

FUNCTIONS AND STRUCTURE OF A MEDICAL SCHOOL

**Standards for Accreditation of Medical Education Programs
Leading to the M.D. Degree**

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Liaison Committee on Medical Education

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Table of Contents

	Page
Introduction	ii
I. Institutional Setting	1
A. Governance and Administration	1
B. Academic Environment	3
II. Educational Program for the M.D. Degree	5
A. Educational Objectives	5
B. Structure.....	6
1. General Design.....	6
2. Content.....	8
C. Teaching and Evaluation	10
D. Curriculum Management	12
1. Roles and Responsibilities	12
2. Geographically Separated Programs	14
E. Evaluation of Program Effectiveness	15
III. Medical Students	15
A. Admissions	15
1. Premedical Requirements.....	15
2. Selection.....	16
3. Visiting and Transfer Students.....	17
B. Student Services	18
1. Academic and Career Counseling.....	18
2. Financial Aid Counseling and Resources.....	18
3. Health Services and Personal Counseling.....	19
C. The Learning Environment.....	20
IV. Faculty	21
A. Number, Qualifications, and Functions	21
B. Personnel Policies.....	22
C. Governance.....	23
V. Educational Resources	23
A. Finances	24
B. General Facilities.....	24
C. Clinical Teaching Facilities	24
D. Information Resources and Library Services.....	26

Introduction

Accreditation is a voluntary, peer-review process designed to attest to the educational quality of new and established educational programs. The LCME accredits complete and independent medical education programs where students are geographically located in the United States or Canada¹ for their education and that are operated by universities or medical schools that are chartered in the United States or Canada. Accreditation of Canadian programs is undertaken in cooperation with the Committee on Accreditation of Canadian Medical Schools (CACMS). By judging the compliance of medical education programs with nationally accepted standards of educational quality, the LCME and CACMS serve the interests of the general public and of the students enrolled in those programs.

To achieve and maintain accreditation, medical education programs leading to the M.D. degree in the U.S. and Canada must meet the standards portrayed in this document. The accreditation process requires educational programs to provide assurances that their graduates exhibit general professional competencies that are appropriate for entry to the next stage of their training, and that serve as the foundation for life-long learning and proficient medical care. While recognizing the existence and appropriateness of diverse institutional missions and educational objectives, the LCME subscribes to the proposition that local circumstances do not justify accreditation of a substandard program of medical education leading to the M.D. degree.

In this document the words “must” and “should” have been chosen with great care. The difference in terminology is slight but significant. Use of the word “must” indicates that the LCME considers meeting the standard to be absolutely necessary for the achievement and maintenance of accreditation. Use of the word “should” indicates that compliance with the standard is expected unless there are extraordinary and justifiable circumstances that preclude full compliance. Explanatory annotations to clarify the operational meaning of standards are provided.

If a U.S. or Canadian institution that provides an LCME-accredited, M.D.-granting program also offers other medical education programs leading to the M.D. degree that are not accredited by the LCME, the diploma for the latter program must explicitly state the basis of the degree to assure that it will not be confused with the program accredited by the LCME. The LCME, if requested, can provide information and consultation about medical education standards and the process of accreditation for M.D.-granting programs that are offered by institutions located outside the United States and Canada.

Note that periodic revision and amendment of the standards may result in the elimination of certain numbered standards (for example, there is no longer a standard numbered ED-45). It may also result in standards that include letters after the numerical suffix (for example, ED-1-A); the use of letter suffixes is not intended to indicate that such standards are subsidiary to other standards, but simply to indicate their placement with respect to surrounding standards.

Further information about accreditation can be obtained from the LCME or CACMS offices listed inside the cover of this document, or from the LCME web site, www.lcme.org.

¹ The terms “United States” and “Canada” refer to the geographic locations where citizens are issued passports by the governments of the United States and Canada respectively.

LCME Standards for Accreditation of Medical Education Programs Leading to the M.D. Degree

I. INSTITUTIONAL SETTING

- IS-1 Each medical school must engage in a planning process that sets the direction for the institution and results in measurable outcomes.

To assure ongoing vitality and successful adaptation to the rapidly changing environment of academic medicine, schools need to establish periodic or cyclical institutional planning processes and activities. Planning efforts that have proven successful in medical schools and other professional or business milieus typically involve the definition and periodic reassessment of both short-term and long-range goals for the successful accomplishment of institutional missions. By framing goals in terms of measurable outcomes wherever circumstances permit, a school can more readily track progress towards their achievement. The manner in which a school engages in institutional planning will vary according to available resources and local circumstances, but all schools should be able to document their vision, mission, and goals, evidence indicating their achievement, and strategies for periodic or ongoing reassessment of successes and unmet challenges.

A. Governance and Administration

- IS-2 A medical school should be, or be part of, a not-for-profit institution legally authorized under applicable law to provide medical education leading to the M.D. degree.
- IS-3 If not a component of a regionally accredited institution, a U.S. medical school must achieve institutional accreditation from the appropriate regional accrediting body.

The LCME is recognized by the U.S. Department of Education as an accrediting agency for educational programs, specifically for the accreditation of medical education programs leading to the M.D. degree. Because the LCME is not recognized as an institutional accrediting agency, it lacks standing to accredit stand-alone medical schools as institutions of higher education.

Institutional accreditation is granted by regional accrediting agencies, and is required to qualify for federal financial assistance programs authorized under Title IV of the Higher Education Act. Some regional accrediting bodies grant “pre-accreditation” as a first step to achieving full accreditation. In such circumstances the attainment of pre-accreditation status would meet the requirements of this standard.

- IS-4 The manner in which the medical school is organized, including the responsibilities and privileges of administrative officers, faculty, students and committees must be promulgated in medical school or university bylaws.
- IS-5 The governing board responsible for oversight of the medical school must have and follow formal policies and procedures to avoid the impact of conflicts of interest of members in the operation of the school, its associated hospitals, or any related enterprises.
- There must be formal policies and procedures to avoid the impact of conflicts of interest, such as the requirement that a board member recuse him/herself from any discussion or vote relating to a matter where there is a potential for a conflict of interest to exist. The school also must provide evidence (for example, from board minutes, annual signed disclosure statements from board members) that these policies and procedures actually are being followed. Some conflicts related to personal or pecuniary interests in the operation of the school may be so pervasive as to preclude service on the governing board.
- IS-6 Terms of governing board members should be overlapping and sufficiently long to permit them to gain an understanding of the programs of the medical school.
- IS-7 Administrative officers and members of a medical school faculty must be appointed by, or on the authority of, the governing board of the medical school or its parent university.
- IS-8 The chief official of the medical school, who usually holds the title “dean,” must have ready access to the university president or other university official charged with final responsibility for the school, and to other university officials as are necessary to fulfill the responsibilities of the dean’s office.
- IS-9 There must be clear understanding of the authority and responsibility for medical school matters among the vice president for health affairs, the dean of the medical school, the faculty, and the directors of the other components of the medical center and university.
- IS-10 The dean must be qualified by education and experience to provide leadership in medical education, scholarly activity, and care of patients.
- IS-11 The medical school administration should include such associate or assistant deans, department chairs, leaders of other organizational units, and staff as are necessary to accomplish the missions of the medical school.

