Clinical Skills), engage in self-assessment (Self-Awareness), and write papers (Effective Communication) on medical ethical issues (Ethics) and professional

goals (Professionalism). Students in ICM 1 also watch the AAMC *Worlds Apart* video series, which examines the culture of medicine and disparities in treatment of minority and underserved patients in the US (Social and Community Contexts). Upon completion of the required clerkships during their third and fourth years, students achieve level two proficiency in all nine competencies. In addition to our curriculum, additional resources for learning related to each competency are available for students on the UME website. Resources include links to relevant articles and reports as well as information on institutional resources such as those provided through the Simulation Center and Center for Surgical Technology.

4. How can we measure each of the desired behaviors found in #2? Assessing Knowledge and Skills

This section explores the specific tools used to assess medical student knowledge and skills.

Objectively Structured Clinical Encounter (OSCE). The Objectively Structured Clinical Encounter (OSCE) is used at IUSM for statewide assessment of the competencies. During an OSCE, students have an encounter with a standardized patient and demonstrate their communication and interpersonal skills as well as their integrated clinical skills as they document their findings and develop an assessment of the patient's condition. An OSCE is scheduled during each of the four years of medical school to assess the competencies at each developmental level. Below is the schedule for the administration of the OSCEs.

Year 1	History Taking OSCE (single patient encounter)
Year 2	Head to Toe OSCE (single patient encounter)
Year 3	End of Second Year (EO2Y) OSCE (battery of 5 patient encounters)
Year 4	End of Third Year (EO3Y) OSCE (battery of 7 patient encounters)

After the administration of the OSCEs, students receive a report providing feedback on their performance in the various competencies. Passing scores are determined for each OSCE. Students who fall below the cut score in years 1 and 4 complete a remediation program and then retake the OSCE. During the remediation sessions, students work with a mentor to improve their skills in the competencies.

Script Concordance Test (SCT). IUSM students are assessed on their clinical reasoning skills through the SCT. This tool uses patient vignettes followed by approximately 59 questions for students to indicate how additional information will impact their differential diagnosis or intervention plan. The SCT is given to second year medical students at the beginning of the fall semester. Once scored, the students are given feedback from IUSM faculty. Another administration of the SCT is given during the fourth year. The SCT is used to measure a student's progress in Problem Solving (Competency 8).

Clinical Education Real Time Tracking System (CERTTS). CERTTS is an online tool used to document the assessment of specific skills and track patient encounters during the clinical learning experiences. Clerkship directors, ICM course directors, and competency directors can view a student's progress in meeting these requirements at any time. All required basic clinical skills for Level 2 competency certification are tracked using CERTTS.

During each of the clerkships, a student's performance is reviewed during the mid-course feedback session with the student. The CERTTS system provides data for the student, the clerkship director, and the Basic Clinical Skills Competency Director and allows assurance that

the requirements have been met for each core area. Students not completing the required experiences by the end of the clerkship receive an "isolated deficiency" and complete remediation activities that are assigned by the clerkship director after discussion with the competency director.

Peer and Self-Assessment. The Peer and Self-Assessment Program at IUSM involves all students in the first three years of medical school. As students are developing their professional identity, students reflect and receive feedback on their personal attitudes, their impact on colleagues & patients, and their ability to work with other members of a team. Students rate themselves and their peers on professionalism, communication and collegiality; using a 9-point scale supplemented by comments. Individualized reports are generated allowing students to see their self-assessment compared with the assessments of their peers. Students meet with their mentors to review their reports and examine differences in perceptions. Based on these assessments, students develop a learning plan for the upcoming academic year.

Post Graduate Year 1 Evaluations (PGY-1). The Office of UME annually gathers assessment data on the performance of our graduates during their first year in residency. Residency Directors are asked to evaluate our graduates on a variety of items relevant to the core competencies using a 9-point scale ranging from unsatisfactory (1-3) to superior (7-9). Sample items include rating graduates on their "Awareness of own limitations in knowledge and experience" and "Communication skills with patients and families".

5. What are the assessment findings?

This section explores relevant findings from our assessment tools for the 2011-12 academic year.

Objectively Structured Clinical Encounter (OSCE). IUSM students completing the History Taking OSCE averaged over 90% in the areas of communication and interpersonal skills and in the gathering of a medical history during a patient encounter. For those students who fell below 70%, the student worked with his/her ICM 1 preceptor and reviewed the video of their OSCE to identify gaps in performance before retaking the OSCE. Similar results were achieved by second year students completing the Head to Toe OSCE. These students averaged over 90% in the areas of communication and history taking as well as in performing the physical exam.

The EO2Y OSCE is a formative assessment meant to provide feedback on student's data interpretation skills as well as communication & interpersonal skills. Students performed over 81% in the communication and interpersonal skills section and 59% in the integrated clinical encounter score. The integrated clinical encounter score is obtained through an assessment of history taking, physical exam skills and the ability to document the findings from the encounter in a written note. This OSCE is implemented at the beginning of the students' third year clerkships and provides feedback so that they can improve these skills as they progress through their third year.

The EO3Y OSCE is given at the completion of the required third year clerkships. The students completing the EO3Y OSCE averaged 84% in the communication and integrated skills (history taking and physical exam skills) category and 65% in their integrated clinical encounter skills.

Script Concordance Test (SCT). The table below presents a comparison of SCT scores for MS2s and MS4s.

