

University of Louisville School of Medicine

Institutional Self-Study Report

**Prepared for The Liaison Committee
on Medical Education**

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Introduction

Progress Made in Addressing the Areas of Concern Identified in the 1998 Survey Report

1. Since the last site visit in 1991, there has been little progress in establishing a formalized assessment of outcomes to evaluate the school's success in meeting its educational objectives.

Since 1998 we have made major progress in the formal assessment of outcomes. We have an annual evaluation of each course and clerkship by the Educational Policy Committee (EPC), and student evaluations of every participating faculty member. Details on these evaluations are in the Database. In addition, we have established two other overall approaches to the measurement of satisfaction/outcomes. The most recent data obtained using these two approaches are contained in a separate binder labeled "Measures of Student Outcomes," and are described immediately below:

A) Deyta, Inc.

In late 1998, the University initiated a major effort in satisfaction and quality measurement as an approach to continuous quality improvement. A University-wide committee (including Dr. David Wiegman, Vice Dean for Academic Affairs in the School of Medicine) developed the approach and put out an RFP. In early 1999, Dey Systems, Inc. (now Deyta, Inc.) was selected. Beginning in mid-

1999, Deyta began to work with the University, including the School of Medicine, to develop the survey instruments. Deyta brought technical expertise to the overall process, but considerable consultation time from the School of Medicine was required to focus and refine the questionnaires. The final product was six separate questionnaires focusing on the M.D. program. The questionnaires are sent to: #1) ongoing students, i.e. students in the first two years of medical school, #2) graduating students, #3) former students, who were defined as students three years beyond graduation from medical school, #4) alumni who are seven-ten years post graduation, #5) medical school faculty, and #6) residency directors (outside of the University of Louisville) who have had our former students in their programs. Input from these residency directors is especially valuable since they are comparing our graduates to the graduates of other medical schools. These surveys are done on an annual or biannual basis, and the data obtained are used for evaluation and planning.

B) Assessment of Student Learning Outcomes

Also, in late 1998, the University began a new approach to looking at student outcomes. This methodology, an "Assessment of Student Learning Outcomes," is sometimes also referred to as an "Affinity Diagram." The School of Medicine played the leading role in the development of this approach. The Assessment of Student Learning Outcomes approach for the School of Medicine was developed in late 1998 and early 1999 with multiple inputs from within the School and across the University. The basic approach was to identify important student outcomes and assessment strategies for measuring each of these outcomes. Additionally, quantitative goals were set for each outcome, so that results could be analyzed to determine if the desired outcomes were being met at the levels deemed appropriate. In some situations, the goals were set very high to encourage changes in approach, increases in effort, and allocation of resources to attempt to meet the goals. In others, the goals were set at about the current level. For these it was considered that the current status relative to the particular outcome was satisfactory, but it was also felt to be important to set a base level for the outcome, which would, if not met, trigger action to correct. The results are reviewed at regular intervals (every few months) and when a goal has not been met, potential approaches are considered, and then steps are taken to attempt to move toward meeting the goal. Conscientious use of this approach over the last five years has been helpful in moving the School of Medicine in the desired direction.

2. The Department of Microbiology/Immunology has a strong medical student teaching program but is poorly balanced to meet the rest of its mission. The absence of a permanent chair and key internal divisions have severely limited the department's ability to effectively function in other areas and appears to need prompt attention.

The Department of Microbiology and Immunology is now very stable and productive. Robert Stout, Ph.D., was recruited as Chair in 1999, and 13 additional new faculty have been recruited, including one endowed chair. Research funding in the department has grown from \$0.5 million in 1998 to \$3.7 million in 2003. Several faculty are active in interdisciplinary programs within the HSC, including the James Graham Brown Cancer Center and the Institute for Cellular Therapeutics. Medical student teaching remains strong.

The department has also seen considerable growth in its 5

education programs. In 1998, 11 graduate students were enrolled whereas 35 are enrolled currently. Six to nine graduate students are recruited each year. The department has graduated 17 Ph.D. students since 1998. The number of postdoctoral fellows has grown from none in 1998 to 17 currently. In sum, the Department of Microbiology and Immunology is now considered exemplary within the School of Medicine.

3. Despite a new emphasis on research and a planned new research building, infrastructure barriers remain. The school lacks a space allocation plan, which may limit anticipated growth.

In 1998 the Vice Dean for Research appointed a School of Medicine Space Advisory Committee and charged the Committee with the development and implementation of a mechanism for annual research space evaluation and to suggest standards for the evaluation and allocation/reallocation process. The space plan has been in place now for four years. Each year, the Vice Dean for Research collects data on research space and extramural funding from grants and contracts requiring wet lab space. The outcome of the analysis is a table showing dollars (including both direct and indirect funding) per sq ft for each department and institute/center. (While the initial established standard for research productivity was \$150 per sq ft, the current standard is \$250 per sq ft for all the research space within the School of Medicine.) The analysis of space use is provided to the Space Advisory Committee for its recommendations to the Dean concerning departments and institutes/centers that are not meeting the productivity standard of \$250 per sq ft. As new faculty are recruited, or existing faculty receive additional funding, and research space is required, the \$250 per sq ft benchmark is used to help determine how much space is required to meet the need and to identify potential space that could be reallocated. As the committee reviews departments, it also considers the impact of space needed for large instrumentation, adequate administrative space if located directly adjacent to the research space, and space for students/fellows/technicians. This process has been successful and is well understood by the department chairs and institute/center directors. While the School of Medicine has enjoyed opening two new research buildings since 1999, research activity has increased markedly, and the need for space evaluation and reallocation continues.

To date the space plan has been used to reallocate a total of 15,000 square feet within the School of Medicine. Several infrastructure issues were also singled out in the LCME report: recruitment of laboratory technicians, purchasing, grant processing and accounting, and release time for clinical faculty. The Office of Human Resources has been helpful in streamlining the process for hiring staff, including lab techs. Purchasing regulations are very stringent in Kentucky, but progress has been made through additional purchasing contracts. While the implementation of the University-wide information system PeopleSoft has been a difficult transition, great strides have been made in terms of financial reporting, particularly as it relates to grant accounting. The Senior Vice President for Research has added numerous personnel to streamline the grants processing system. In June 2000, the School of Medicine Executive Faculty voted in favor of a new Promotion, Appointment, and Tenure document. A major change in that document was to require a minimum research assignment of 20% for probationary faculty with the appropriate release time to meet this requirement. The Associate Dean for Faculty Affairs monitors this requirement and what actually happens for all probationary faculty.

4. The numerical ranking and continuous reranking of students appears to be disparate with the spirit of an Honors; Pass; Fail system. Students noted a heightened sense of competition and anxiety concerning this aspect of grading. Some clerkship directors also questioned the value of this ranking system.

Following considerable faculty and student discussion, the School of Medicine Executive Faculty, in December 1999, passed a policy regarding class rank. This policy is in *The School of Medicine (2004-2006) Bulletin*, page 16, and states:

"It is generally perceived by many students and faculty in the School of Medicine that the current emphasis on and attention to class rank contribute unduly to an atmosphere which fosters intense competition.

Therefore, if individual courses/clerkships calculate rank, this information will not be disclosed to students.

Individual course/clerkship faculty will no longer post histograms or lists of exam scores/final grades for public viewing.

"Individual course/clerkships will provide only the following information regarding exam scores or final grades to students: student's individual score/grade (Honor, Pass, Fail), class mean score, standard deviation and range (highest and lowest scores). This information will be reported to students by e-mail, if possible, or, if not, by individual grade slips either in lockers or in envelopes in the mailboxes.

"A comprehensive, cumulative class rank will not be calculated until the end of the first, second, and third years for purposes of awards and residency applications.

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This rank will not be in student files and will be available to students only on request from the Senior Associate

Dean for Students and Academic Affairs.”

5. The University Information Technology services do not appear to be well integrated with the educational and clinical needs of the medical center campus.

The information technology services offered to the students, faculty and staff at the University of Louisville Health Sciences Campus are now much better integrated into the education, research and service efforts of the medical center. The University has implemented a robust, state-of-the-art network infrastructure utilizing gigabit Ethernet and an intercampus fiber optic ring to create a 4-gigabit backbone network with access to Internet 1 and 2. Wireless access to the network is currently available for approximately 80% of the medical campus.

The Kornhauser library offers numerous online databases that are available by accessing the library's portal from both on and off campus. These databases include both textbooks and journals. The students are also provided PDAs that have applications to enhance the students' learning. Most of the students' course syllabi and slide presentations are available online via Blackboard.

The Delphi Center for Teaching and Learning has been charged with supporting the educational mission of the University via faculty development courses and one-on-one training in the use of technology in education. The Delphi Center maintains a full-time annex in the Kornhauser Library on the HSC campus.

The clinical information systems for each hospital are housed behind firewalls and are managed by each institution's IT unit. During the last site visit there was discussion about the hospitals' and University's IT systems becoming more integrated, but HIPAA and other security concerns have led each institution to manage its own system. This is not perceived as particularly problematic to the student learning process.

6. The diverse financial structures and management of departmental clinical operations could limit the school's capacity to respond to a rapidly changing practice environment.

Shortly before the previous accreditation, the Medical School Practice Association, Inc. (MSPA) was formed as a vehicle for single point contracting and for coordinating the clinical enterprise among the 15 clinical chairs. In addition, the goal of forming University Health Care, Inc. (a provider owned and sponsored Medicaid Managed Care HMO), doing business as Passport Health Plan, was achieved.

Passport has grown from an initial 95,000 covered lives to a current membership in excess of 130,000 members and a budget in excess of \$500 million. With its statutory net worth approaching \$30 million, Passport is a stable, successful business operation ensuring the availability of patient revenue and a patient teaching base within the Medicaid population. In addition to clinical revenue, Passport Health Plan continues to provide approximately \$7 million annually in safety net revenue, \$3.7 million in medical education revenue, and \$15 million for Graduate Medical Education (GME) for the Health Sciences Center hospitals.

Additionally, the MSPA has evolved into a new and more effective organization, University Physician Associates, Inc. (UPA), which is administered by the 15 Clinical Chairs, the Executive Vice President for Health Affairs, the Dean, and the CEO of the University of Louisville Hospital. University teaching clinics have been improved and somewhat stabilized, but still require subsidy. In 2004, the organization successfully partnered with University of Louisville Hospital (ULH) and the University of Louisville to establish a new medical malpractice captive, hopefully stabilizing the cost and availability of professional liability insurance for the clinical departments and ULH. Numerous new ventures, most significantly the creation of an east end clinical practice presence and a Western Kentucky/Southern Indiana enhanced regionalization strategy, are under active consideration and planning.

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Overview of the Self-Study Process

The School of Medicine is proud of its heritage of educating and serving Kentuckians since 1837, but more importantly it is looking toward the future. From initial planning until completion, this Self-Study took seventeen months. In August and September 2003, the overall process was planned and developed, and individuals were selected to serve on committees (one for each area of the Self-Study) and on the Task Force. Total membership was 96, including 67 faculty members and 12 students. Other groups represented were administrators, staff, residents, fellows, alumni, and local physicians. In October 2003, the Database forms were distributed for completion, individual meetings were held with each course and clerkship director and his/her department chair to review the process, and assignments were made. In November 2003, a separate office for accreditation preparation was opened. From November 2003, through February 2004, the Database was largely completed and individual planning meetings were held with the leadership of each of the committees. In February and March 2004, initial meetings were held for committees. The committees were supplied with appropriate sections of the Database and other materials, and were charged to develop position papers on the state of the School in their respective areas. The committees worked from March to May 2004, and submitted their reports in late May and early June. The Task Force began its job of evaluating the committee reports and synthesizing them into one Self-Study report in June 2004. The Task Force worked in small groups from July through October 2004, and met as a whole in November 2004. Various drafts were circulated, and the report that follows was approved in January 2005.