There should not be excessive turnover or long-standing vacancies in medical school leadership. Medical school leaders include the dean, vice/associate deans, department chairs, and others where a vacancy could negatively impact institutional stability, especially planning for or implementing the educational program. Areas that commonly require administrative support include admissions, student affairs, academic affairs, faculty affairs, graduate education, continuing education, hospital relationships, research, business and planning, and fund raising.

B. Academic Environment

- IS-12 A medical school should be a component of a university offering other graduate and professional degree programs that contribute to the academic environment of the medical school.

There should be regular and formal review of all graduate and professional programs in which medical school faculty participate, to foster adherence to high standards of quality in education, research, and scholarship, and to facilitate the progress and achievement of the trainees.

- IS-12-A Medical students should learn in clinical environments where graduate and continuing medical education programs are present.

In order to link medical student education to the later stages of the medical education continuum, medical students should spend time in settings where graduate and continuing medical education programs are present. It is expected that medical students will participate, where appropriate, in the activities associated with these programs. The graduate and continuing medical education programs at training sites where medical students are located should be accredited by the appropriate accrediting bodies.

- IS-13 The program of medical education leading to the M.D. degree must be conducted in an environment that fosters the intellectual challenge and spirit of inquiry appropriate to a community of scholars.
- IS-14 Medical schools should make available sufficient opportunities for medical students to participate in research and other scholarly activities of the faculty, and encourage and support student participation.

It is expected that medical schools will provide an appropriate number and variety of research opportunities to accommodate those students desiring to participate. To encourage participation, medical schools could do such things as provide information about available opportunities, offer elective credit for research, hold research days, or include research as a required part of the curriculum. Support for student participation could include offering or providing information about financial support for student research (such as stipends).

- IS-14-A Medical schools should make available sufficient opportunities for medical students to participate in service-learning activities, and should encourage and support student participation.
[New standard approved by the LCME in February 2007, to be effective as of July 1, 2008]

“Service-learning” is defined as a structured learning experience that combines community service with preparation and reflection. Students engaged in service-learning provide community service in response to community-identified concerns and learn about the context in which service is provided, the connection between their service and their academic coursework, and their roles as citizens and professionals. [Definition from Seifer SD. "Service-learning: Community-campus

partnerships for health professions education." *Academic Medicine*, 73(3):273-277 (1998).]

"Sufficient opportunities" means that students who wish to participate in a service learning activity should have the opportunity to do so. To encourage student participation, medical schools could do such things as developing opportunities in conjunction with relevant communities or partnerships, providing information about available opportunities, offering elective credit for participation, or holding public presentations or public forums. Support for student participation could include offering or providing information about financial and social support for student service-learning (such as stipends, faculty preceptors, community partnerships).

- IS-15 All medical school faculty members should work closely together in teaching, research, and health care delivery.

Because the education of both medical students and graduate physicians requires an academic environment that provides close interaction among faculty members, those skilled in teaching and research in the basic sciences must maintain awareness of the relevance of their disciplines to clinical problems. Conversely, clinicians must maintain awareness of the contributions that basic sciences bring to the understanding of clinical problems. These reciprocal obligations emphasize the importance of collegiality among medical school faculty across disciplinary boundaries and throughout the continuum of medical education.

- IS-16 Each medical school must have policies and practices to achieve appropriate diversity among its students, faculty, staff, and other members of its academic community, and must engage in ongoing, systematic, and focused efforts to attract and retain students, faculty, staff, and others from demographically diverse backgrounds. *[New standard and annotation approved by the LCME in February 2008, and effective July 1, 2009]*

The LCME and CACMS believe that aspiring future physicians will be best prepared for medical practice in a diverse society if they learn in an environment characterized by, and supportive of, diversity and inclusion. Such an environment will facilitate physician training in:

- Basic principles of culturally competent health care
- Recognition of health care disparities and the development of solutions to such burdens
- The importance of meeting the health care needs of medically underserved populations
- The development of core professional attributes, such as altruism and social accountability, needed to provide effective care in a multidimensionally diverse society

Each school should articulate its expectations regarding diversity across its academic community in the context of local and national responsibilities, and regularly assess how well such expectations are being achieved. Schools should consider in their planning elements of diversity including, but not limited to: gender, racial, cultural and economic. Schools should establish focused, significant, and sustained programs to recruit and retain suitably diverse students, faculty members, staff, and others.

II. EDUCATIONAL PROGRAM FOR THE M.D. DEGREE

A. Educational Objectives

ED-1 The medical school faculty must define the objectives of its educational program. The objectives must serve as guides for establishing curriculum content and provide the basis for evaluating the effectiveness of the educational program.

Objectives for the educational program as a whole serve as statements of what students are expected to learn or accomplish during the course of their medical education program.

It is expected that the objectives of the educational program will be formally adopted by the Faculty, as a whole and through its recognized governance process. It is expected that the objectives of the educational program will be used by faculty members in designing their courses and clerkships and in developing plans for the evaluation of students. Among those who exhibit familiarity with the overall objectives for the education of medical students are the dean and the academic leadership of the clinical affiliates who share in the responsibility for delivering the educational program. The curriculum committee, working in conjunction with the chief academic officer, should review the stated objectives of individual courses and clerkships, as well as methods of pedagogy and student evaluation, to assure congruence with institutional educational objectives.

ED-1-A The objectives of the educational program must be stated in outcome-based terms that allow assessment of student progress in developing the competencies that the profession and the public expect of a physician.

Educational objectives state what students are expected to learn. Such objectives are statements of the items of knowledge, skills, behaviors, and attitudes that students are expected to exhibit as evidence of their achievement. The educational objectives should relate to the competencies that the profession and the public expect of a physician.

The educational objectives established by the school, along with their associated outcome measures, should reflect whether and how well graduates are developing these competencies as a basis for the next stage of their training.