Class of 2012

	MS2	MS4	Gain
Average Score (as %)	60.6	71.9	11.3*
Standard Deviation	7.3	7.2	8.6

t(263)= 21.4; p < .0001 *

* Humbert, A. J., Wales, P. S., & Miech, E. J. (2012). *Measuring Gains in the Clinical Reasoning of Medical Students: Longitudinal Results from a School-Wide Script Concordance Test.* A presentation at the AAMC Annual Meeting, San Francisco, CA.

The aggregate results indicate that IUSM students are making significant gains in their ability to reason through clinical situations.

Clinical Education Real Time Tracking System (CERTTS). As reported by the Basic Clinical Skills competency director, approximately 3% of the MS3s received an isolated deficiency due to not completing their required clinical skills during the clerkships. Remediation activities were required for the student to meet this requirement.

Peer and Self-Assessment (PSA). At the completion of each student's meeting to review his/her assessment, the student completes a survey on the value of the peer and self-assessment experience. The table below contains the average rating of the statements by MS2s and MS3s. Data from the MS1s are not available. The students use a Likert Scale with 1 = Strongly Disagree to 5 = Strongly Agree.

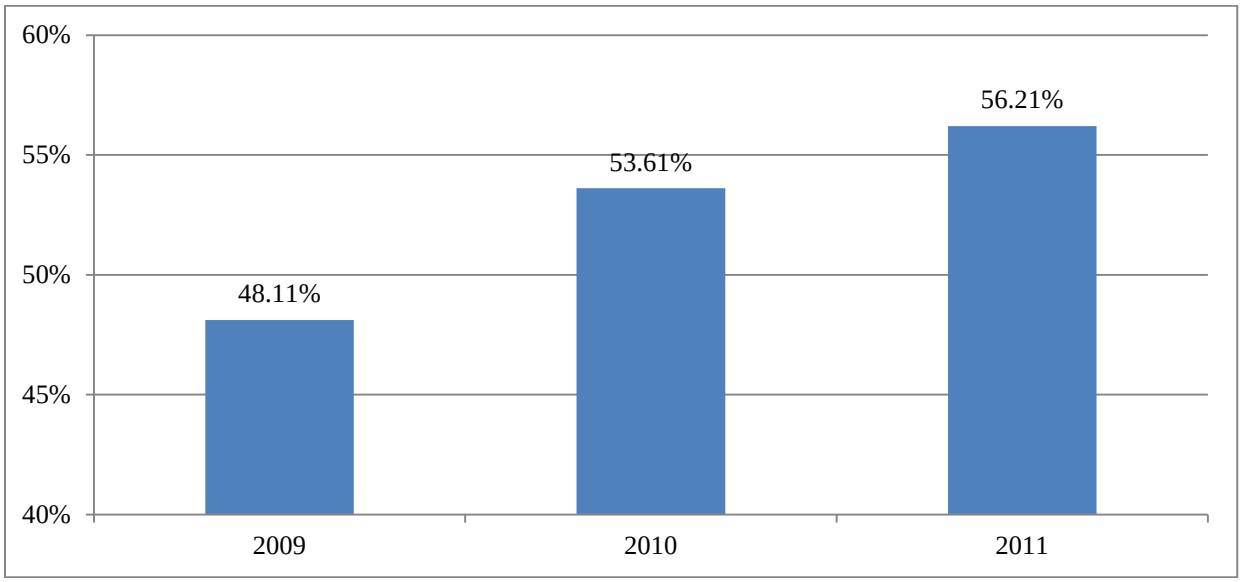
		All MS2	**All MS3**
Statements	Number	318	310
My peers identified strengths I had not considered.	Average	3.5	3.86
My peers identified weaknesses I had not considered.	Average	3.24	3.58
This exercise identified professionalism issues that have become part of my individual learning plan for becoming a professional physician.	Average	3.62	3.88
This approach to encouraging self-reflection is helpful.	Average	3.9	4.13
This approach to getting feedback on my professionalism behavior is helpful.	Average	3.91	4.12

The results of this survey indicate that students find more value in the PSA process as they move through medical school.

Post Graduate Year 1 Evaluations (PGY-1). This year, 153 Residency Directors across the US completed the PGY-1 survey (51.86% response rate). Looking at items related to the core competencies, mean scores ranged from 6.83 (Ability to analyze relevant scientific/medical literature) to 7.69 (Displays integrity, honesty and responsibility). The overall

mean for this set of competency items was 7.08 suggesting that, on average, first-year graduates of the program exhibit superior knowledge and skills in relation to the core competencies.

Residency Directors were also asked to rank our graduates in relation to other residents at the same level of training. Figure 1 shows that the percentage of our graduates ranked in the upper 1/3 of the resident cohort has increased over the past three years.



Findings from the PGY-1 suggest that our graduates are performing at a high level during their first year as residents.

6. What improvements have been made based on assessment findings?

Findings from our various initiatives have been disseminated to administrators, faculty, and faculty committees (e.g., Academic Standards Committee, Curriculum Council Steering Committee); however, more can be done to monitor how the information is applied to promote institutional change. UME recently began an instructor review process to enhance teaching and learning at IUSM. This process includes a review of data from instructor evaluations and individual meetings between faculty and the UME Director of Program Evaluation to discuss the data further and explore strategies to address challenges/issues identified in the instructor evaluations. Within the UME office, the Directors of Student Assessment and Program Evaluation are collaborating to explore how best to incorporate student assessment data in this process and support faculty in their efforts to improve teaching and promote student learning through the use of data. Also, as the curricular reform moves into the next developmental phase, data from the various student assessments and program evaluations will be used in decisions about the design of the curriculum and our blueprint for assessment.