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Governance and Administration

Relationship of the School of Medicine to the University

The chief executive officer of the University is the President. The President serves at the pleasure of the University of Louisville Trustees of the Board, who in turn are appointed by the Governor of the Commonwealth of Kentucky. In December 2003, President James R. Ramsey revised the organization of the University's

administration (see Figure 1). As a component of this reorganization, the positions of Vice President for Health Affairs (VPHA) and Dean of the School of Medicine were separated. In this process of reorganization, former Vice Dean and Associate Vice President Laura F. Schweitzer, Ph.D., was named Interim Dean of the School of Medicine. Larry Cook, M.D., former Chair of Pediatrics, was named Interim Executive Vice President for Health Affairs (EVPHA). A national search was initiated in July 2004 to name a permanent EVPHA by March 2005. A search for the permanent Dean of the School of Medicine will then begin. This timeline will permit the new EVPHA to lead in the selection of the permanent Dean.

Following the above changes, the President adopted a team management model and created a functional leadership group, the *Office of the President*, which is composed of the four senior academic leaders of the University:

- President of the University – *James R. Ramsey, Ph.D.*
- Executive Vice President and Provost – *Shirley C. Willihnganz, Ph.D.*
- Executive Vice President for Health Affairs– *Larry N. Cook, M.D. (Interim)*
- Senior Vice President for Research – *Nancy C. Martin, Ph.D.*

The interactions between the Dean of the School of Medicine and this team have been very effective. Because the team management model is quite new, its role is evolving. Among its objectives are to increase the productivity and linkage of the three University campuses. The close relationship of the Dean to the EVPHA and to the Provost, as well as the Dean's membership in the Council of Academic Officers of the University and the President's Executive Cabinet, provide a solid structure for interaction with University leadership. The Dean has been using this structure effectively to promote collaboration between the School of Medicine and other parts of the University.

In addition to the Office of the President, the School of Medicine is intimately involved in the governance of the University. The University faculty governing body is the Faculty Senate, and, of the 70 Faculty Senators, 18 represent the School of Medicine faculty. Moreover, the Chair of the Faculty Senate is a School of Medicine faculty member and a member of the Board of Trustees; three of the last six Faculty Senate Chairs have been members of the School of Medicine faculty. The University also has a Staff Senate with proportionate membership from the staff of the School of Medicine. The current University Staff Senate President is from the School of Medicine.

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Organization of the Health Sciences Center and Clinical Affiliates

The EVPHA is the member of the senior leadership team, Office of the President, responsible for the overall operations and planning of the Health Sciences Center (HSC). The Dean of the School of Medicine as well as the 3 other HSC deans (nursing, dentistry and public health)

report to him along with the various center and institute directors and through him the four deans report also to the University Provost. The recent reorganization, with separation of the EVPHA and Dean of the School of Medicine, has allowed the EVPHA to focus on strategic planning of the HSC, hospital relationships, health sciences policy, government relationships, philanthropy and relations with the community at large. This in turn has allowed the Dean of the School of Medicine to focus more on School of Medicine issues.

The previous VPHA/Dean built a strong research enterprise, including strengthened interactions with local and regional governmental agencies. The current Interim Dean has continued these efforts and has been especially active in the development of the Cardiovascular Innovation Institute in partnership with Jewish Hospital HealthCare Services, Inc. and the Kentucky Office of the New Economy. These efforts are congruent with the University's overall plan to strengthen community outreach and collaboration. At the hospital level, the University of Louisville Hospital (ULH), of course, competes with other downtown clinical affiliates, Jewish Hospital HealthCare Services, Inc. and Norton Healthcare, Inc. for patient market share; however, there is also considerable cooperation on major issues facing the Louisville Medical Center. The EVPHA and Dean have individual monthly meetings with each affiliate and a new cooperative leadership structure was recently put in place with the Veterans Administration Medical Center (VAMC). The leadership of the clinical affiliates has been stable. Changes in the senior leadership at the Veterans Administration just occurred and at Jewish Hospital HealthCare Services, Inc. are scheduled in 2005. It is anticipated that these changes will not affect the relationship of these affiliates with the School of Medicine and its teaching, research, and clinical service missions.

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Organizational Chart (figure 1)

President
 Executive VP for
 Health Affairs
 Senior VP for
 Research
 Provost
 Dean - School of
 Medicine
 Dean - School of
 Nursing
 Dean - School of
 Dentistry
 Dean - SPHIS
 Department
 Chairs
 Vice Dean
 Research
 Vice Dean
 Clinical Affairs
 Assoc Dean
 Faculty Affairs
 Vice Dean
 Academic
 Affairs
 Assoc Dean
 Admissions
 Assoc Dean
 Trover Campus
 Sr Assoc Dean
 Student & Acad
 Affairs
 Chief of Staff
 UoL Hospital
 Director
 CME
 Assoc Dean
 GME
 Assoc Dean
 Research
 Assistant to the
 Dean
 Assoc Dean
 Medical

Education
Asst Dean
Student Affairs
Asst Dean
Medical
Education
Asst Dean
GME
Director
Special
Programs
Office of the President
Assoc Dean
Curriculum
Director
Finance &
Administration
Director
Planning

Planning and the Setting of Institutional Priorities

Planning is an important component of the University of Louisville's activities. In 1995, the University President initiated a two-year strategic planning process. This process was guided by the University Planning Advisory Committee (UPAC) comprised of appointed members and elected faculty, staff, and student members. Numerous study groups participated in the process. The outcome of this initiative was the University's "Challenge for Excellence" program, which was formally launched in 1998 and extends through 2008. Annual evaluation of performance and progress is quantitated by an institutional scorecard based on the Challenge. The scorecard has five key goals: 1) Educational experience: Student Success; 2) Research, Creative and Scholarly Activities; 3) Accessibility, Diversity, Equity, and Communication; 4) Partnerships and Collaborative Programs; and 5) Institutional Effectiveness of Programs and Services. Periodically the plan and scorecard are updated. Each academic unit, including the School of Medicine, has its own scorecard for these five goals as well as sub-goals with projected outcome targets through 2008. The scorecard for the School of Medicine is coordinated by the Dean's Office and reviewed by the Department Chairs, the Faculty Forum (see page 12), and administrative staff to ensure that the academic community is involved, is updated on progress, and can plan the most effective way to contribute to achieving the projected targets. Resource allocation is linked to this process. Each Dean is also required annually to identify the three highest school priorities, which also must be tied to the five key scorecard goals. This year, for example, the Dean identified accreditation, increasing faculty diversity, and advancing the research agenda. Using the "Challenge for Excellence," the University and the School of Medicine have made tremendous progress since the program was implemented in 1998.

Clinical Planning

University Physician Associates (UPA) is the multispecialty practice group of the clinical faculty of the School of Medicine providing outpatient services in the Ambulatory Care Building. For the past decade this entity has planned and managed the University Ambulatory Care Building that houses the group. The governing Board of UPA includes the Chairs of all departments, the Chief Executive Officer of the University of Louisville Hospital (ULH), the Dean, and the Executive Vice President. Due to the

decentralized nature of faculty practice at the University, UPA is the primary mechanism for the discussion of clinical matters at the Health Sciences Center both related to the teaching clinics and the private practice sites. Recently, in collaboration with ULH, UPA has begun a targeted planning process to address issues and to meet emerging challenges in the clinical area. In this process, the establishment of a vertically integrated health care delivery system is recognized as an important goal to increase the academic and financial stability of the School of Medicine. In December 2004, UPA received a report from American Express Tax and Business Services that reviewed historic information about the University practice, comparisons to similar practices, and options for cost reduction and revenue enhancement. The study showed that the current practice is cost effective by national standards. UPA will receive a final report along with options for action in spring 2005. Another study underway is focused on the potential for a single faculty practice space that might reduce costs and increase internal referrals. This study is also scheduled for completion in early 2005. Finally, regardless of space considerations, UPA is reviewing cost reduction options from shared services such as a shared management information system among the various departments and PSCs, the establishment of a web-based and paper-based School of Medicine physician directory, and the implementation of a single answering service to reduce costs, maximize patient access and service and, possibly, increase referrals among the faculty. These programs are being developed in the context of a University of Louisville HealthCare System, which may also incorporate off-site delivery of health care and provision of specialized medical expertise to regional hospitals and institutions.

Governance Structure of the School of Medicine

The Dean of the School of Medicine (see Figure 1) relies upon (1) the administrative staff of directors and vice, associate and assistant deans; (2) the chairs of the twenty academic departments; (3) the directors of the Centers and Institutes; and (4) the faculty of the School of Medicine for advice and input into the governance process.

The administrative staff members serve at the pleasure of the Dean. The Dean has organized her office into four functional areas: academic affairs, clinical affairs, faculty affairs, and research. Fourteen individuals hold decanal titles and their administrative effort in the Dean's Office constitutes about 7.4 full-time equivalent positions. Each area also has a full-time director, who is a senior staff member. The stability and experience of the administrative staff have facilitated the smooth and successful transition of the management and leadership of the School of Medicine. The administrative staff are strong and many have been in place long-term. They meet regularly with the Dean.

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The turnover rate of department chairs has been low. Of the 20 chairs, thirteen have been in place for five years or more. The Chairs have a monthly luncheon meeting as a

group with the Dean and additionally serve as members of the Medical Council, which meets monthly to exchange information and advise the Dean. The Chairs of major departments have separate, regularly scheduled one-on-one meetings with the Dean, while the remaining chairs meet with the Dean upon request.

Centers and Institutes are formal associations of faculty members from a variety of academic departments and schools who collaborate on research. Each Center and Institute has been chartered by the Board of Trustees and is subject to periodic review of performance by the Office of the Provost. Centers and Institutes have had a dramatic impact on research advances in recent years.

The School of Medicine *Bylaws and Rules* is the official statement of the organizational structure and the rules of governance and procedures of the Faculty of the School of Medicine. Changes to the *Bylaws* require approval by the Executive Faculty of the School of Medicine, the President, and the Board of Trustees. The *Bylaws and Rules* document is subordinate to the University's controlling document, *The Redbook*. The Executive Faculty of the School of Medicine includes all full-time faculty, part-time and gratis faculty (elected by departments) and those emeritus faculty who choose to remain active. Except as otherwise provided in *The Redbook*, the Executive Faculty of the School of Medicine has general legislative power over all matters pertaining to its own personnel policies, criteria and procedures; its own meetings; the amendment of the *Bylaws and Rules*; admission requirements, curricula, instruction and examinations; and recommendations to the Board of Trustees through the Dean for granting degrees within the School of Medicine. Semi-annual meetings of the Executive Faculty of the School of Medicine are chaired by the Dean, who sets the agenda. In reality, only a small percentage of the eligible members of the Executive Faculty attend these meetings; thus, a quorum for action is seldom achieved. This necessitates voting by mail or electronic ballots.

Because of the size of the faculty, most of the work of the Executive Faculty is performed by derivative committees, including the Faculty Forum, Policy Committees and Action Committees. Faculty Forum membership includes representation from each academic department of the School of Medicine, as well as elected representatives of the medical student body, the graduate student body, and residents. The Faculty Forum serves as (1) a conduit of information back to departmental faculty (the effectiveness, however, varies from department to department and therefore the minutes of the Faculty Forum meetings are distributed electronically to all faculty) and (2) a deliberative body that initiates, considers and debates issues, then recommends action to the Executive Faculty or the Dean. The Faculty Forum provides expeditious exercise of faculty prerogatives as defined by *The Redbook* of the University of Louisville. It also provides timely action on policy recommendations and actions of the Executive Faculty committees and serves as a mechanism for individual faculty, student and resident representatives to present issues and engage in open

discussion. In recent years, the agenda of the Faculty Forum has become more focused and it is viewed as a more effective body. The Interim Dean has taken a strong interest in communicating with the faculty and is urging the expansion of the scope of the Faculty Forum; thus, an opportunity exists to further advance the Faculty Forum's effectiveness in identifying, deliberating and responding to issues that are raised by faculty, students and administration.