Student achievement of educational program objectives should be documented by specific and measurable outcome-based performance measures of knowledge, skills, attitudes, and values (for example, measures of basic science grounding in the clinical years, USMLE results, performance of graduates in residency training, performance on licensing and certification examinations). National norms should be used for comparison whenever available.

There are several widely recognized definitions of the knowledge, skills, and attitudinal attributes appropriate for a physician, including those described in the AAMC's Medical School Objectives Project, the general competencies of

physicians resulting from the collaborative efforts of the ACGME and ABMS, and the physician roles summarized in the CanMEDS 2000 report of the Royal College of Physicians and Surgeons of Canada.

- ED-2 There must be a system with central oversight to assure that the faculty define the types of patients and clinical conditions that students must encounter, the appropriate clinical setting for the educational experiences, and the expected level of student responsibility. The faculty must monitor student experience and modify it as necessary to ensure that the objectives of the clinical education program will be met.

This standard requires that a system be established to specify the types of patients or clinical conditions that students must encounter and to monitor and verify the students' experiences with patients so as to remedy any identified gaps. The system, whether managed at the individual clerkship level or centrally, must ensure that all students have the required experiences. For example, if a student does not encounter patients with a particular clinical condition (e.g., because it is seasonal), the student should be able to remedy the gap by a simulated experience (such as standardized patient experiences, online or paper cases, etc.), or in another clerkship.

When clerkships in a given discipline are provided at multiple teaching sites, schools that cannot demonstrate compliance with this standard (ED-2) may also be unable to comply with accreditation standard ED-8, which requires that programs demonstrate comparability of educational experiences across instructional sites.

- ED-3 The objectives of the educational program must be made known to all medical students and to the faculty, residents, and others with direct responsibilities for medical student education.

B. Structure

1. General Design

- ED-4 The program of medical education leading to the M.D. degree must include at least 130 weeks of instruction.
- ED-5 The medical faculty must design a curriculum that provides a general professional education, and that prepares students for entry into graduate medical education.
- ED-5-A The educational program must include instructional opportunities for active learning and independent study to foster the skills necessary for lifelong learning.

It is expected that the methods of instruction and evaluation used in courses and clerkships will provide students with the skills to support lifelong learning. These skills include self-assessment on learning needs and independent identification, analysis, and synthesis of relevant information, as well as the assessment of whether information sources are credible. Students should receive explicit experiences in using these skills, and evaluation of and feedback on their performance.

- ED-6 The curriculum must incorporate the fundamental principles of medicine and its underlying scientific concepts; allow students to acquire skills of critical judgment based on evidence and experience; and develop students' ability to use principles and skills wisely in solving problems of health and disease.
- ED-7 It must include current concepts in the basic and clinical sciences, including therapy and technology, changes in the understanding of disease, and the effect of social needs and demands on care.
- ED-8 There must be comparable educational experiences and equivalent methods of evaluation across all alternative instructional sites within a given discipline.

Compliance with this standard requires that educational experiences given at alternative sites be designed to achieve the same educational objectives. Course duration or clerkship length must be identical, unless a compelling reason exists for varying the length of the experience. The instruments and criteria used for student evaluation, as well as policies for the determination of grades, should be the same at all alternative sites. The faculty who teach at various sites should be sufficiently knowledgeable in the subject matter to provide effective instruction, with a clear understanding of the objectives of the educational experience and the evaluation methods used to determine achievement of those objectives. Opportunities to enhance teaching and evaluation skills should be available for faculty at all instructional sites.

While the types and frequency of problems or clinical conditions seen at alternate sites may vary, each course or clerkship must identify any core experiences needed to achieve its objectives, and assure that students receive sufficient exposure to such experiences. Likewise, the proportion of time spent in inpatient and ambulatory settings may vary according to local circumstance, but in such cases the course or clerkship director must assure that limitations in learning environments do not impede the accomplishment of objectives.

To facilitate comparability of educational experiences and equivalency of evaluation methods, the course or clerkship director should orient all participants, both teachers and learners, about the educational objectives and grading system used. This can be accomplished through regularly scheduled meetings between the director of the course or clerkship and the directors of the various sites that are used.

The course/clerkship leadership should review student evaluations of their experiences at alternative sites to identify any persistent variations in educational experiences or evaluation methods.

- ED-9 The LCME must be notified of plans for major modification of the curriculum.

Notification should include the explicitly-defined goals of the change, the plans for implementation, and the methods that will be used to evaluate the results. Planning for curriculum change should consider the incremental resources that

will be required, including physical facilities and space, faculty/resident effort, demands on library facilities and operations, information management needs, and computer hardware.

In view of the increasing pace of discovery of new knowledge and technology in medicine, the LCME encourages experimentation that will increase the efficiency and effectiveness of medical education.

2. Content

- ED-10 The curriculum must include behavioral and socioeconomic subjects, in addition to basic science and clinical disciplines.

Lists of subjects widely recognized as important components of the general professional education of a physician are included in the medical education database completed in preparation for full accreditation surveys, and in the LCME Part II Annual Medical School Questionnaire. Depth of coverage of the individual topics will depend on the school's educational goals and objectives.

- ED-11 It must include the contemporary content of those disciplines that have been traditionally titled anatomy, biochemistry, genetics, physiology, microbiology and immunology, pathology, pharmacology and therapeutics, and preventive medicine.

- ED-12 Instruction within the basic sciences should include laboratory or other practical opportunities for the direct application of the scientific method, accurate observation of biomedical phenomena, and critical analyses of data.

Opportunities could include hands-on or simulated (for example, computer-based) exercises where students either collect or utilize data to test and/or verify hypotheses or to address questions about biomedical principles and/or phenomena. Schools should be able to illustrate where in the curriculum such exercises occur, the specific intent of the exercises, and how they contribute to the objectives of the course and the ability to collect, analyze, and interpret data.

- ED-13 Clinical instruction must cover all organ systems, and include the important aspects of preventive, acute, chronic, continuing, rehabilitative, and end-of-life care.

- ED-14 Clinical experience in primary care must be included as part of the curriculum.

- ED-15 The curriculum should include clinical experiences in family medicine, internal medicine, obstetrics and gynecology, pediatrics, psychiatry, and surgery.

Schools that do not require clinical experience in one or another of these disciplines must ensure that their students possess the knowledge and clinical abilities to enter any field of graduate medical education.

- ED-16 Students' clinical experiences must utilize both outpatient and inpatient settings.

ED-17 Educational opportunities must be available in multidisciplinary content areas, such as emergency medicine and geriatrics, and in the disciplines that support general medical practice, such as diagnostic imaging and clinical pathology.

