

Program-Level Assessment: Annual Report

Program Name (no acronyms): Doctor of Medicine

Department: Curricular Affairs

Degree or Certificate Level: M.D.

College/School: School of Medicine

Date (Month/Year): December 2022

Assessment Contact: Debra L. Schindler, PhD

In what year was the data upon which this report is based collected? AY 2021-2022

In what year was the program's assessment plan most recently reviewed/updated? 2022

Is this program accredited by an external program/disciplinary/specialized accrediting organization? Yes. Liaison Committee on Medical Education (LCME)

1. Student Learning Outcomes

Which of the program's student learning outcomes were assessed in this annual assessment cycle? (Please list the full, complete learning outcome statements and not just numbers, e.g., Outcomes 1 and 2.)

With data from AY 20-21 we can describe some of the implementation work in support of the Five-Year plan, specifically, the implementation of two active learning modalities: peer instruction (PI) and team-based learning (TBL).

Students in the pre-clerkship curriculum receive one final grade calculated from two components: multiple-choice examinations and non-exam activities. The "exam" component is determined by performance on in-house and NBME exams. The "non-exam" component is compiled from other types of activities which may include professionalism and individual or small group work (PI, TBL, simulation, etc.)

The learning outcomes assessed for this report are those associated with our shift from a primarily lecture-based curriculum to more active learning modalities, specifically peer instruction (PI) and team-based learning (TBL).

2. Assessment Methods: Artifacts of Student Learning

Which artifacts of student learning were used to determine if students achieved the outcome(s)? Please describe the artifacts in detail and identify the course(s) in which they were collected. Clarify if any such courses were offered a) online, b) at the Madrid campus, or c) at any other off-campus location.

All courses in our pre-clerkship curriculum are conducted at the School of Medicine in St. Louis.

Team-Based Learning

There are two assessments associated with each TBL session: Individual Readiness Assurance Test (iRAT) and the Team Readiness Assurance Test (tRAT). The iRAT is a short multiple-choice assessment completed by each student in the TBL group assessing their preparation for the activity. Following completion of the iRAT, student groups work together on a patient case (for example) and then as a group, they complete the tRAT. The iRAT and tRAT are typically identical- the purpose being to facilitate discussion and resolution of the problem as a group. Artifacts of student learning for Team-Based Learning were collected from the following courses:

- Epidemiology and Biostatistics EPI-100
- Molecular Foundations in Medicine MED-100
- Introduction to Pathology MED-140
- Principles of Immunology, Pharmacology, and Therapeutics MED-150
- Brain and Behavior MED-160

- Cardiovascular System MED-170
- Hematology MED-200
- Professional and Personal Development II MED-202
- Respiratory System MED-210
- Renal-Urinary System MED-220
- Gastrointestinal System MED-230
- Endocrine and Reproductive System MED-240
- Skin, Bone, and Joint MED-250

Peer Instruction (PI)

For a PI session, the faculty member projects a multiple-choice question to the entire class. Using Poll Everywhere each student answers the question and the results of the tally are shown on the screen. A student is then called on (randomly) to explain why they chose the answer that they did. Students then discuss amongst themselves their answers and why they chose the option that they did. Finally, the students are again asked to use Poll Everywhere to submit their individual answers. Results are shown on the screen and the faculty member can comment/explain and answer questions. In the SOM peer instruction is an important part of preparation and review for exams.

The artifacts of student learning related to Peer Teaching are the multiple-choice examinations (in-house and National Board of Medical Examiners exams) that students complete in each of the following courses:

- Normal Structure & Function: Musculoskeletal MED-110
- Normal Structure & Function: Thorax & Head MED-120
- Normal Structure & Function: Abdomen & Pelvis MED-130
- Principles of Immunology, Pharmacology, and Therapeutics MED-150
- Brain and Behavior MED-160
- Cardiovascular System MED-170
- Hematology MED-200
- Medicine and Society II MED-204
- Respiratory System MED-210
- Renal-Urinary System MED-220
- Endocrine and Reproductive System MED-240
- Skin, Bone, and Joint MED-250

3. Assessment Methods: Evaluation Process

What process was used to evaluate the artifacts of student learning, and by whom? Please identify the tools(s) (e.g., a rubric) used in the process and **include them in/with this report document** (please do not just refer to the assessment plan).

Assessment results (i.e., scores) produced in Team-based learning (the iRAT and tRAT) are reviewed by the course directors in their individual courses.

In-house and NBME exams are created by the course directors, are reviewed by the pre-clerkship deans and the director of assessment, both pre- and post-examination.