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Academic Environment

Graduate Programs in the Basic Sciences

Through the Graduate School, the School of Medicine offers M.S. and Ph.D. degrees in its five basic science departments: Anatomical Sciences and Neurobiology, Biochemistry and Molecular Biology, Microbiology and Immunology, Pharmacology and Toxicology, and Physiology and Biophysics. In addition, the Division of Communicative Disorders in the Department of Surgery offers a four-year post-bachelor's program leading to the Doctor of Audiology (Au.D.) and a two-year M.S. degree in Speech Pathology. The School of Medicine also formally initiated an M.D./Ph.D. program in 2000.

In 1999, the State mandated that all doctoral programs must produce, on average, at least five graduates each year. The five basic science departments are moving successfully toward achieving this goal; however, one program, the Ph.D. in Visual Sciences, was discontinued due to inadequate enrollment. Nevertheless, faculty in the Department of Ophthalmology and Visual Sciences continue to have access to graduate training programs in the basic sciences through joint appointments, as do faculty in the other clinical departments, research centers and institutes. Through these joint appointments, growing numbers of graduate students are being mentored by faculty members whose primary academic appointments are in clinical departments.

An umbrella entrance program, the "Integrated Program In Biomedical Sciences" (IPIBS), was initiated in 2000 to coordinate, advertise, recruit and otherwise facilitate the five basic science Ph.D. programs. During 2004-05, 51 master's students and 153 doctoral students (a 61% increase since the last site visit) were enrolled in the five basic science disciplines. In addition, fifteen students were enrolled in the M.D./Ph.D. program, 37 students in the Au.D. program, and 49 master's students in the Speech Pathology program. IPIBS provides a centralized approach to initial graduate education and training. Costs for recruiting and providing stipends (\$20,000/year), as well as tuition and health benefits for up to 30 students each year, are provided through combined School of Medicine and Graduate School funding. (Additional students are supported by the departments and outside sources.) This IPIBS funding provides the first 17 months of student support, whereupon the departments assume responsibility for the remainder of the students' study, largely through grants and contracts.

The percentage of Kentucky residents recruited into graduate programs has increased over the last four years, from 13% to 44%. The number of female students averages about 50%. The number of under-represented minority students (Black and Hispanic) has increased from 5% to 15% in the last three years. The average time to graduate is 2.1 years for the master's programs and 4.9 years for the doctoral programs. The percentage of students who enter the Ph.D. programs and earn their degree has been about 60%.

Each graduate program undergoes a formal University review every seven years. The University Office of Planning and Budget provides relevant data (enrollment, credit hour generation, and financials). The department then prepares a comprehensive report of activities and accomplishments, including current curriculum, proposed curricular revisions or redirections, and a description of future goals. A committee appointed by the Provost reviews and analyzes the report. The committee submits a critique of the program with recommendations to the Provost. Finally, the Provost meets with the Chair of the department program under review, the Dean of the School of Medicine, and the Vice Dean to discuss the critique and finalize an improvement plan for the program. All five graduate programs in the School of Medicine have received positive reviews in the last four years.

The School of Medicine now has an NIH T35 grant (PI, Dr. Irving Joshua, Chair, Physiology and Biophysics), which is used to support minority undergraduate students for summer research opportunities in cardiovascular health-related research. Several other grants and contracts provide a variety of summer research experiences for undergraduates (total of 38 in 2003) from regional colleges. These activities provide community outreach and help recruit regional talent. In addition to departmentally-based and individual investigator-based support, an interdisciplinary pre-doctoral training grant (PI, Dr. David Hein, Chair, Pharmacology and Toxicology) was recently obtained from the National Institute of Environmental Health Sciences. This is the School of Medicine's first federally funded basic sciences predoctoral training grant. In addition to departmentally-based and individual investigator-based support, many of our students have received extramural fellowships from agencies such as the National Institutes of Health and the American Heart Association.

Impact of Residency Training Programs on the Education of Medical Students

In the clinical disciplines, medical students receive a significant portion of their clinical education working with residents. At various levels of training, students develop technical skills, cultivate professional attitudes and behavior, and acquire medical knowledge through these associations. Departments provide residents with the

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curriculum and syllabus for their respective clinical rotations so that residents can understand the undergraduate goals and objectives. In rotations in which

limited numbers of residents are available, faculty assume much or all of the responsibility for medical student education. The School of Medicine is committed to ensuring that residents are taught how to teach as part of their residency curriculum (see page 20 for details on training residents to teach). Each year the importance of resident teaching is reinforced when a group of residents is selected by the students and honored at the annual Fall Honors Convocation for their outstanding teaching performance. Resident teaching is also recognized with departmental awards. The quality of the training provided by residents has received very high ratings (2004 GQ: 1.6-2.3 on scale of 1-5) and positive comments on the Graduation Questionnaire and is considered a strength of the educational program. No changes in the graduate medical programs are anticipated that would affect the education of medical students.

At the present time, there are 44 accredited residency programs (18 core and 26 subspecialty) and 17 subspecialty fellowship training programs not under the purview of the ACGME. No programs are on probation. Accreditation of two subspecialty programs, Urology and Rheumatology, was dropped in 2002-03. There are currently no faculty in Urology and an insufficient number in Rheumatology. The training of 560 residents is based at five major hospitals (University of Louisville Hospital, Norton Hospital, Kosair Children's Hospital, Jewish Hospital, and the Veterans Administration Medical Center). Internal reviews of residency programs are conducted by the Graduate Medical Education Committee midway in the accreditation cycle of each program. During this review the role of residents in the education of students and the program's activities related to instructing residents in teaching techniques are among the many topics assessed. The most recent ACGME institutional review occurred in 2003 and resulted in a favorable decision with a full five-year renewal of accreditation. Areas identified as needing more attention include monitoring duty hours in orthopedic surgery, implementing clearer policies regarding resident moonlighting, and improving the Veterans Administration Medical Center's support services. These concerns have been or are being addressed by the GME Office. Additionally, the new ACGME work hour limits for residents, of course, also limit time available for teaching and could impact student teaching. This effect has not been experienced, but the impact of the new work hour limits will continue to be monitored.

Impact of Continuing Medical Education on the Education of Medical Students

Continuing Health Sciences Education (CHSE-the continuing education office/program of the four HSC schools) contributes to the academic environment by providing learning opportunities in a variety of formats ranging from patient simulator sessions to lectures by world-class teaching and learning specialists and online web-based courses. All of these activities enrich and update the medical faculty and residents, and, in most cases, indirectly affect the medical students. The newly

created Grand Rounds for Health Sciences Educators enhances the teaching skills of residents and faculty. Medical students can participate in departmental grand rounds and about half of the departments require attendance by the students in their rotation. Student exposure directly and indirectly to CHSE activities introduces them to and reinforces the process of lifelong learning they will utilize later to ensure their continuous future professional development.

Research and Research Resources

Areas of current special research emphasis include genetics and molecular medicine; cancer; transplantation and cellular therapeutics; immunology; cardiovascular research and molecular cardiology; neuroscience research, especially spinal cord injury; stroke and sleep disorders; birth defects; bioengineering; and bioethics, health policy and law. These and other research endeavors have contributed to the tremendous growth of research at UofL. In fiscal 2004, federal research funding in the School of Medicine reached a new high of \$46.5 million, with total extramural funding (excluding clinical trials) of \$78.7 million. In 2003, these research activities produced 895 publications in peer-reviewed journals. The School of Medicine's NIH ranking has improved from 99/125 at the time of the last accreditation review to 73/125 in 2003. During this period, the University of Louisville experienced the largest percent increase (270%) in NIH funding among major research institutions in the country (Chron High Ed 50 (Issue 22):A17, 2004). This rapid growth is tied directly to the University's goal and focused efforts to become a major research university with the School of Medicine playing the central role, and to the financial resources received from Kentucky's Research Challenge Trust Fund ("Bucks for Brains") program. This program has invested \$100 million in the University with \$47.5 million going to the School of Medicine. Since the Research Challenge Trust Fund program began in 1998, its funds have enabled UofL to recruit and retain many prominent clinical and basic science researchers,

14 essentially changing the research culture. Since the last review, the School of Medicine has established 14 additional endowed chairs (for a total of 33) and five endowed professorships. Moreover, while research space has grown considerably over the last few years, the "dollars density" (dollars per square foot) has more than tripled from \$78 in 1997-98 to \$298 in 2003-04. Since the last review, significant research space has been added to the HSC. Two totally new research buildings (Baxter I and II) have opened, increasing research space by 40% and resulting in a total of 262,686 sq. ft. of available research space. In addition, the Kosair Charities Pediatric Clinical Research Unit, located in Kosair Children's Hospital and opened in 2002, is the region's first state-of-the-art clinical facility dedicated solely to conducting inpatient and outpatient pediatric clinical pharmacology studies. Finally, the Clinical Research Center, located in University Hospital, has been opened and will become a resource for future

research. Although research space has grown significantly and is now adequate, additional research space will be necessary to meet State and University driven goals for continuing growth. As another measure of research growth, postdoctoral research fellows have increased in number from 31 to 103 since the last site visit. There has been a continuous commitment from the University to recruit new faculty with promising careers in clinical and basic science research. Limited intramural funding for current faculty is provided by the Senior Vice President for Research's (SVPR) Office and the School of Medicine Dean's Office to foster the development of new research collaborations, to provide seed money for young investigators for the collection of preliminary data, to develop new and innovative projects, to provide bridge money to support ongoing projects, and to initiate other activities that have the promise for future extramural funding. There is need to significantly increase this intramural funding if it is to be consistent with the goal of continuing growth. In 2003, the School of Medicine's budget to support these initiatives was \$358,877, and the SVPR awarded \$126,909 in Intramural Research Incentive Grants to School of Medicine faculty. In the past year, there has been increased integration of the administrative aspects of research throughout the Health Sciences Center. The Research Office has become a more comprehensive Health Sciences Research Office, and a new position, Administrative Director, has been created and filled. The Research Deans in the four HSC schools meet regularly to discuss ways to enhance collaborative research. In addition, the Council of Research Deans from all schools at the University of Louisville meets monthly. A series of research retreats and new bimonthly research forums on special topics of interest have also been initiated. In addition, a series of grant writing workshops and mock NIH-style review panels is now being presented each year at the School of Medicine. Satellite offices of Grants Management and Sponsored Programs have been established at the HSC. However, despite these significant efforts, University research infrastructure has lagged behind the rapid growth in research.

Effects of Research on Education of Medical Students

Students have numerous opportunities to be involved in research. They may participate in research electives or the Summer Research Scholar Program; they may also apply for the M.D./Ph.D. program. Another option for students is to design their own research electives in any department in conjunction with a faculty member. These research electives are typically completed as a full semester course in the second year or as a three-month block during the clinical years.

The School of Medicine Research Committee sponsors the Summer Research Scholars Program and provides stipends (\$3,000 for summer 2004) for entering first year and rising second year students to participate in a tenweek research endeavor during the summer. The medical students are placed in an active research environment that

includes faculty, but may also include undergraduate, graduate, postgraduate and other professional students. This program typically involves more than forty students each summer (47 students in 2004). The Summer Research Scholars Program has also been successful as judged by the quality of the presentations at Student Research Day during the week-long annual "Research!Louisville" event. Students who receive awards in the local competition have the opportunity to present their work at regional and national medical student competitions. The School of Medicine has had multiple regional winners and two national winners in the last five years. Student responses in the Graduation Questionnaire indicate that about half of the students participate in research during their time in medical school. The seven-year M.D./Ph.D. program is typically two years of medical school, three years of graduate research, and then two final years of medical school. Fifteen students are currently participating in this joint degree program. Departments for graduate training include the five basic science departments in the School of Medicine, as well as interdisciplinary programs in Clinical Research, Epidemiology and Statistical Training in the School of Public Health and Information Science and in Structural Biology in collaboration with the Department of Chemistry.