ED-17-A The curriculum must introduce students to the basic principles of clinical and translational research, including how such research is conducted, evaluated, explained to patients, and applied to patient care. *[New standard approved by the LCME in February 2007, to be effective as of July 1, 2008]*

The faculty should specify learning objectives (knowledge, skills, and attitudes) that will, at a minimum, equip graduates to understand the basic principles and ethics of clinical and translational research, and how such research is conducted, evaluated, and applied to the care of patients. One example of relevant objectives is contained in Report IV of the AAMC's Medical School Objectives Project (Contemporary Issues in Medicine: Basic Science and Clinical Research).

There are several ways in which programs can meet the requirements of this standard. They range from separate required coursework in the subject, to the establishment of appropriate learning objectives and instructional activities within existing, patient-focused courses or clerkships (for example, discussing the application of new knowledge from clinical research in bedside teaching activities, offering mentored projects, or conducting journal club sessions that allow students to explore the development or application of clinical and translational research).

ED-18 The curriculum must include elective courses to supplement required courses.

While electives permit students to gain exposure to and deepen their understanding of medical specialties reflecting their career interests, they should also provide opportunities for students to pursue individual academic interests.

ED-19 There must be specific instruction in communication skills as they relate to physician responsibilities, including communication with patients, families, colleagues, and other health professionals.

ED-20 The curriculum must prepare students for their role in addressing the medical consequences of common societal problems, for example, providing instruction in the diagnosis, prevention, appropriate reporting, and treatment of violence and abuse.

ED-21 The faculty and students must demonstrate an understanding of the manner in which people of diverse cultures and belief systems perceive health and illness and respond to various symptoms, diseases, and treatments.

All instruction should stress the need for students to be concerned with the total medical needs of their patients and the effects that social and cultural circumstances have on their health. To demonstrate compliance with this standard, schools should be able to document objectives relating to the development of skills in cultural competence, indicate where in the curriculum students are exposed to such material, and demonstrate the extent to which the objectives are being achieved.

ED-22 Medical students must learn to recognize and appropriately address gender and cultural biases in themselves and others, and in the process of health care delivery.

The objectives for clinical instruction should include student understanding of demographic influences on health care quality and effectiveness, such as racial and ethnic disparities in the diagnosis and treatment of diseases. The objectives should also address the need for self-awareness among students regarding any personal biases in their approach to health care delivery.

ED-23 A medical school must teach medical ethics and human values, and require its students to exhibit scrupulous ethical principles in caring for patients, and in relating to patients' families and to others involved in patient care.

Each school should assure that students receive instruction in appropriate medical ethics, human values, and communication skills before engaging in patient care activities. As students take on increasingly more active roles in patient care during their progression through the curriculum, adherence to ethical principles should be observed and evaluated, and reinforced through formal instructional efforts.

In student-patient interactions there should be a means for identifying possible breaches of ethics in patient care, either through faculty/resident observation of the encounter, patient reporting, or some other appropriate method.

"Scrupulous ethical principles" imply characteristics like honesty, integrity, maintenance of confidentiality, and respect for patients, patients' families, other students, and other health professionals. The school's educational objectives may identify additional dimensions of ethical behavior to be exhibited in patient care settings.

C. Teaching and Evaluation

ED-24 Residents who supervise or teach medical students, as well as graduate students and postdoctoral fellows in the biomedical sciences who serve as teachers or teaching assistants, must be familiar with the educational objectives of the course or clerkship and be prepared for their roles in teaching and evaluation.

The minimum expectations for achieving compliance with this standard are that: (a) residents and other instructors who do not hold faculty ranks (such as graduate students and postdoctoral fellows) should receive a written copy of the course/clerkship objectives and clear guidance from the course/clerkship director about their roles in teaching and evaluating medical students; and (b) that the institution and/or relevant departments provide resources such as workshops/written materials to enhance the teaching and evaluation skills of residents and other non-faculty instructors. There should be central monitoring of the level of resident/other instructor participation in activities to enhance their teaching/evaluation skills. The LCME encourages formal assessment of the teaching and evaluation skills of residents and other non-faculty instructors, with opportunities provided for remediation if their performance is inadequate.

Assessment methods could include direct observation by faculty, feedback from students through course/clerkship evaluations or focus groups, or any other suitable method.

ED-25 Supervision of student learning experiences must be provided throughout required clerkships by members of the medical school's faculty.

ED-26 The medical school faculty must establish a system for the evaluation of student achievement throughout medical school that employs a variety of measures of knowledge, skills, behaviors, and attitudes.

Evaluation of student performance should measure not only retention of factual knowledge, but also development of the skills, behaviors, and attitudes needed in subsequent medical training and practice, and the ability to use data appropriately for solving problems commonly encountered in medical practice.

Schools are urged to develop a system of evaluation that fosters self-initiated learning by students. The system of evaluation, including the format and frequency of examinations, should support the goals, objectives, processes, and expected outcomes of the curriculum.

ED-27 There must be ongoing assessment that assures students have acquired and can demonstrate on direct observation the core clinical skills, behaviors, and attitudes that have been specified in the school's educational objectives.

ED-28 There must be evaluation of problem solving, clinical reasoning, and communication skills.

ED-29 The faculty of each discipline should set the standards of achievement in that discipline.

ED-30 The directors of all courses and clerkships must design and implement a system of formative and summative evaluation of student achievement in each course and clerkship.

Those directly responsible for the evaluation of student performance should understand the uses and limitations of various test formats, the purposes and benefits of criterion-referenced vs. norm-referenced grading, reliability and validity issues, formative vs. summative assessment, etc.

In addition, the chief academic officer, curriculum leaders, and faculty should understand, or have access to individuals who are knowledgeable about, methods for measuring student performance. The school should provide opportunities for faculty members to develop their skills in such methods.

An important element of the system of evaluation should be to ensure the timeliness with which students are informed about their final performance in the course/clerkship. In general, final grades should be available within four to six weeks of the end of a course/clerkship.

ED-31 Each student should be evaluated early enough during a unit of study to allow time for remediation.

It is expected that courses and clerkships provide students with formal feedback during the experience so that they may understand and remediate their deficiencies. Courses or clerkships that are short in duration (less than 4 weeks) may not have sufficient time to provide structured formative evaluation, but should provide alternate means (such as self-testing or teacher consultation) that will allow students to measure their progress in learning.

ED-32 Narrative descriptions of student performance and of non-cognitive achievement should be included as part of evaluations in all required courses and clerkships where teacher-student interaction permits this form of assessment.

