

Assessment in Medical Education

“Assessment,” “assess,” “grading,” and “feedback” appear no fewer than thirty-five times in twenty-seven pages in the LCME document “Functions and Structure of a Medical School: Standards for Accreditation of Medical Education Programs Leading to the M.D. Degree”¹. The first page of the document includes a discussion and definition of the concept and practice of “assessment” so there is no room for confusion. (See LCME Standards, Introduction and Section C, ED-27 through ED-32.)

With so much emphasis on accountability, curriculum management, and program success, the importance of the assessment of medical student learning is certainly well placed.

The burning question is “How can we define, capture, manage, report, and act upon assessment information to meet the LCME standards?” A robust computer system environment is an obvious requirement but most university student data systems fall woefully short of the capabilities needed by the medical school. This paper describes in detail how the EMPOWER Student Information System meets this challenge.

EMPOWER is a robust student information system in use in medical schools today. It is a full system following the student from AMCAS application through alumni services. It includes broad Web portal services to bring its power to casual users like students, professors, alumni and other constituents of the medical school as well as the professional staff. EMPOWER’s Student Records and Registration module is the home of its assessment and feedback functions.

TRADITIONAL COURSE GRADING

EMPOWER provides the full range of traditional letter, number, percent, and pass/no pass grading options. Grade point averages, in-class averages, translation between grading modes and other services are standard, i.e., grade equivalents are calculated such as 93% = A- = 3.75/4.00 = High Pass, etc. according to college practice.

Institutional grading modes are unlimited and are assigned per course. Students in a course may have differing grading modes such that some students may take a class as P/F and others may be on a numeric or full alpha scale. Professors can only assign relevant grades and special grades (W, for example) can be reserved for administration.

NARRATIVE ASSESSMENT (REF: LCME STANDARD ED-32)

Narrative assessment is fully supported by EMPOWER as a standard feature set. Both short pre-determined comments (like “meets expectations”) as well as long, free-form remarks are offered. Assessments can be comprehensive or broken into any number of categories such as professional demeanor, diagnostic skills, or the like. Narratives are scheduled by date so any number of assessment periods can be used. For example, narratives may be due every 30 days during an academic period or at mid-term and final grading.

Any combination of short and long narration plus traditional grading can be used so a complete assessment set might include a numeric grade, a corresponding letter or Pass/Fail grade, short narrative statements, and lengthy narratives occurring at predetermined times.

Explanatory narratives can be required based on levels of performance. For example, a professor may be required to submit a justification for a superlative assessment or a less-than adequate one.

Short narratives can also be included in student-at-risk evaluation and alerts. See the ‘Students At-Risk’ section below.

Students can be given the ability to comment on their assessments via the student portal.

ELEMENT GRADING

Similar to a common grade book, EMPOWER provides for capturing weighted grades given for class activities such as papers or exams as well as competency ratings for demonstrated skills. Any number of elements can be defined for a given course or section of a course allowing for both consistency and variation as desired. If standardized tests are used, those scores could be downloaded to EMPOWER eliminating the need to retype them. The system can calculate cumulative grades as the term progresses. Graded elements can be used as part of the student -at-risk evaluation and alert system.

PEER ASSESSMENT

With the growing importance of study groups and other forms of cooperative student education, the need to capture assessment of the group members by the group members has come to the fore. EMPOWER supports the establishment and population of study groups and offers an online mechanism for peer evaluation. Evaluation requests are opened per the schedule set for the activity. Peer comments take the same form as narrative grading above. However, peer evaluations are subject to review and publication by administrators and offer the option of rebuttal or comment from the student receiving the evaluation.

ASSESSMENT MANAGEMENT (REF: LCME STANDARD ED-30)

EMPOWER offers administrators and course directors tools to manage the process of assessment. For example, various reports and extracts point out missing grades and incomplete grades. These reports then offer the option of email or printed reminders to faculty and students for delinquent submissions. In the case of "I" grades, a tool is offered to change all such grades to another option, perhaps "F," in a batch process.

FACULTY PORTAL

The EMPOWER faculty portal is an online tool which places student information within easy reach of faculty per school policy and may include a range of academic information. This function includes access to rosters, study groups, and grading systems. Faculty members can enter any kind of assessment via the portal. Establishment and monitoring of peer study groups is also a faculty portal function.

FEEDBACK AND STUDENT ACCESS (REF: LCME STANDARD ED-41)

Students access their grades and assessments via the student portal. As with the faculty portal above, a broad range of information including schedules, fee statements and online payment, etc. is available. Apropos to assessment, students have access to grading per the policy of the college. This provides the timely feedback referenced in standard ED-31 as noted below and provides students with the opportunity for remediation.

A student 'dashboard' will present students with a single Web page to check on their assessments and peer evaluations. (Q3 2012 delivery)

STUDENT AT-RISK AND ADVISING ALERTS (REF: LCME STANDARD ED-31)

EMPOWER offers a flexible evaluation and alert system to help faculty and advisors monitor the academic status of students. The alert system is rules-driven to evaluate various components of the student academic picture including element grades and narratives. Advisors and designated staff/faculty receive automated alerts as students enter a defined at-risk situation.

ASSESSMENT IMPORT

Medical schools take advantage of many well-respected tools that form parts of the assessment system. These include data gathering tools like E*Value and one45; LMS systems like Moodle, Blackboard, and Sakai with their grading tools; standard shelf testing products; and labor-saving devices like Scantron. Importing these data electronically saves time, reduces errors, and ensures consistency.

While it is not possible to anticipate every need or variation, EMPOWER includes a robust set of import routines that may be effective as-is or form the basis for economical customization to meet your exact situation.

ASSESSMENT ANALYSIS

It is essential that assessment information be stored in a single, accessible, database to enable timely, consistent and accurate analysis for institutional research, self-studies, and accreditation reviews. The system includes several grading reports to help spot trends and anomalies.

EMPOWER's Oracle Relational Database Management System structure provides foundation technology for custom or ad hoc reporting as well. Any of the well accepted ODBC compliant reporting and analysis tools (e.g., Crystal Reports, SAS) can be used for this purpose and data can be easily exported to Excel or other systems for further massaging, graphs, etc.

DOWNSTREAM ACCESS AND INCLUSION OF ASSESSMENT IN MSPE, ACCREDITATION DATABASES, SELF-STUDY, AND INSTITUTIONAL RESEARCH

With the ever-increasing demands for data from accreditors, internal researchers, parent entities, oversight boards, governmental bodies, and academic research, possessing a solid and trustworthy data set could not be more important. Unreliable university resources, ad hoc systems, multiple conflicting third party systems, and manual data collection are not acceptable. With almost thirty years of company database development experience and many times that in cumulative staff experience in higher education, government, and commercial databases, EMPOWER is uniquely situated to design and maintain a data resource that is normalized, trustworthy, and accessible.

¹Liaison Committee on Medical Education, "Functions and Structure of a Medical School: Standards for Accreditation for Medical Education Programs Leading to the M.D. Degree," May 2011, Washington, DC. <http://www.lcme.org/standard.htm>.