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Educational Program for the M.D. Degree

Since the 1998 LCME site visit, significant changes have been made in the educational program. These changes include the development of competency-based program objectives; substantial expansion and centralization of the educational infrastructure and educational program; enhanced teaching, assessment and learning through the use of technology and innovative modalities such as patient simulators and standardized patients; increased integration of clinical and basic sciences; and increased emphasis on active learning modalities such as small group and independent learning. In addition, a new educational management structure has been implemented to facilitate curricular oversight and improvement (see page 24).

Educational Objectives

In 2000, the medical school faculty developed the *Educational Objectives for the Undergraduate Medical Educational Program* document, a set of objectives for the educational program that identified ten competency themes and 86 competency-based objectives that all graduates would be expected to master. Since then, these objectives have been streamlined to eight themes and 52 objectives and rearranged to enhance their effectiveness as a tool for curricular planning and program evaluation. The eight themes are **S**cientific Foundations of Clinical Practice; **P**rofessionalism; **P**roblem Solving and Clinical Decision Making; **I**nformation Management and Critical Thinking; **C**ommunication; **C**linical Skills; **E**conomics of Medicine and Health Care Delivery Systems; and **S**ocial,

Cultural and Community Contexts of Health. (The underlined first letters form the acronym **SP2IC2ES**, see below.)

The medical school's program themes and educational objectives are linked to physician competencies expected by the medical profession and the public. Both when the objectives were originally developed and when they were reviewed and revised in 2004, documents such as the ACGME's six core competencies and the Institute of Medicine's reports (*Crossing the Health Quality Chasm, 2001*, and *A Bridge to Quality, 2003*) were used to ensure that our School's educational objectives would reflect the expectations of the medical profession and the general public.

Individuals directly involved in curriculum development and evaluation—course and clerkship directors, chairs, members of the Educational Policy Committee (EPC), faculty with major teaching responsibilities and student leaders—are familiar with the educational objectives, although broad knowledge and understanding of these objectives throughout the medical education community has not yet been achieved. To date, the educational objectives, or POD (program objectives document), have been posted at the Office of Medical Education (OME) website, presented to department chairs at Medical Council meetings, presented to faculty at Faculty Forum and departmental meetings, discussed at student leadership meetings and at the monthly course and clerkship director meetings, and presented to the Graduate Medical Education Council. To achieve greater awareness and use of the educational objectives, the themes have been organized by the acronym **SP2IC2ES**, and readily identifiable icons have been designed. This “logo” was used to create a poster campaign planned for January – March 2005; the goal of this campaign is to re-introduce the POD to the entire medical education community and to increase its use as a curricular planning and evaluation tool. A formal investigation has been designed and approved by the IRB that will track the effectiveness of this educational effort.

Despite the need to increase awareness of the school's educational objectives, some progress has been made toward using the objectives as effective guides for educational program planning and for student and program evaluation. All course and clerkship directors have reviewed their courses and clerkships in light of the program objectives and identified those program objectives that they teach and assess. The Associate Dean for Curriculum has also asked course and clerkship directors to use the POD to guide their curricular planning and evaluation processes and to share it with their faculty. Finally, a Program Advisory Council (see page 21) subcommittee on “Program Objectives” is reviewing individual course and clerkship learning objectives and attempting to match each learning objective with a program objective. As part of this process, the OME is developing a matrix that will provide an overview of where and how each of the program objectives is being taught and assessed across the curriculum. This matrix will serve

as a resource both to course and clerkship directors and to the EPC as they monitor how course and clerkship learning objectives align with institutional program objectives. Ultimately, this process should produce greater integration in the curriculum and identify gaps, redundancies and unneeded content areas. Course and clerkship directors are using diverse measures to assess mastery of course and clerkship learning objectives. Many of these learning objectives relate directly to the institutional program objectives, but, as indicated earlier, the formal process of matching them and making the appropriate curricular revisions is just beginning.

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Examples of course and clerkship educational tools include written exams and quizzes, laboratory practical exams, oral presentations, course papers and project reports, standardized patient encounters, required first and second year OSCEs, and qualitative and quantitative clerkship evaluations. Outcome measures that demonstrate how well students are being prepared for the next stage of their training include national normative data, such as clinical shelf exams and USMLE Step 1 and Step 2 CK and CS scores; results of the AAMC Graduation Questionnaire; and surveys of residency program directors outside the University of Louisville, who are training our graduates. Mean clinical shelf scores have been above the national average for most exams. The pass rate for Step 2 CK of the USMLE has been at or above the national average in recent years and was 100% for first time test takers in 2003. From 2001-2004, 87-92% of graduates (vs. 87% nationally) agreed or strongly agreed on the Graduation Questionnaire that they were satisfied with the overall quality of their education, and 94% agreed or strongly agreed that they had the understanding of disease mechanisms and principles of diagnosis and management to prepare them for residency.

The EPC has taken several actions to coordinate and monitor how the educational objectives are used for curricular planning and for student and program evaluation. These actions include encouraging the use of clinical vignette-type exam questions in all basic science courses and creating the second year block exam system to enhance horizontal integration of material (the block exam system will be expanded in spring 2005 to include the first year second semester courses). The EPC also developed a web-based course and clerkship evaluation system to improve the quality and quantity of student feedback and to produce useful curricular planning data for course directors more quickly. All students now annually complete a questionnaire about their learning experience in each course and clerkship. The questionnaire includes questions on how well the written course or clerkship objectives were reflected in their actual educational experience. A student team then reviews the responses and provides a written review. An EPC/OME team conducts a structured interview with the course/clerkship director focusing on strengths and areas for improvement. A written summary including recommendations is prepared and the course/clerkship director responds with a plan for

improvement, if needed, which must be approved by the EPC. Finally, in spring 2004, an in-house Clinical Skills Exam (CSE), another EPC-initiated program assessment tool, was piloted successfully with 100 volunteer students; the program objectives were used to guide the design and development of this exam. Following this successful pilot initiative, the EPC voted to require that all students take the CSE.

Resources for Medical Education

The Dean's Office has made major resource commitments to the educational program and to EPC initiatives that support faculty efforts to align their teaching and assessment to the program objectives. These commitments have included 1) construction of a state-of-the-art clinical training and assessment facility (the Alumni Center for Medical Education), which houses the Standardized Patient Clinic and the Patient Simulation Center and provides students with clinical exposure in all four years of the program; 2) significant expansion of the faculty and staff of the Office of Medical Education (from 3 to 19), who are partnering with teaching faculty and students to achieve educational goals; 3) providing a portable digital assistant (PDA) to all students to introduce them to the technology they will use as physicians; 4) major support for the Introduction to Clinical Medicine course including clinical faculty salary support to facilitate early clinical exposure and enhanced and expanded integrated, independent learning; and 5) support for the development of the CSE.

Collectively, these combined efforts have begun to catalyze a change in the institution's education culture from one that is primarily course and clerkship focused to one that is centrally coordinated, programmatically focused and outcomes based. Although significant further efforts will certainly be required to create an educational culture in which all members of the educational community responsible for designing, delivering, evaluating and monitoring the program and its individual components understand and use the program objectives as effective guides for their work, recent EPC accomplishments suggest that the School is moving in the right direction. The patient resources and clinical settings are clearly adequate for achieving the School's clinical objectives; in fact, students consistently identify their clinical education as a major strength of the school (see page 36 for a full discussion of clinical facilities). University of Louisville Hospital, Kosair Children's Hospital, Veteran's Administration Medical Center, Jewish Hospital and Norton's Hospital collectively provide a robust (total beds of 1599 and average census of 1188) and diverse inpatient care experience for all required clerkships. Similarly, the diverse ambulatory settings, including both adult and pediatric primary and subspecialty care teaching and service learning clinics (total annual visits in excess of 850,000), faculty private practice offices in primary and subspecialty care, and numerous community ambulatory sites, serve to enrich the educational experiences of the students.

Most graduates strongly indicated that they had the opportunity to follow a variety of different patients during each clerkship. The specific types of clinical settings

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needed to achieve their learning objectives have been established and the EPC is providing oversight to how clerkships should determine the number and types of patients needed. Clerkship directors in Family Medicine, Pediatrics, and Internal Medicine have identified key diagnoses and numbers of patients that students must see while on their rotation, and other clerkship directors are developing similar templates. The EPC is requiring each clerkship director to develop a process for monitoring individual student's clinical encounters and for adjusting a student's experiences when the results of this monitoring process indicate that he/she may not be experiencing the clinical encounters necessary to achieve the clerkship's learning objectives.

Structure of the Educational Program

An overall objective of the School of Medicine is to "provide an educational program leading to the MD degree that focuses on the general education of the physician." The curriculum includes 154 weeks of instruction and is outlined in Table 1. The courses in the basic science years and the required clerkships in the third and fourth years, in addition to the diverse elective offerings, are designed to present "core" content and to prepare students for residency, regardless of their choice of specialty area. In addition, the development of educational program objectives described earlier (see pages 16-17), which focus on the knowledge, skills, and attitudes that all physicians must possess, ensures that the educational program provides a general professional education. Moreover, Dean's office support for creating and coordinating new clinical training and assessment facilities and activities has resulted in new mechanisms for achieving this objective, for example, standardized patient activities throughout the educational program and the creation of a required Perioperative Medicine clerkship.

Numerous outcome measures indicate that the educational program is successful in preparing students for all career options in medicine. These measures include student feedback on the Graduation Questionnaire (2004 GQ: Questions on preparation to begin residency, 1.4-1.7), the career choices of graduates and feedback from receiving residency program directors (see page 23). From 2001-2004, students were matched to residency programs in 26 subspecialties, indicating that students are prepared for diverse career options. The percent of graduates beginning primary care residencies was 51% in 2001 and 2002, 39% in 2003, and 48% in 2004.

For the past two years, one of the EPC's program-wide goals has been to add "more small group and self-directed active learning experiences" to the educational program. Course and clerkship directors have taken steps to support this goal. In fact, almost all of the courses in the preclinical years now include both small group and self-directed, independent learning activities. For example, students in Pathology study cases independently using a CD ROM and prepare an autopsy report and oral case presentation; students in the

Introduction to Clinical Medicine course participate in 14 Interdisciplinary Clinical Cases each year (a total of 28 over the two years) and small group sessions that provide students with mentoring and case-based experiences focused on integrating basic and clinical sciences; and students in Neurosciences, Pharmacology, and Biochemistry complete independent and small group assignments as part of the course requirements. Most students (about 90 each year) also participate during their second year in one of the four student directed free service clinics. These clinics serve disadvantaged patients with limited access to medical care, and students operate and manage the clinics with broad faculty oversight. Examples of self-directed, independent study activities in the clinical years include oral case presentations, problem-solving sessions, work with computer-based cases (DxR, for example) and individual written case studies. All of these activities promote the skills and attitudes associated with lifelong learning. Moreover, the AAMC Graduation Questionnaire results indicate that 100% of the graduates felt that the need to engage in lifelong learning was addressed (2004 GQ) in their education and nearly all (2004 GQ: 91.8%) agreed that they had the skills necessary to apply evidence based information to their medical practice. Also, residency program directors who have taken University of Louisville graduates indicate satisfaction with their problem-solving skills and ability to apply fundamental knowledge to patient care.