D. Curriculum Management

1. Roles and Responsibilities

ED-33 There must be integrated institutional responsibility for the overall design, management, and evaluation of a coherent and coordinated curriculum.

The phrase “integrated institutional responsibility” implies that an institutional body (commonly a curriculum committee) will oversee the educational program as a whole. An effective central curriculum authority will exhibit:

- Faculty, student, and administrative participation.
- Expertise in curricular design, pedagogy, and evaluation methods.
- Empowerment, through bylaws or decanal mandate, to work in the best interests of the institution without regard for parochial or political influences, or departmental pressures.

The phrase “coherent and coordinated curriculum” implies that the program as a whole will be designed to achieve the school’s overall educational objectives. Evidence of coherence and coordination includes:

- Logical sequencing of the various segments of the curriculum.
- Content that is coordinated and integrated within and across the academic periods of study (horizontal and vertical integration).
- Methods of pedagogy and student evaluation that are appropriate for the achievement of the school’s educational objectives.

Curriculum management signifies leading, directing, coordinating, controlling, planning, evaluating, and reporting. Evidence of effective curriculum management includes:

- Evaluation of program effectiveness by outcomes analysis, using national norms of accomplishment as a frame of reference.
- Monitoring of content and workload in each discipline, including the identification of omissions and unwanted redundancies.

- Review of the stated objectives of individual courses and clerkships, as well as methods of pedagogy and student evaluation, to assure congruence with institutional educational objectives.

Minutes of the curriculum committee meetings and reports to the faculty governance and deans should document that such activities take place and should show the committee's findings and recommendations.

ED-34 The program's faculty must be responsible for the detailed design and implementation of the components of the curriculum.

Such responsibilities include, at a minimum, the development of specific course or clerkship objectives, selection of pedagogical and evaluation methods appropriate for the achievement of those objectives, ongoing review and updating of content, and assessment of course and teacher quality.

ED-35 The objectives, content, and pedagogy of each segment of the curriculum, as well as for the curriculum as a whole, must be subject to periodic review and revision by the faculty.

ED-36 The chief academic officer must have sufficient resources and authority to fulfill the responsibility for the management and evaluation of the curriculum.

The dean often serves as the chief academic officer, with ultimate individual responsibility for the design and management of the educational program as a whole. He or she may, however, delegate operational responsibility for curriculum oversight to a vice dean or associate dean.

The kinds of resources needed by the chief academic officer to assure effective delivery of the educational program include:

- Adequate numbers of teachers who have the time and training necessary to achieve the program's objectives.
- Appropriate teaching space for the methods of pedagogy employed in the educational program.
- Appropriate educational infrastructure (computers, audiovisual aids, laboratories, etc.).
- Educational support services, such as examination grading, classroom scheduling, and faculty training in methods of teaching and evaluation.
- Support and services for the efforts of the curriculum management body and for any interdisciplinary teaching efforts that are not supported at a departmental level.

The chief academic officer must have explicit authority to ensure the implementation and management of the educational program, and to facilitate change when modifications to the curriculum are determined to be necessary.

ED-37 The faculty committee responsible for the curriculum must monitor the content provided in each discipline so that the school's educational objectives will be achieved.

The committee, working in conjunction with the chief academic officer, should assure that each academic period of the curriculum maintains common standards for content. Such standards should address the depth and breadth of knowledge required for a general professional education, currency and relevance of content, and the extent of redundancy needed to reinforce learning of complex topics. The final year should complement and supplement the curriculum so that each student will acquire appropriate competence in general medical care regardless of subsequent career specialty.

- ED-38 The committee responsible for the curriculum, along with medical school administration and educational program leadership, must develop and implement policies regarding the amount of time students spend in required activities, including the total required hours spent in clinical and educational activities during clinical clerkships.

Attention should be paid to the time commitment required of medical students, especially during the clinical years. Students' hours should be set taking into account the effects of fatigue and sleep deprivation on learning, clinical activities, and student health and safety.

2. Geographically Separated Programs

- ED-39 The medical school's chief academic officer must be responsible for the conduct and quality of the educational program and for assuring the adequacy of faculty at all educational sites.

- ED-40 The principal academic officer of each geographically remote site must be administratively responsible to the chief academic officer of the medical school conducting the educational program.

- ED-41 The faculty in each discipline at all sites must be functionally integrated by appropriate administrative mechanisms.

Schools should be able to demonstrate the means by which faculty at dispersed sites participate in and are held accountable for medical student education that is consistent with the objectives and performance expectations established by course or clerkship leadership. Mechanisms to achieve functional integration may include regular meetings or electronic communication, periodic visits to all sites by course or clerkship leadership, and sharing of course or clerkship evaluation data and other types of feedback regarding faculty performance of their educational responsibilities.

- ED-42 There must be a single standard for promotion and graduation of students across geographically separate campuses.

- ED-43 The parent school must assume ultimate responsibility for the selection and assignment of all medical students to component campuses or tracks. There must be a process that permits a student with an appropriate rationale to request an alternative assignment when circumstances allow for it.

Schools which offer educational programs at multiple instructional sites or via distinct educational tracks are responsible for determining which site or track each student will attend. That responsibility should not preclude students from obtaining alternative assignments if appropriate reasons are given (for example, demonstrable economic or personal hardship) and if the educational activities and resources involved allow for such reassignment. It is understood, however, that movement among campuses may not be possible (e.g. because the sites may offer different curriculum tracks).

ED-44 Students assigned to all campuses should receive the same rights and support services.

ED-45 *There is no standard ED-45.*

E. Evaluation of Program Effectiveness

ED-46 A medical school must collect and use a variety of outcome data, including national norms of accomplishment, to demonstrate the extent to which its educational program objectives are being met.

Schools should collect outcome data on student performance during and after medical school appropriate to document the achievement of the school's educational program objectives. The kinds of outcome data that could serve this purpose include performance on national licensure examinations, performance in courses/clerkships and other internal measures related to educational program objectives, academic progress and program completion rates, acceptance into residency programs, assessments of program directors and graduates on graduates' preparation in areas related to educational program objectives, including the professional behavior of their graduates.

ED-47 In assessing program quality, schools must consider student evaluations of their courses and teachers, as well as a variety of other measures.

It is expected that schools will have a formal process to collect and use information from students on the quality of courses and clerkships, which could include such measures as questionnaires (written or online), focus groups, or other structured data collection tools. Other measures could include peer review and external evaluation.

III. MEDICAL STUDENTS

A. Admissions

1. Premedical Requirements

MS-1 Students preparing to study medicine should acquire a broad education, including the humanities and social sciences.