4. Data/Results

What were the results of the assessment of the learning outcome(s)? Please be specific. Does achievement differ by teaching modality (e.g., online vs. face-to-face) or on-ground location (e.g., STL campus, Madrid campus, other off-campus site)?

Our goal was, and continues to be, to increase instruction using active learning modalities. The tables below indicate both progress in this endeavor and the effects of major changes in our curriculum. The traditional first- and second-year curriculum (M1 and M2) now totals only 18 months. As a result, there are more courses and hours for M1 students and fewer for M2 students. This will, in part, account for the apparent lack of progress in reducing lecture time for M1 students.

M1 Instructional Methods (hours)	AY 19-20	AY 20-21	AY 21-22
Peer Instruction (PI)	2.0	18.9	43.9
Team-Based Learning (TBL)	1.5	43.5	26.8
Lecture	320	336	338

M2 Instructional Methods (hours)	AY 19-20	AY 20-21	AY 21-22
Peer Instruction (PI)	0	19	27
Team-Based Learning (TBL)	0	21	36
Lecture	315	272	226

Students were asked to evaluate the impact of each learning modality, as illustrated below. Peer instruction was introduced first, in AY 20-21 followed by TBL in AY 21-22. Both modalities are also discussed in student evaluation team meetings.

Peer instruction (PI) promoted understanding rather than memorization.							
	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	N
AY 2020-2021							
M1	6%	5%	5%	15%	32%	37%	845
M2	6%	5%	5%	18%	32%	33%	518
AY 2021-2022							
M1	2%	2%	3%	11%	36%	45%	947
M2	3%	3%	6%	14%	36%	39%	519

Team-based learning (TBL) allowed me to apply my knowledge and skill to the activity (i.e., patient cases).							
	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	N
AY 2021-2022							
M1	3%	4%	6%	18%	36%	33%	1177
M2	3%	3%	6%	18%	38%	33%	745

5. Findings: Interpretations & Conclusions

What have you learned from these results? What does the data tell you?

Students appreciate all efforts to help them prepare for exams and the PI sessions do this very well. The TBL sessions that introduce students to patient cases and help them apply knowledge to solving clinical problems are also appreciated, especially as students approach their clinical training in year 3.

6. Closing the Loop: Dissemination and Use of Current Assessment Findings

A. When and how did your program faculty share and discuss these results and findings from this cycle of assessment?

These results are shared with our preclerkship faculty by the associate dean for preclerkship curriculum at the monthly meeting of the preclerkship curriculum subcommittee.

B. How specifically have you decided to use these findings to improve teaching and learning in your program? For example, perhaps you've initiated one or more of the following:

Changes to the Curriculum or Pedagogies

- Course content
- Teaching techniques
- Improvements in technology
- Prerequisites

- Course sequence
- New courses
- Deletion of courses
- Changes in frequency or scheduling of course offerings

Changes to the Assessment Plan

- Student learning outcomes
- Artifacts of student learning
- Evaluation process

- Evaluation tools (e.g., rubrics)
- Data collection methods
- Frequency of data collection

Please describe the actions you are taking as a result of these findings.

Faculty and staff continue to develop their skills in both creating PI and TBL materials and running these sessions. As lecture hours decrease and are replaced by acting learning modalities, more faculty development sessions and resources are being provided to facilitate improvement and expansion of PI and TBL.

If no changes are being made, please explain why.

7. Closing the Loop: Review of Previous Assessment Findings and Changes

A. What is at least one change your program has implemented in recent years as a result of assessment data?

Last year we reported on the changes to grading in our seven core clerkships. Students receive two separate grades: one based on the NBME exam and the other based on multiple clinical performance measures. Each clerkship is represented on the student transcript by two entries: XXX-301 Clerkship (clinical grade) and XXX Clerkship Exam-301E (NBME grade). This change was made based on assessment data.

B. How has this change/have these changes been assessed?

The importance of clinical observations of student performance by faculty and residents is essential. Additional assessments vary by clerkship, based on the specifics of the discipline. The various assessments used by individual clerkships (e.g., the student performance evaluation, history & physical documentation, oral patient presentations, etc.) are discussed in the Clinical Curriculum Subcommittee by the clerkship directors, administrators, and other clinical faculty.

C. What were the findings of the assessment?

As the clerkship directors refine existing assessments and discover new means of assessing clinical skills, this information is shared with other clerkship directors. Where improvements in the current state are possible they are made.

D. How do you plan to (continue to) use this information moving forward?

The refinement of existing, and implementation of new, clinical evaluation measures is an iterative process that continues from year to year.

IMPORTANT: Please submit any assessment tools (e.g., artifact prompts, rubrics) with this report as separate attachments or copied and pasted into this Word document. Please do not just refer to the assessment plan; the report should serve as a stand-alone document.