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Table 1

YEAR 1 CREDIT HOURS

Introduction to Clinical Medicine I 3.0/3.0
 Gross Anatomy 6.5
 Microstructure and Development 5.5
 Biochemistry 6.0
 Neurosciences 6.0
 Physiology 8.0

TOTAL 38.0

YEAR 2 CREDIT HOURS

Introduction to Clinical Medicine II 5.5/6.5
 Microbiology and Immunology 9.0
 Pathology 8.5
 Pharmacology 6.0
 Genetics 2.0
 Clinical Neuroscience 4.0
 Elective 2.0

TOTAL 43.5

YEAR 3 WEEKS

ACLS 1.0
 Family Medicine 6.0
 Internal Medicine 10.0
 Pediatrics 8.0
 Surgery 8.0
 OB/GYN 8.0
 Psychiatry 6.0

TOTAL 47.0

YEAR 4 WEEKS

Inpatient General Medicine 4.0
 Inpatient General Surgery 4.0
 Neurology 4.0
 Ambulatory Medicine - Primary Care 4.0
 Ambulatory Medicine - Any Discipline 4.0
 Perioperative Medicine 2.0
 Rural/Inner City Medicine (AHEC) 4.0

Electives 10.0

TOTAL 36.0

Curriculum(table 1)

Consistency of the Educational Experience

EPC oversight ensures consistency of educational quality and student evaluation across sites within each clerkship. All clerkship directors are responsible for ensuring that this

standard is achieved. To comply with this expectation, clerkship directors use various methods, for example, direct communication of information on objectives and evaluations, distribution of clerkship materials and syllabi to faculty at alternative sites, discussions at regularly scheduled meetings with the faculty, and site visits. Occasionally, an inconsistency is identified and handled at the clerkship level. To illustrate, leaders of the third year surgery clerkship developed some concerns about the limited exposure of students to female patients while at the VAMC and to pediatrics patients for students who did not rotate at Kosair Children's Hospital. Their solution was to balance the educational experience of these students with other designated experiences during their clerkship. In addition, the EPC's clerkship evaluation system, in particular the web-based student questionnaire, supports EPC efforts to ensure consistency of quality between sites. For example, students recently expressed some concerns with workload inconsistencies on primary care ambulatory rotations and Psychiatry. The EPC is reviewing these concerns individually now and will also do so as part of an overall evaluation (scheduled for 2005-06) and potential revision of the clinical phase of the educational program. There are additional efforts to ensure the consistency of educational activities between the Madisonville and Louisville sites. For example, the Associate Dean at the Trover Campus in Madisonville participates in clinical clerkship directors meetings by telephone and travels regularly to Louisville. Additionally, standardized patients travel to the Trover Campus for clerkship activities, and a clinical educator from the OME conducts faculty development programs there. Also clinical faculty from Louisville regularly (15-18 times per year) visit the Trover Campus to meet with students and faculty and present a noon conference to the medical staff. Communication between the faculty at the Trover Campus and clerkship directors in Louisville occurs primarily by phone and email. There is a need to add more regular visits of the clerkship directors to the Trover Campus. The results of available outcomes measures, including clerkship performance responses on AAMC Graduation Questionnaires and the results of USMLE Step 2 scores, are reviewed by the EPC, departments, and administration; these outcome measures suggest that the methods for ensuring consistent quality of educational experiences at all sites have been effective.

Completeness of the Educational Experience

The curriculum includes coverage of all 34 content areas identified in the LCME standards as important components of the general education of physicians. The curriculum does include clinical instruction in preventive care, acute care, chronic care, continuing care, and end-of-life care and some students are exposed to rehabilitation consultants in their clinical clerkships. While recent graduates indicate overall satisfaction with the quality of their education, many University of Louisville students, as well as students nationally, felt that an inadequate amount of time was devoted to teaching in some areas, including

health care systems, health care quality review, medical socioeconomics and practice management. In an effort to respond to some of these concerns, the Introduction to Clinical Medicine course, beginning in 2003, added four hours of health care economics in the second year. In addition, the EPC is developing a plan to integrate business of medicine learning objectives into all four years of the program.

In both the preclinical and clinical years, instruction is included in multidisciplinary areas such as emergency medicine and geriatrics and in disciplines that support general medical practice such as diagnostic imaging and clinical pathology. However, about one third of graduates at both UofL (2004 GQ: 31.5%) and nationally felt that inadequate time was devoted to geriatrics. The School recently had a Hartford Grant, which resulted in the integration of more geriatrics material into the curriculum and is hopefully addressing this issue.

The preclinical and clinical years also contain instruction in communication skills, cultural competence, and societal problems such as substance abuse, HIV/AIDS and homelessness. In addition, our metropolitan setting ensures student exposure to cultural and societal issues in clinical settings where they interact with patients from diverse cultural backgrounds. Also, the curriculum has opportunities (including standardized patients) for students to observe and learn about gender and cultural differences.

The student workload and the balance between study and patient care activities are reasonable. Each third year clerkship includes direct patient care, as well as lectures, conferences and teaching rounds. The balance between inpatient and ambulatory teaching sites is appropriate, with 45-50% of the teaching at ambulatory sites in all third year clerkships except Surgery (average 15%). The multiple hospital and clinic teaching sites provide student exposure to large numbers and diverse types of patients and clinical problems.

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Teaching and Evaluation

Supervision of medical students during required clinical experiences is adequate. Students are typically assigned to resident teams headed by attending faculty who directly supervise their clinical learning in each clerkship. In addition, most clinical rotations also provide ample opportunities for direct faculty involvement with students; for example, faculty review student notes in patients' charts and provide direct feedback to students regarding their patient diagnoses and management plans. Faculty and residents, in general, receive favorable reviews from students.

Ensuring that all individuals (including residents) who participate in teaching are prepared for their teaching responsibilities has become a centrally coordinated activity. In early 2004, the Dean appointed an Acting Assistant Dean for Educational Development-GME. In summer 2004 this individual along with the Associate Dean for Curriculum distributed materials and gave a workshop

for all rising third year students on their role in requesting helpful feedback from their resident teachers. In addition, a program for all first and second year residents provided guidance on teaching and gave them materials including a "Guide to Resident Teaching." The program has additionally been adapted for individual departments and the Assistant Dean has begun working more individually with residents on how to be effective teachers and evaluators of medical students.

The OME also coordinates efforts to provide assistance to faculty who wish to improve their teaching. Two examples of centrally coordinated faculty development activities are the Grand Rounds for Health Sciences Center Educators and the certificate program on Teaching in Health Care Professions (see page 29). Some of the departments also sponsor programs to help medical school faculty become better teachers; for example, the Department of Medicine uses the Stanford Model to instruct faculty in teaching, and the Department of Pathology recently partnered with the OME to provide feedback to individual faculty on their teaching.

With the help of the EPC and the OME, individual courses and clerkships have improved their testing and evaluation methods; both the methods and the mix of testing and evaluation methods are adequate. In terms of testing, multiple choice questions are still utilized extensively in the preclinical years; however, faculty now use more clinical vignette questions that require students to apply their knowledge and reasoning skills to clinical situations. In the second year, a block exam system, administered by the OME, promotes the application of knowledge as well as the integration and long-term retention of material; moreover, the second year course directors developed a question-writing handbook to guide faculty efforts to prepare better questions. In addition to these exams, NBME shelf exams are used to test knowledge in some basic science courses, all third year clerkships, and some required fourth year clerkships. Student knowledge is also evaluated through oral presentations, small group activities, and written assignments throughout all four years.

Students are evaluated throughout the four years on their clinical skills, diagnostic reasoning, professionalism and communication skills, both through direct observation of patient encounters and with the assistance of standardized patients and patient simulators. Clinical skills and problem solving are evaluated in the Interdisciplinary Clinical Case sessions in the first two years. A student's ability to perform a history and physical examination is also evaluated midway through the first year and at the end of the second year in OSCE-like exams housed in the Introduction to Clinical Medicine course and evaluated by the physician faculty involved. In the third and fourth years, students receive both formative and summative feedback about their clinical examination and communication skills from standardized patients in the Family Medicine, Surgery, Psychiatry and Neurology clerkships. Students also receive feedback on these skills following the CSE at the end of the third year. In addition

to the standardized patient feedback and assessments, students receive feedback and written evaluations on their clinical skills from attending faculty and residents, who evaluate knowledge, exam skills and communication skills. From 2002-04, 90-95% of graduates indicated on the Graduation Questionnaire that they were confident they had acquired the clinical skills necessary to begin residency.

Overall, students receive sufficient and timely formative and summative assessment, but the EPC, the Associate Dean for Curriculum, and the OME still continue to stress the need for and importance of timely formative feedback. Students have ample time to remediate deficiencies in both the preclinical and clinical years. During the preclinical years, quiz scores, tests, laboratory grades, and project grades provide students with ample information about their progress. Summative feedback is provided through final examinations, shelf exams (in some courses), and the block exam system. During the clinical years, formative assessment is provided in midterm exams, quizzes (in some rotations), informal feedback from attendings and residents, and formal formative feedback sessions in some clerkships. There is some concern that formative feedback may not be adequate in all short clerkships. The Associate Dean for Curriculum is now collecting copies of formal mid-clerkship evaluation forms and is charged with ensuring that all required clerkships provide timely formative feedback, so that remediation may occur, if necessary.

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Curricular Management

The Educational Management Structure is depicted in Figure 2. The Educational Policy Committee (EPC) has responsibility for policy development, curricular design and program coordination and evaluation. The committee is chaired by the Associate Dean for Curriculum and is comprised of fourteen elected and appointed faculty and student representatives and *ex-officio* Office of Medical Education representatives; the EPC meets twice each month. The EPC sometimes creates *ad hoc* advisory groups and charges them with reviewing and making recommendations on specific topics. Student evaluation teams for each course and clerkship review, summarize and prioritize the results of online student evaluations and provide written reports to the EPC.

The EPC conducts an annual systematic review of the curriculum as a whole and its components. Each course and clerkship is reviewed annually as described on page 17. The EPC uses additional data sources in the evaluation process, such as the AAMC Graduation Questionnaire, USMLE Step 1 and Step 2 results, and local sources including the "Assessment of Student Learning Outcomes" (an approach with quantified goals for admissions and matriculation; retention and graduation; curriculum; certification; and career choice, discipline and practice location), and the Deyta, Inc. satisfaction survey [surveys of on-going students, graduating students, former students (3 years after graduation), alumni (7-10 years after graduation), faculty and residency program

directors] results. Although the EPC, course directors, educational administrators and key student leaders are knowledgeable about the results of many of these evaluation processes, more widespread use of and better communication to other faculty and students about evaluation results and the resulting curricular changes are needed.

While course and clerkship directors and faculty are charged with the specific design and content development of their courses and clerkships, the EPC has responsibility for all curricular design as well as coordination and oversight of programmatic content. The EPC reviews the syllabus, learning objectives and assessment measures for each course and clerkship and the Associate Dean for Curriculum regularly attends both preclinical and clinical course directors meetings. An additional component of the educational management structure is the Educational Administrative Committee (EAC), which consists of the Vice Dean for Academic Affairs, the Senior Associate Dean for Student and Academic Affairs, the Associate Dean for Medical Education and the Associate Dean for Curriculum. This group meets weekly to consider relevant educational program issues, including budget. Its role is to provide ongoing authoritative input and central support to the EPC. The EAC also functionally serves as the “department chair” for interdepartmental course directors and meets regularly with them to provide the central support and oversight necessary for the success of their courses.

Finally, two *ad hoc* groups report to the EAC, the Program Advisory Council and the Student Process Improvement teams. The Program Advisory Council is a senior level faculty group that works in subcommittees and advises the EAC on issues related to special areas of program improvement (e.g. Master Educator Awards, which have been initiated; program effectiveness using feedback from faculty focus groups). Overall recommendations of the Program Advisory Council committees are presented to the EAC and the Dean for consideration, but specific recommendations that impact the curriculum are first forwarded to the EPC for approval.

The Student Process Improvement Program, now in its fourth year, is a program in which student leaders identify seven to nine processes or issues that they would like to focus on for quality improvement. A Process Improvement Team, chaired by a student leader, is created for each process or issue identified. The Senior Associate Dean trains team leaders in quality improvement strategies and the role of leadership in directing positive change, and the team leaders then train their respective teams. Over the past four years more than 200 students have participated and team focuses have included board preparation, curricular calendar efficiency, block testing, and the ICM course. Tangible improvements in each of these and other areas have been achieved as a result of the program.