Ordinarily, four years of undergraduate education are necessary to prepare for entrance into medical school; however, special programs (e.g., combined baccalaureate-M.D. programs) may allow this to be reduced. General education that includes the social sciences, history, arts, and languages is increasingly important for the development of physician competencies outside of the scientific knowledge domain.

MS-2 Premedical course requirements should be restricted to those deemed essential preparation for completing the medical school curriculum.

2. Selection

MS-3 The faculty of each school must develop criteria and procedures for the selection of students that are readily available to potential applicants and to their collegiate advisors.

MS-4 The final responsibility for selecting students to be admitted for medical study must reside with a duly constituted faculty committee.

Persons or groups external to the medical school may assist in the evaluation of applicants but should not have decision-making authority.

MS-5 Each medical school must have a pool of applicants sufficiently large and possessing national level qualifications to fill its entering class.

The size of the entering class and of the medical student body as a whole should be determined not only by the number of qualified applicants, but also the adequacy of critical resources:

- Finances.
- Size of the faculty and the variety of academic fields they represent.
- Library and information systems resources.
- Number and size of classrooms, student laboratories, and clinical training sites.
- Patient numbers and variety.
- Student services.
- Instructional equipment.
- Space for the faculty.

Class size considerations should also include:

- The need to share resources to educate graduate students or other students within the university.
- The size and variety of programs of graduate medical education.
- Responsibilities for continuing education, patient care, and research.

MS-6 Medical schools must select students who possess the intelligence, integrity, and personal and emotional characteristics necessary for them to become effective physicians.

MS-7 The selection of individual students must not be influenced by any political or financial factors.

- MS-8 Each medical school must develop programs or partnerships aimed at broadening diversity among qualified applicants for medical school admission. *[New standard and annotation approved by the LCME in February 2008, and effective July 1, 2009]*

Because graduates of U.S. and Canadian medical schools may practice anywhere in their respective countries, it is expected that schools recognize their collective responsibility for contributing to the diversity of the profession as a whole. To that end, schools should work within their own universities and and/or collaborate with other institutions to make admission to medical education programs more accessible to potential applicants of diverse backgrounds. Schools can accomplish that aim through a variety of approaches, including, but not limited to, the development and institutionalization of pipeline programs, collaborations with institutions that serve students from disadvantaged backgrounds, community service activities that heighten awareness of and interest in the profession, or academic enrichment programs for applicants who may not have taken traditional pre-medical coursework.

- MS-9 Each school must develop and publish technical standards for admission of handicapped applicants, in accordance with legal requirements.
- MS-10 The institution's catalog or equivalent informational materials must describe the requirements for the M.D. and all associated joint degree programs, provide the most recent academic calendar for each curricular option, and describe all required courses and clerkships offered by the school.

A medical school's publications, advertising, and student recruitment should present a balanced and accurate representation of the mission and objectives of the program.

- MS-11 The catalog or informational materials must also enumerate the school's criteria for selecting students, and describe the admissions process.

3. Visiting and Transfer Students

- MS-12 Institutional resources to accommodate the requirements of any visiting and transfer students must not significantly diminish the resources available to existing enrolled students.
- MS-13 Transfer students must demonstrate achievements in premedical education and medical school comparable to those of students in the class that they join.
- MS-14 Prior coursework taken by students who are accepted for transfer or admission to advanced standing must be compatible with the program to be entered.
- MS-15 Transfer students should not be accepted into the final year of the program except under rare circumstances.
- MS-16 The accepting school should verify the credentials of visiting students, formally register and maintain a complete roster of such students, approve their assignments, and provide evaluations to their parent schools.

Registration of visiting students allows the school accepting them to establish protocols or requirements for health records, immunizations, exposure to infectious agents or environmental hazards, insurance, and liability protection comparable to those of their own enrolled students.

MS-17 Students visiting from other schools for clinical clerkships and electives must possess qualifications equivalent to students they will join in these experiences.

B. Student Services

1. Academic and Career Counseling

MS-18 The system of academic advising for students must integrate the efforts of faculty members, course directors, and student affairs officers with the school's counseling and tutorial services.

There should be formal mechanisms for student mentoring and advocacy. The roles of various participants in the advisory system should be defined and disseminated to students. Students should have options to obtain advice about academic issues or academic counseling from individuals who have no role in making promotion or evaluation decisions.

MS-19 There must be a system to assist students in career choice and application to residency programs, and to guide students in choosing elective courses.

MS-20 If students are permitted to take electives at other institutions, there should be a system centralized in the dean's office to review students' proposed extramural programs prior to approval and to ensure the return of a performance appraisal by the host program.

MS-21 The process of applying for residency programs should not disrupt the general medical education of the students.

Students should not be exempted from any required educational experiences or assessment exercises in order to pursue other activities intended to enhance their likelihood of obtaining a desired residency position.

MS-22 Letters of reference or other credentials should not be provided until the fall of the student's final year.

2. Financial Aid Counseling and Resources

MS-23 A medical school must provide students with effective financial aid and debt management counseling.

In providing financial aid services and debt management counseling, schools should pay close attention and alert students to the impact of non-educational debt on their cumulative indebtedness.

MS-24 Medical schools should have mechanisms in place to minimize the impact of direct educational expenses on student indebtedness.

The LCME considers average student debt, current and the trend over the past several years; total number of students with scholarship support and average support per student; percentage of total financial need supported by institutional and external grants/scholarships, and the presence of activities at the school or university levels to enhance scholarship support as key indicators in the assessment of compliance with this standard. In addition, the LCME will consider the entire range of other activities that a school could engage in, such as limiting tuition increases and/or supporting students in acquiring external financial aid.

MS-25 Institutions must have clear and equitable policies for the refund of tuition, fees, and other allowable payments.

3. Health Services and Personal Counseling

MS-26 Each school must have an effective system of personal counseling for its students that includes programs to promote the well-being of students and facilitate their adjustment to the physical and emotional demands of medical school.

MS-27 Medical students must have access to preventive, diagnostic, and therapeutic health services.
[Technical revision approved by the LCME in February 2008; effective immediately]

Medical students should have timely access to needed preventive, diagnostic, and therapeutic medical and mental health services at sites in reasonable proximity to the locations of their required educational experiences. Students should be supplied with information about where and how to access health services at all locations where required training occurs. Students with school-sponsored health insurance policies should also be informed about coverage for necessary services. Medical schools also should have policies and/or practices that permit students to be excused from class or clinical activities to seek needed care. *[New annotation approved by the LCME in February 2008; effective immediately.]*

MS-27A The health professionals who provide psychiatric/psychological counseling or other sensitive health services to medical students must have no involvement in the academic evaluation or promotion of the students receiving those services.