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Educational Management Structure (ED-33)

Educational
Policy
Committee
(EPC)
Student
Course &

Clerkship
Evaluation
Committees
Course
&
Clerkship
Directors,
Chairs
Inter-
Departmental
Course
Directors
Student
Process
Improvement
Committees
Chief Academic Officer
(Dean, School of Medicine)
EPC
Workgroups
Educational
Administrative
Committee
Program
Advisory
Council
Program
Advisory
Council
Committees

(figure 2)

The educational program is organized in a fairly traditional manner with most courses and clerkships structured and taught by discipline; however, progress is occurring at achieving horizontal coordination and vertical integration. First year and second year course directors meet monthly; clerkship directors meet bi-monthly. The block testing approach in the second year has also served as a catalyst for discussions about coordinating content. Likewise, learning experiences that integrate clinical science into the preclinical years include clinical correlations in each of the basic science courses and the Interdisciplinary Clinical Cases. In addition, the three current interdisciplinary courses - Introduction to Clinical Medicine, Genetics and Clinical Neuroscience – integrate clinical and basic science content. The Associate Dean for Curriculum has also facilitated specific educational partnerships focused on integration among clinical and preclinical faculty in physiology and pharmacology. Finally, one of the PAC subcommittees is specifically considering how to best integrate “continuum” topics throughout the educational program, for example, ethics, geriatrics and health care economics.

Four EPC program-wide goals serve as important program planning and evaluation tools. These goals are to support student learning through 1) course and clerkship objectives that reflect program learning objectives; 2) small group and self-directed active learning experiences; 3) integration between clinical sciences and basic sciences; and 4) innovative uses of technology. The Patient Simulation Center and the Standardized Patient Clinic, both administered by the OME, were constructed to support these goals. Course and clerkship directors, as well as key teaching faculty and students, are engaged in planning efforts that support these four curricular goals.

Geographically Separate Campus –

Trover Campus

The Medical School operates one geographically separated campus at the Trover Campus in Madisonville, Kentucky, a town of 15,000, which is located about 150 miles southwest of Louisville. The Trover Campus serves as the clinical site for approximately six students in each of the third and fourth years. Student promotion at the Trover and Louisville Campuses is handled identically. Lectures delivered in Louisville are viewed in Madisonville using full-motion interactive TVs in dedicated labs with T1 lines.

Required shelf exams in clerkships are also administered at the Trover Campus. Equivalent support services for students are available at both campuses. The Trover Campus maintains a Student Affairs Office consisting of a full-time director and administrative assistant. The Madisonville-based Associate Dean and Director of Student Affairs regularly visit the Louisville campus and meet with their counterparts and other appropriate administrators, clerkship directors, faculty, staff, and students.

Evaluation of Program Effectiveness

Numerous outcome measures attest to the high quality of our graduates and document that students are achieving institutional objectives as outlined in the School of Medicine mission statement. For example, the pass rate on the USMLE Step 1 was 86-88% in 2001-03 and 93% in 2004 (vs. 90-92% nationally). The pass rate on the Step 2 exam in 2001-04 was 94-100% (vs. 95-96% nationally). Also, 95-97% of participating seniors initially matched in the NRMP in 2001-04 (vs. a national rate of 93-95%), and over 90% of students report that they feel prepared for their residencies (2004 GQ). Most of the School's career choice objectives are also being met; for example, the percentage of graduates who practice in primary care has remained in the 40-50% range. Approximately 50% of our graduates remain in Kentucky to practice, and a significant number (2004 GQ: 23.6% vs. 21.6% nationally) are choosing to practice in medically underserved areas. The number of graduates pursuing an academic career reflects the national average (8.5% vs. 8.9% nationally) for public schools of medicine.

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Admissions

Enrollment Objectives

The overall objectives of the admissions process are to admit and matriculate a diverse student population who, upon completion of their medical education, will help meet the medical needs of Kentucky and contribute to progress in biomedical research. Students are selected based on a number of criteria, including the ability to complete the medical curriculum, effective communication skills, desirable personal characteristics, potential for and interest in medical research, and an interest in becoming a generalist physician and/or establishing a practice in a rural area. Diversity is achieved using strategies aimed at facilitating the recruitment, matriculation, graduation and placement of minority and rural students underrepresented

in medicine.

Recruitment

The recruitment process is led by the Associate Dean for Admissions (a practicing generalist physician) and key staff, who visit colleges and universities in the region. Throughout the school year, high school and college groups tour the School of Medicine and receive information on careers in medicine. Several other outreach programs target and groom specific groups for entry into medical school; for example, the Guaranteed Entrance to Medical School (GEMS) Program targets outstanding high school students from Kentucky, the Trover Rural Scholars Program targets students from rural counties in western Kentucky, and the Professional Education Preparation Program and the Health Careers Opportunities Program target rural and underrepresented minority students. Additionally, many high school and undergraduate students participate in research experiences at the medical school. Current medical students and members of the Admissions Committee also play an active role in recruitment when they interact with prospective students on their interview dates and at pre-orientation meetings. Some recruitment efforts are being limited by the declining number of scholarships available, a result of significant tuition increases and the national economy's impact on the growth of the School's scholarship endowment.

Selection

The size of our in-state applicant pool has decreased slightly over the past several years. However, despite the decrease in number, the academic strength of the in-state pool has increased (2001: N = 440, MCAT = 8.43, GPA = 3.48; 2004: N = 370, MCAT = 8.75, GPA = 3.51). Also, the quality of the matriculants as measured by MCAT scores and GPA has increased. In fact, in these terms the last two classes matriculated have been the strongest academically in recent history. For the class entering in 2004, the average MCAT was 9.36 and GPA was 3.62. Students are selected from the applicant pool through an initial screening completed by the Director of Admissions. About 60% of the applicants are invited to submit secondary applications, and approximately 30% of the secondary applicants are brought in for interviews. Interviews are done "semi-blind"; that is, the interviewers do not have the students' grades or test scores. This approach helps reviewers focus on other qualities of the applicants. Then, at bi-monthly committee meetings, the interviewers lead the discussion as individual applicants are considered. A 2/3 positive vote is required for the committee to admit an applicant. Members (30 in total) of the full committee include clinical and basic science faculty, community physicians and medical students. The committee is also diversified by gender and ethnicity. This broad representation is part of an effort to insure that prospective students are reviewed from a number of different perspectives that impact on their ability to complete medical school and practice medicine successfully.

Validation of the Selection Criteria

Selection can be at least partially validated by a number of criteria. In recent years, 94% of the matriculants have graduated. Students enter with an MCAT average at about the 20th percentile nationally (most are from Kentucky, which ranks low nationally in primary and secondary education), but by the end of the 2nd year they score at the 40th – 50th percentile on USMLE Step 1, and by graduation score at the 50th-60th percentile on USMLE Step 2. For most years, 100% of the students completing four years of medical school ultimately pass Step 2. Graduates also do very well in the NRMP, typically matching at or above the national average, with the remaining graduates normally being matched within one day. The School of Medicine enjoys a reputation for producing good residents. Surveys done of residency programs that have taken UofL graduates produce very positive results about their performance as residents. (Non-Louisville residency program directors who have taken UofL graduates have been surveyed. In response to the question, "Likelihood our program will select University of Louisville School of Medicine graduates in the future" on a scale of 1 to 5 with 5=excellent, program directors responded 4.34 in 2000 and 4.61 in 2003.)

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Number of Students Versus Resources

Available

Since the last accreditation, the number of students has increased 8% while the number of full-time faculty has increased 21%. The class size (149 students) slightly exceeds the number of seats in the preclinical lecture halls, but the overflow room approach that we have used for about 10 years has been an acceptable alternative and remains popular with a significant number of the students. No plans exist for further increases in class size. Strengths of the school include the clinical facilities, in-patient population, and ambulatory patients available for teaching. With rare exception, there has been no problem with these resources, which are also ample to accommodate our residency program (2003-04, 551 residents).

Diversity Goals

African-Americans (7 1/2 % of the state population) are the largest minority group in Kentucky. All other underrepresented minority groups together make up only about 1 1/2 % of the population, but are included in all of our diversity efforts. (Note: Since 1980 the State has been under an Office of Civil Rights mandate regarding the integration of African-Americans; hence much of the data collected are specific to African-Americans.) Additionally, Kentucky is a heavily rural state with about 80 counties that are considered medically underserved by federal standards. Since 1984 the Special Programs Office has worked vigorously to recruit, admit, matriculate and graduate underserved minority and rural students. Over the last seven years African-Americans have constituted 6.8% of our graduates (other underrepresented minorities were 0.4%) and graduates from rural counties account for 30%. To achieve this level of success there have been multiple support programs for these students beginning in

early high school and extending all the way to placement in practice. Since the last accreditation visit the percentage of women in the first year class has exceeded 50% in several of the years; however, this figure dropped to 40% with the most recent class. This figure will be monitored in the coming years to determine whether a new trend is developing. Despite our success at recruiting a diverse student population, the presence of role models on the faculty is a challenge we continue to attempt to address. We are pleased, however, that the number of African-American residents, who also serve as important role models, has gradually increased and is now at 28 (5%).

Impact of Transfer and Visiting Students

Transfer students are very limited in number, usually two or three per year. They are accepted for personal reasons, usually marriage to a medical student or resident or the need to care for a relative. The number of visiting students ranges from 50-60 each year with most students visiting for four or eight week rotations. About 20 of these students are international students who come from well-established schools and meet a number of quality and performance criteria. These international students, who are all foreign nationals, enrich the educational environment and add diversity to the teaching and learning process. All transfer and visiting students can be accommodated by the existing resources.

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Student Services/Learning Environment

Academic Advising, Counseling and Support

For targeted students, academic support and counseling begin even prior to matriculation. The Special Programs Office guides minority and disadvantaged students through college and the medical school admissions process and then invites them to participate in a prematriculation program to better prepare them for success in medical school. Once matriculated, the Assistant Dean for Student Affairs oversees and coordinates the academic support program for all students. She contacts students at the first sign of academic difficulty (failed quiz or test); offers individual counseling; works closely with course directors to develop course specific advice and assistance; and connects students with appropriate support resources, such as individual training with the Coordinator of Health Sciences Student Counseling Services on study skills and test taking strategies. Efforts are made to provide course specific tutors for at-risk students. Tutors are available for first year students and group tutoring is sometimes provided for second year students.

In response to student feedback about the need to provide these sorts of academic resources for all students, a number of noon hour seminars are now conducted; these seminars address topics such as study strategies, time management and organizational skills. In addition, weekly

supplemental clinical correlation reviews, the Excellence in Basic Science (EBS) Conferences, are open to all students and attendance averages 30 to 40 students per session. The EBS sessions are now also offered during the summer for rising second year students to review first year material. Several centrally coordinated board preparation activities are offered as well, including a student developed interactive website, 4th year student-led study groups, diagnostic testing, and individual advice on constructing a board preparation study plan. Although academic support services have been significantly expanded and current students identify them as a strength, some of the students most in need of the services don't utilize them fully and in a timely manner. Overall, 88% of students graduate in four years, and 94% ultimately graduate.

In addition to specific academic counseling programs and support services, ample opportunities exist for general advising and mentoring by faculty, community physicians, advanced students, and the Student Affairs deans and staff. All first year students have the option of choosing a general faculty advisor from a list of designated faculty members from various departments. About 20% of the students choose this option. Students then may keep this formal advisor throughout medical school or change at any time. Informal advising opportunities include faculty and advanced student mentorship in the student unit labs and community physician mentorship through a collaborative program with the Jefferson County Medical Society that matches first and second year students with community physician mentors. Peer academic advice and support are provided through the first/second year mentoring program, which matches each first year student with a second year student mentor. Peer support and guidance is also provided through the Student Outreach University of Louisville (SOUL) program, in which advanced students make themselves available to students experiencing academic or personal struggles and help connect them to appropriate institutional resources. Student Affairs deans and staff members serve as issue specific advisors, for example, on scheduling and professional opportunities, as do course and clerkship directors. Most first and second year students seek general academic advising through informal venues rather than through a formal advisor. However, students in the third year are required to choose a discipline specific faculty advisor in their field of potential interest. Third year students receive targeted advice on fourth year electives from these faculty advisors; fourth year student mentors with similar career interests; and the Senior Academic Coordinator, who must approve all fourth year schedules. Most graduates are satisfied with the faculty mentoring they received, and current students list faculty availability as a strength.