MS-28 Health insurance must be available to all students and their dependents, and all students must have access to disability insurance.

MS-29 Medical schools should follow accepted guidelines in determining appropriate immunizations for medical students.

Medical schools in the U.S. should follow guidelines issued by the Centers for Disease Control and Prevention, along with those of relevant state agencies. Canadian schools should follow guidelines of the Laboratory Center for Disease Control and relevant provincial agencies.

MS-30 Schools must have policies addressing student exposure to infectious and environmental hazards.

The policies should include 1) education of students about methods of prevention; 2) the procedures for care and treatment after exposure, including definition of financial responsibility; and 3) the effects of infectious and environmental disease or disability on student learning activities. All registered students (including visiting students) need to be informed of these policies before undertaking any educational activities that would place them at risk.

C. The Learning Environment

MS-31 In the admissions process and throughout medical school, there should be no discrimination on the basis of gender, sexual orientation, age, race, creed, or national origin.

MS-31-A Medical schools must ensure that the learning environment for medical students promotes the development of explicit and appropriate professional attributes (attitudes, behaviors, and identity) in their medical students. *[New standard and annotation approved by the LCME in February 2007, to be effective as of July 1, 2008]*

The medical school, including faculty, staff, students, and residents, and its affiliated clinical teaching sites, share responsibility for creating an appropriate learning environment. The learning environment includes formal learning activities as well as attitudes, values, and informal “lessons” conveyed by individuals with whom the student comes into contact. These mutual obligations should be reflected in agreements (for example, affiliation agreements) at the institutional or departmental levels.

It is expected that each medical school should define the professional attributes it wishes students to develop in the context of the school’s mission and the community in which it operates. Examples of professional attributes could come from such resources as the American Board of Internal Medicine Project Professionalism, or the AAMC Medical School Objectives Project. Such attributes should also be promulgated among the faculty and staff associated with the school, with suitable mechanisms available to identify and promptly correct recurring violations of professional standards. As part of their formal training, students should learn the importance of demonstrating the attributes (attitudes, behavior, professional identity) of a professional and understand the balance of privileges and obligations that the public and the profession expect of a medical doctor.

In addition to defining the attributes of professionalism expected of the academic community, the school and its faculty, staff, students, and residents should regularly assess the learning environment to identify positive and negative influences on the maintenance of professional standards and conduct, and develop appropriate strategies to enhance the positive and mitigate the negative influences.

MS-32 Each medical school must define and publicize the standards of conduct for the teacher-learner relationship, and develop written policies for addressing violations of those standards.

The standards of conduct need not be unique to the school but may originate from other sources such as the parent university. Mechanisms for reporting violations of these standards -- such as incidents of harassment or abuse -- should assure that they can be registered and investigated without fear of retaliation.

The policies also should specify mechanisms for the prompt handling of such complaints, and support educational activities aimed at preventing inappropriate behavior.

MS-33 The medical school must publicize to all faculty and students its standards and procedures for the evaluation, advancement, and graduation of its students and for disciplinary action.

MS-34 There must be a fair and formal process for taking any action that adversely affects the status of a student.

The process should include timely notice of the impending action, disclosure of the evidence on which the action would be based, an opportunity for the student to respond, and an opportunity to appeal any adverse decision related to promotion, graduation, or dismissal.

MS-35 Student records must be confidential and available only to members of the faculty and administration with a need to know, unless released by the student or as otherwise governed by laws concerning confidentiality.

MS-36 Students must be allowed to review and challenge their records.

MS-37 Schools should assure that students have adequate study space, lounge areas, and personal lockers or other secure storage facilities.

IV. FACULTY

A. Number, Qualifications, and Functions

FA-1 *Standard FA-1 was replaced with new standards IS-16 and MS-8. [New standards and annotation approved by the LCME in February 2008, and effective July 1, 2009]*

FA-2 There must be a sufficient number of faculty members in the subjects basic to medicine and in the clinical disciplines to meet the needs of the educational program and the other missions of the medical school.

In determining the number of faculty needed for the educational program, medical schools should consider that faculty may have educational and other responsibilities in academic programs besides medicine. In the clinical sciences, the number and kind of faculty appointed should also relate to the amount of patient care activities required to conduct meaningful clinical teaching across the continuum of medical education.

FA-3 Persons appointed to a faculty position must have demonstrated achievements commensurate with their academic rank.

FA-4 Members of the faculty must have the capability and continued commitment to be effective teachers.

Effective teaching requires knowledge of the discipline and an understanding of curriculum design and development, curriculum evaluation, and methods of instruction. Faculty members involved in teaching, course planning and curricular evaluation should possess or have ready access to expertise in teaching methods, curriculum development, program evaluation, and student evaluation. Such expertise may be supplied by an office of medical education or by faculty/staff members with backgrounds in educational science.

Faculty involved in the development and implementation of a course, clerkship, or larger curricular unit should be able to design the learning activities and corresponding evaluation methods (student and program) in a manner consistent with the school's stated educational objectives and sound educational principles.

Community physicians appointed to the faculty, on a part-time basis or as volunteers, should be effective teachers, serve as role models for students, and provide insight into contemporary methods of providing patient care.

Among the lines of evidence indicating compliance with this standard are the following:

- Documented participation of the faculty in professional development activities related specifically to teaching and evaluation.
- Attendance at regional or national meetings on educational affairs.
- Evidence that faculty members' knowledge of their discipline is current.

FA-5 Faculty members should have a commitment to continuing scholarly productivity characteristic of an institution of higher learning.

FA-6 The medical school faculty must make decisions regarding student admissions, promotion, and graduation, and must provide academic and career counseling for students.

B. Personnel Policies

FA-7 There must be clear policies for faculty appointment, renewal of appointment, promotion, granting of tenure, and dismissal that involve the faculty, the appropriate department heads, and the dean.

FA-8 A medical school should have policies that deal with circumstances in which the private interests of faculty members or staff may be in conflict with their official responsibilities.

FA-9 Faculty members should receive written information about their terms of appointment, responsibilities, lines of communication, privileges and benefits, and, if relevant, the policy on practice earnings.

FA-10 They should receive regularly scheduled feedback on their academic performance and their progress toward promotion.

Feedback should be provided by departmental leadership or, if relevant, other institutional leadership.

FA-11 Opportunities for professional development must be provided to enhance faculty members' skills and leadership abilities in education and research.