Career Counseling and Preparation

Resources for career counseling include a team of Deans, the Coordinator of Health Sciences Student Counseling Services, coordinators, faculty advisors, a peer advisory committee, and a library-based resource center. During the first two years, students are introduced to the Careers

in Medicine Program through small group and independent activities. In addition, a number of formal educational seminars provide information on CV development, career options and the Medical Student Performance Evaluation (the former "Dean's letter"), and several student interest clubs sponsor events and activities to share specialty specific career information. Third year activities include small group career planning discussions for each track; specialty specific seminars during each rotation; individual student meetings with the Senior Associate Dean; and individual advising from discipline specific faculty advisors, peers and the Match Coordinator. The fourth year consists of formal sessions on mastering the match and interview process, continued faculty counseling, personal statement advice, individual "mock" interview practice and application

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and ranking advice. In the past two years, the career counseling program has been expanded to provide students with earlier advice and counseling. A majority of U of L graduates (2004 GQ: 57.6% vs. 49.7% nationally) are satisfied or very satisfied with the career counseling and preparation program.

Tuition, Fees and Student Indebtedness

Tuition and fees for entering 2004-05 in-state students are \$17,096. Ninety-five percent of students receive some form of financial aid, 85% receive educational loans and 29% receive grants and scholarships from institutional sources. For 2004 graduates, the average indebtedness (including undergraduate debt) for students with debt was \$95,808, which compares to \$104,385 for all public institutions. A measure of the effectiveness of the School's debt management efforts is a very low default rate on Stafford Loans.

Financial planning and debt counseling begin during the recruitment process and continue with a required entrance interview during orientation, periodic financial planning and debt management seminars throughout the first three years, and a required exit interview shortly after Match Day in the fourth year. The Office of Financial Aid with two fulltime staff also provides individual counseling on an ongoing basis throughout the four years.

Personal Counseling and Mental Health Services

The Coordinator of Health Sciences Student Counseling Services and two psychiatrists provide confidential personal counseling and mental health services at no cost to students. If long-term mental health care is required, the cost falls to the student and his/her insurance. None of the three providers has an academic evaluative role with students. Students are told about counseling services during orientation, through brochures, via the Student Affairs website and by posters placed throughout the Instructional Building. The two psychiatrists conduct noon hour educational sessions on topics such as depression, stress management, substance abuse, and maintaining healthy relationships. Although most treatment occurs in the outpatient setting, should hospitalization become necessary, arrangements exist with facilities outside the

university system in order to preserve confidentiality. Most students (2004 GQ: 66.9% vs. 55.7% nationally) are satisfied or very satisfied with the quality of personal counseling services.

Preventative and Therapeutic Health Services

Students are required to have major medical insurance and are automatically enrolled in a University sponsored plan, unless waived by proof of other insurance. The carrier was changed two years ago and the change is viewed as an improvement. Covered expenses include both mental health and maternity benefits. The annual premium is \$1147, and students may purchase additional coverage for a spouse (\$3632) and children (\$1744). Some problems have occurred with bills being sent by mistake to collection agencies, but this problem has been addressed. Disability insurance is available from three carriers, each offering similar benefits (\$1000/month). Most students who buy disability insurance choose the AMSA product due to its lower annual premium (\$125 vs. \$296 and \$358).

The School's immunization policies are consistent with current CDC guidelines. Exposure protection is taught during new student orientation, during clinical orientation and again in the individual clerkships. Students receive laminated cards containing emergency contact information in the event of possible exposure.

Both preventative and therapeutic health services are available on campus during regular hours. Although access to student health has not been an issue, students have expressed concerns about privacy, convenience (level of staffing during noon hour), and operational efficiency. Privacy concerns have been addressed through formal education and counseling with the clinic staff, and student leaders are working together with the Student Health Director to address the convenience and efficiency concerns.

Student Mistreatment

The School has developed clear standards for appropriate learner-educator relationships and behavior. These standards cover mistreatment, abuse, harassment, discrimination and inappropriate requests for student services. Information regarding these standards and the policy on student mistreatment is readily available to students and faculty on the School's website, is included in each clerkship syllabus, and is discussed with students during first year orientation and again at clinical orientation. It is also discussed at new faculty orientation and new resident orientation. Although the policy on student mistreatment clearly delineates expectations and provides for confidential reporting of incidents, students rarely report incidents of mistreatment. Data from the AAMC Graduation Questionnaire, however, report additional incidents. When asked, students cited fear of reprisal as

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the most common reason for not reporting incidents. This mismatch prompted the School's administration to convene a series of meetings on the issue with student leaders and faculty and resident representatives. The

meetings produced a heightened awareness of all involved about the importance of appropriate teacher/learner behaviors and resulted in a new mechanism for reporting student mistreatment by residents or faculty through student leaders. Students perceived this would be a “safer” reporting mechanism. The situation will be followed to determine if this approach is an improvement.

Student Advancement, Graduation, Disciplinary Action, Appeal, Dismissal and Confidentiality of Records

Information regarding all of these standards and policies is readily available to students and faculty on the School's website. The Student Promotions Committee reviews all aspects of the academic progress of students with unsatisfactory performance and makes recommendations to the Dean. All due process procedures are outlined in the *Bylaws and Rules of the School of Medicine*, the *Code of Student Rights and Responsibilities*, and the *School of Medicine Bulletin*. Student records are held in confidence and students may inspect their file at any time. In addition, each course and clerkship allows students to review their performance and, if the students deem necessary, formally appeal their grades.

Learning Environment

Preclinical student study space is provided in 12 unit labs, each of which houses 27 students. Each lab has a desk with locked drawers and tack board for each student and three small group rooms (36 total), each with tables and a dry-erase board. The small group rooms have a total of 48 computer workstations with large monitors and syncstations for student PDAs. Each student also has an individual locker for personal items. There is a computer center/class with 33 stations. Student “common space” is described further on page 35. Graduates express a high degree of satisfaction with their study and relaxation space (2004 GQ: 80.0% and 64.9%, respectively).

Clinical students are generally quite positive about their learning environment. The hospitals are state-of-the-art. Libraries, computer facilities and call rooms are adequate. At most facilities lockers are undesignated, but adequate in numbers. At Kosair surgery and Jewish surgery there were not enough lockers. Corrective action was taken.

Student leadership development is a strong focus at the School. At the beginning of each year, the Senior Associate Dean holds a leadership retreat with senate and class officers, student organization presidents and process improvement leaders (see page 21). Basic elements of leadership are discussed and the student leaders set goals for the year and strategies to achieve them. Quarterly follow up retreats are held to discuss progress. Monthly leadership meetings are also held with student leaders, key administrators and staff to provide ongoing feedback and share ideas.

The Dean is personally committed to communicating with students and addressing their concerns. She holds breakfast meetings twice a month with small groups of students to discuss various aspects of their educational

experience. Follow up communication is always sent to the students outlining an action plan for addressing their concerns. In addition, the Dean hosts at least one evening social event each semester for students and their spouses, children and significant others at local attractions, for example, the IMAX Theater, Science Museum, and Slugger Stadium; she recently hosted a dinner at her home for all first year students. Students appreciate the Dean's efforts, and their feedback regarding these events is uniformly positive.

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Faculty

The School of Medicine employs 604 full-time faculty (2004), reflecting a 21% increase from 1997-98; 80 parttime faculty; and more than 1300 gratis faculty.

Basic Science Departments

The five basic science departments total 89 full-time faculty with a range of 16 to 19 faculty in each department, representing an increase of 27% since the last review. Rank is distributed as follows: 37 (42%) Professors, 33 (37%) Associate Professors, 17 (19%) Assistant Professors, and 2 (2%) Instructors. These numbers are sufficient to provide a critical mass to meet the educational and research needs of students. Faculty research productivity has substantially improved. Between 1997-1998 and 2002-2003, extramural research expenditures in these departments nearly doubled to \$8 million. Forty-two faculty members in the basic science departments are principal investigators on extramural grants, and basic science faculty published 172 peer-reviewed articles in the 2002-03 academic year.

Leadership is strong and stable. Since the last review, we have successfully recruited two new chairs, one in Biochemistry and Molecular Biology, the other in Microbiology and Immunology. The change in leadership in Biochemistry and Molecular Biology occurred after the previous chair accepted the position as Vice Dean for Research. The Department of Microbiology and Immunology was identified as an area of concern in the last review but has grown and is now quite stable and successful. The department not only has new leadership, but 13 new faculty (including one endowed chair), significantly increased extramural research funding, and major increases in the number of graduate students and postdoctoral fellows. Teaching is a high priority for faculty. Recent years have seen a decrease in large group lectures and more small groups, cross-disciplinary teaching, and increased mentoring of graduate students and postdoctoral fellows. Newly mandated peer and student teaching evaluation systems are helping to promote high quality teaching. The peer evaluation has been fairly effective in the basic science departments, but clinical departments in general have not implemented this process effectively. In addition, several departments provide annual teaching awards. In response to a state mandate, the basic science departments have dramatically increased the recruitment and graduation of graduate students (see page 13). The increase is consistent with the significant increase in

research. Many of our graduates have been successfully placed in prestigious postdoctoral positions; in addition, a number use their experience to pursue other professional careers (e.g., medicine, law, entrepreneurship, industry).

Clinical Science Departments

There are 515 full-time faculty in the 15 clinical departments, a growth of 19% since 1997-98. In terms of rank, clinical faculty are more junior than their basic science colleagues: 147 (29%) are Professors, 145 (28%) are Associate Professors, 192 (37%) are Assistant Professors, and 31 (6%) are Instructors. The size of departments varies greatly, ranging from eight full-time faculty in Emergency Medicine to 123 in Medicine. The median is 21. With four primary care departments, 11 specialty departments and 42 divisions within these departments, our clinical faculty are well able to provide for the educational needs of medical students. Although many clinical department faculty focus primarily on clinical service and teaching, many are also productive researchers. During the 2002-03 academic year, clinical faculty published 625 peer-reviewed articles while 160 served as principal investigators on extramural grants. Extramural research funding increased from \$11 million in 1997-98 to \$21.6 million in 2002-03, with an additional \$8.3 million going to interdisciplinary centers.

Leadership is undergoing transition in three departments. The Department of Anesthesiology and Perioperative Medicine and the Department of Pediatrics have acting chairs. A search is underway in the former. The Department of Surgery is also undergoing a chair search after the current chair announced his retirement following a long and distinguished career. Divisions in most clinical departments are also stable. One exception is the Division of Urology in the Department of Surgery, which lost its two faculty members recently, thus closing the Division. Urology teaching is now being provided by community physicians, but consideration is being given to establishing a separate Department of Urology. In addition, the Divisions of Pulmonary Medicine and Rheumatology in the Department of Medicine are understaffed.

The overall budgets for the clinical departments have grown modestly to meet the basic needs of the growth in faculty. Consequently, clinical departments rely increasingly on clinical revenue to sustain the academic mission. Most departments report financial stability, although Anesthesiology, Emergency Medicine, and OB/GYN report deficits. Space and facilities have improved for almost all clinical departments.

Students identify the quality of clinical teaching as a strength. Student learning benefits from both a significant faculty commitment to teaching and a graduate medical education program that is approximately equal in size to the number of medical students. Patient care is excellent and continues the strong tradition of the School. Despite a basically positive and stable situation, departments do struggle with balancing teaching, research, and patient care.