C. Governance

FA-12 The dean and a committee of the faculty should determine medical school policies.

This committee, which typically consists of the heads of major departments, may be organized in any manner that brings reasonable and appropriate faculty influence into the governance and policymaking processes of the medical school.

FA-13 Schools should assure that there are mechanisms for direct faculty involvement in decisions related to the educational program.

Important areas where direct faculty involvement is expected include admissions, curriculum development and evaluation, and student promotions. Faculty members also should be involved in decisions about any other mission-critical areas specific to the school. Strategies for assuring direct faculty participation may include peer selection or other mechanisms that bring a broad faculty perspective to the decision-making process, independent of departmental or central administration points of view. The quality of an educational program may be enhanced by the participation of volunteer faculty in faculty governance, especially in defining educational goals and objectives.

FA-14 The full faculty should meet often enough for all faculty members to have the opportunity to participate in the discussion and establishment of medical school policies and practices.

V. EDUCATIONAL RESOURCES

ER-1 The LCME must be notified of any substantial change in the number of students enrolled or in the resources of the institution, including the faculty, physical facilities or the budget.

If a medical school plans to increase its entering enrollment above the threshold of 10% or 15 students in one year, or 20% in three years, it must provide prior notification to the LCME and (for Canadian schools) CACMS. Such notification must occur by January 1st of the year of the planned expansion. This notification is required for a medical school planning to increase

class size on its main campus and/or in existing branch campuses (without any expansion in the curriculum years that the branch campus covers).

If a medical school plans to start a new branch campus, or expand an existing branch campus (for example, from a one-year or two-year program to a four-year program) notification of the plans to the LCME (and CACMS for Canadian schools) should occur by January 1st of the year preceding the planned campus creation or expansion. [Revised annotation approved by the LCME in June 2008.]

A. Finances

- ER-2 The present and anticipated financial resources of a medical school must be adequate to sustain a sound program of medical education and to accomplish other institutional goals.

The costs of conducting an accredited program leading to the M.D. degree should be supported from diverse sources, such as income from tuition, endowments, earnings by the faculty, support from the parent university, annual gifts, grants from organizations and individuals, and appropriations by government. Evidence for compliance with this standard will include documentation of adequate financial reserves to maintain the educational program in the event of unexpected revenue losses, and demonstration of effective fiscal management of the medical school budget.

- ER-3 Pressure for institutional self-financing must not compromise the educational mission of the medical school nor cause it to enroll more students than its total resources can accommodate.

Reliance on student tuition should not be so great that the quality of the program is compromised by the need to enroll or retain inappropriate numbers of students or students whose qualifications are substandard.

B. General Facilities

- ER-4 A medical school must have, or be assured use of, buildings and equipment appropriate to achieve its educational and other goals.

The medical school facilities should include offices for faculty, administrators, and support staff; laboratories and other space appropriate for the conduct of research; student classrooms and laboratories; lecture hall(s) sufficiently large to accommodate a full year's class and any other students taking the same courses; space for student use, including student study space; space and equipment for library and information access; and space and equipment for the humane care of animals when animals are used in teaching or research.

- ER-5 Appropriate security systems should be in place at all educational sites.

C. Clinical Teaching Facilities

- ER-6 The medical school must have, or be assured use of, appropriate resources for the clinical instruction of its medical students.

Clinical resources should be sufficient to ensure breadth and quality of ambulatory and bedside teaching. They include adequate numbers and types of patients (acuity, case mix, age, gender, etc.) as well as physical resources.

- ER-7 A hospital or other clinical facility that serves as a major site for medical student education must have appropriate instructional facilities and information resources.

Appropriate instructional facilities include areas for individual student study, for conferences, and for large group presentations (lectures). Sufficient information resources, including library holdings and access to other library systems, must either be present in the facility or readily available in the immediate vicinity. A sufficient number of computers are needed that allow access to the Internet and to other educational software. Call rooms and lockers, or other secure space to store personal belongings, should be available for student use.

- ER-8 Required clerkships should be conducted in health care settings where resident physicians in accredited programs of graduate medical education, under faculty guidance, participate in teaching the students.

It is understood that there may not be resident physicians at some community hospitals, community clinics, and the offices of community-based physicians. In that case, medical students must be adequately supervised by attending physicians.

- ER-9 There must be written and signed affiliation agreements between the medical school and its clinical affiliates that define, at a minimum, the responsibilities of each party related to the educational program for medical students.

Written agreements are necessary with hospitals that are used regularly as inpatient sites for core clinical clerkships. Additionally, affiliation agreements may be warranted with other clinical sites that have a significant role in the clinical education program.

Affiliation agreements should address, at a minimum, the following topics:

- The assurance of student and faculty access to appropriate resources for medical student education.
- The primacy of the medical school over academic affairs and the education/evaluation of students.
- The role of the medical school in appointment/assignment of faculty members with responsibility for medical student teaching.
- Specification of the responsibility for treatment and follow-up when students are exposed to infectious or environmental hazards or other occupational injuries.

If department heads of the school are not also the clinical service chiefs at affiliated institutions, the affiliation agreement must confirm the authority of the

department head to assure faculty and student access to appropriate resources for medical student education.

The LCME should be advised of anticipated changes in affiliation status of a program's clinical facilities.

- ER-10 In the relationship between the medical school and its clinical affiliates, the educational program for medical students must remain under the control of the school's faculty.

Regardless of the location where clinical instruction occurs, department heads and faculty must have authority consistent with their responsibility for the instruction and evaluation of medical students.

The responsibility of the clinical facility for patient care should not diminish or preclude opportunities for medical students to undertake patient care duties under the appropriate supervision of medical school faculty and residents.

D. Information Resources and Library Services

- ER-11 The medical school must have access to well-maintained library and information facilities, sufficient in size, breadth of holdings, and information technology to support its education and other missions.

There should be physical or electronic access to leading biomedical, clinical, and other relevant periodicals, the current numbers of which should be readily available. The library and other learning resource centers must be equipped to allow students to access information electronically, as well as to use self-instructional materials.

- ER-12 The library and information services staff must be responsive to the needs of the faculty, residents and students of the medical school.

A professional staff should supervise the library and information services, and provide training in information management skills. The library and information services staff should be familiar with current regional and national information resources and data systems, and with contemporary information technology.
[Revised annotation approved by the LCME in October 2007 and effective immediately.]

Both school officials and library/information services staff should facilitate access of faculty, residents, and medical students to information resources, addressing their needs for information during extended hours and at dispersed sites.