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Recruitment and Retention

The state's Research Challenge Trust Fund, the establishment of many new endowed chair and endowed professor positions, and the rising reputation of clinical and interdisciplinary research centers have all aided the recruitment of highly qualified faculty. However, recruiting junior basic science faculty who do not come with funding has been hindered by limited funds to offer adequate research start-up packages. In some of these cases affiliated hospitals have generously provided jump start funding. Recruiting clinician faculty has also been challenged by reduced Veterans Administration Medical Center funding (where there has been a loss of positions and rigorous time requirements have been placed on faculty). For basic science departments, salaries are 6-8% below benchmark, which is the result of salary compaction at the higher ranks. The University had implemented a catch-up program that improved salaries, but state budget cuts in the last two years have reversed these gains. In July 2003, the School of Medicine implemented a policy of guaranteeing only 67% of University salary (excluding private practice income) for newly hired tenure-track faculty when they become tenured. Although financially prudent and consistent with similar policies at most other medical schools, it is too soon to evaluate the full impact of this policy on recruitment. Annual turnover of faculty at the School of Medicine is 11%, as compared to the AAMC mean of 15%.

Modest progress has been made in balancing faculty gender. There has been an increase in full-time female faculty from 23% to 27%. The promotion rate of female Assistant Professors to Associate Professor is in proportion with their numbers and a mentoring program that targets female Associate Professors for promotion to full Professor has been helpful. In the area of racial diversity, however, despite internal efforts, only very modest progress has been made. Our full-time African-American faculty has increased from 1.8% (9) in 1997-98 to 3.5% (21) in 2004-05. The School has benefited from the University's "Our Highest Potential" program, which has led to the successful recruitment of three highly accomplished African-American faculty who serve as endowed chairs in the School and are strong role models for students, residents and junior faculty (the Dean recently funded a fourth as yet unfilled chair under this program). Additionally, minority faculty are annually invited and provided funding to attend AAMC-sponsored faculty development programs. Finally, various local events have been designed and hosted at least annually to recruit minority faculty to academic medicine. Most departments are sensitive to the need for faculty diversity and actively recruit women and minorities.

Opportunities to Improve Teaching and Evaluation Skills

Opportunities are provided for faculty members to improve their skills as teachers and evaluators of medical students. In 2002, the Office of Medical Education initiated Grand Rounds for HSC Educators, where topics related to teaching and learning are presented. These sessions were

initially offered quarterly but are now offered eight times each year. About 30 clinical and basic science faculty attend each presentation. Also, the School of Medicine has partnered with the other HSC schools and the College of Education and Human Development to offer a new 12-credit-hour certificate program in health professions education, which consists of four courses. In addition, the School of Medicine recently added five core questions about individual faculty teaching to its web-based student course and clerkship evaluation system. The resulting data are shared with course directors, faculty and the Dean. Also, some departments have targeted faculty development programs focused on teaching and learning. The University's Delphi Center for Teaching and Learning offers multiple training opportunities on the use of technology in education (e.g., a full day celebration of teaching and learning, teleconferences on teaching and learning topics, workshops, individual consultation, etc); a Delphi Center annex is located in the Library and Commons Building and is staffed full-time. Finally, the Dean's Office recently initiated a Master Teacher Award program.

Personnel Policies

Since the last LCME review, the Promotion, Appointment, and Tenure (PAT) policy has undergone a major revision and now better enables faculty to emphasize and be rewarded for teaching and clinical service, as well as research, according to the faculty member's interests and the School's needs as expressed in an annual work assignment. Multiple full-time faculty tracks were consolidated into two tracks, a non-tenurable "term" track and a "probationary" or tenure track. Term-track faculty have renewable, full-time appointments for up to three years. The criteria for promotion in rank, regardless of track, are now clear, and denial of promotion is rare due to rigorous formative review and redirection of appointments as appropriate. Regardless of which track a faculty member follows, the promotion and tenure process is guided by an annual work assignment from the department chair, which is individualized for each faculty member. The work assignment focuses on a combination of research, teaching and service, each of which is assigned a percentage. Service may be further defined as clinical service and/or professional community service. Great care is taken to ensure that these assignments are thoughtfully

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developed and reflect reality. The vast majority of termtrack faculty are reappointed, but reappointment is based on performance and the School's needs. For term faculty at the rank of Associate Professor and above, rolling threeyear contracts are also an option based on high performance and department finances. Most term faculty focus on teaching and clinical service. Promotion may be earned when a faculty member has demonstrated excellence in the area of greatest work assignment and proficiency in all other areas of work assignment. Proficiency in teaching is required for promotion of all fulltime faculty regardless of track or rank. For those faculty on probationary status, scholarship must also be

demonstrated for tenure to be granted. Criteria for proficiency, excellence and scholarship are delineated in the Promotion, Appointment and Tenure policy document. Tenured faculty undergo post-tenure review (at the University of Louisville this process is called "Periodic Career Review" - PCR) every five years. (A promotional review may substitute for PCR.) A faculty member must maintain "proficiency in all areas of the work assignment" to pass PCR. A faculty member who fails PCR must develop a remediation plan in conjunction with his/her chair and then has one year to correct the problem. For faculty with term and part-time appointments, consideration for reappointment requires evaluation of their performance and serves as their periodic career review.

Policies for dismissal, mediation and grievance are outlined in the University's governing document, *The Redbook*. Criteria for dismissal include neglect of or failure to perform one's duty, incompetence, or immoral conduct. An unsatisfactory PCR followed by an unsuccessful remediation may also ultimately lead to dismissal. In the five years since PCR was implemented 158 faculty have been reviewed and eleven have failed. Of these eleven, two have remediated successfully, three have failed/retired, one died, one gave up tenure and moved to term track, and four are in their remediation year. It should also be noted that a number of faculty have retired rather than go through the PCR process.

The University encourages all faculty to resolve workrelated disputes through open, direct communication and by airing differences. When this approach fails, the University provides impartial services to facilitate mediation if the disputing parties believe that the differences may be reconciled. Mediation is voluntary and confidential to the limits of the law. Should mediation fail, a grievance process is available to faculty.

The Associate Dean for Faculty Affairs meets with all newly appointed faculty members during a two-phase orientation process (group followed by individual sessions) to inform them about promotion and tenure policies, the significance of the two tracks, and other policies. In addition, "Towne Hall" meetings are held regularly to inform faculty of promotion and tenure criteria and a mentoring program pairs interested junior faculty with more experienced faculty.

Conflict of Interest Policies

Institutional conflict of interest policies are developed as needed by administrative and faculty committees. When these policies are being developed, they are discussed at the monthly Faculty Forum meetings. Additional briefings are provided as needed. Faculty are apprised of conflict of interest policies at the School of Medicine and Universitywide levels during orientation and via electronic mail, and at the departmental level by their chair and departmental Faculty Forum representatives. Individual management plans are created for faculty with conflicts or potential conflicts. An academic policy committee and instructional technology division review issues concerning education

and instruction. Conflicts of interest have not caused problems with faculty academic responsibilities.

Feedback to Faculty

Annually, each faculty member receives a work assignment from the chair and feedback about performance on the previous year's assignment in the form of a merit review. In addition, tenure-track faculty receive pre-tenure reviews at the mid-point of the five-year probationary period. University policy mandates that these reviews be conducted with the same rigor as are tenure reviews. These reviews provide tenure-track faculty with detailed feedback about progress toward tenure and have been extremely valuable to tenure-track faculty. Additional feedback comes through periodic career reviews. These reviews have worked well.

Priority of Education

Most chairs are dedicated to teaching, although fiscal pressures force chairs and faculty to balance teaching with generating revenue. All faculty must include teaching as a component of their annual work assignment. As mentioned earlier, to be promoted, to succeed in a periodic career review or to be reappointed on a term contract, faculty must demonstrate proficiency in teaching. Proficiency is judged by a formal process that includes supervisory and peer reviews of the teaching effort, along with reviews by students and residents.

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Governance and Communication with Faculty

Faculty participate in school-wide committees that play key governance roles. These include the Promotion, Appointment and Tenure Committee; the Performance and Economic Welfare Committee; and the Rules, Policies and Procedures Committee. Positive Executive Faculty votes are required to change the *Bylaws* of the School. In addition, many chairs delegate key governance roles to departmental committees. Survey results (2003 Faculty and Staff Satisfaction Survey) show that the faculty feel actively encouraged to participate in the decisions and governance of their departments and the School. Information about important issues and policies is communicated to faculty through several venues. Elected members of the faculty representing each department meet with the Dean monthly at Faculty Forum and are empowered to act or forward issues for an Executive Faculty vote. In addition, department chairs meet monthly with administration at Medical Council as well as individually to offer recommendations. Other means of communication are the Dean's monthly lunches with chairs and a weekly e-mail that communicates upcoming events at the School. Within departments, chairs hold regular departmental faculty meetings and communicate with their faculty through electronic mail. In addition, a Universitywide news announcement, *U of L Today*, is disseminated by electronic mail to all faculty Monday through Friday. In a recent University survey, nearly 80% of faculty in the School reported that they were adequately informed about the University.

Finance

The University of Louisville School of Medicine is a publicly supported institution that receives funding from diverse sources as indicated in Table 2. Total revenue for fiscal year 2002-03 was \$295 million, a 33% increase since the last accreditation survey in 1996-97. This increase was predominantly driven by increased grants, contracts, facilities and administrative cost recovery, and continued growth of the clinical enterprise.

Tuition and Fees

Since 1996-97, in-state tuition and fees have increased from \$8,450 to \$17,096 in 2004-05, and out-of-state tuition and fees have increased from \$19,600 to \$39,452. Tuition and fees now constitute 4% of the budget.

State Appropriations and General University Funds

State appropriations have grown from \$33.6 million to \$40.3 million, but actually dropped slightly as a percentage of the total budget from 15% to 14%. Other forms of state support, such as the Research Challenge Trust Fund, were added to the School's endowment and have provided significant financial resources to the School of Medicine.

Grants, Contracts and Facilities & Administrative (F&A) Cost Recovery

As a result of the University's successful strategic emphasis on increasing the research enterprise, federal research funding has shown tremendous growth with a doubling of revenue. Research revenues as a percent of total revenue in 1996-97 were 3% federal, 6% other, and 31

Public

US Medical

University of Louisville Schools

Amount Percent Amount Percent Percent

Source 1996-97 1996-97 2002-03 2002-03 2001-02

Tuition & Fees (1) 6,083,543 3% 10,965,147 4% 3%

State Appropriation and

General University Funds 33,649,866 15% 40,337,118 14% 15%

Federal Research Grants & Contracts 6,721,339 3% 22,104,966 7% 16%

Other Grants & Contracts 12,249,145 6% 23,828,534 8% 8%

Facilities & Admin Recovery 2,557,117 1% 8,761,136 3% 6%

Endowment Income & Gifts 7,280,485 3% 14,728,628 5% 3%

Support from Affiliated Hospitals 51,650,960 23% 52,633,020 18% 12%

Professional Fee Income (2) 98,855,699 45% 116,576,008 40% 33%

Other 2,174,034 1% 4,868,513 2% 4%

Total 221,222,188 100% 294,803,070 100% 100%

(1) For 2002-03 amount includes graduate school tuition income equal to .6% of total income

(2) Includes Practice Plan and other clinical earnings.

Sources of Revenue (figure 2)

1% F&A; these revenues increased in 2002-03 to 7% federal, 8% other, and 3% F&A. Although major progress has been made, total funding from grants and contracts as a percent of total funding still trails national norms by a significant amount.

Endowments and Gifts

Revenues from endowments and gifts grew from \$7.3 million in 1996-97 to \$14.7 million in 2002-03. The market value of the School of Medicine's endowment increased

from \$90 million in 1996-97 to \$203 million in 2002-03, and three major fundraising campaigns in cancer, pediatrics and cardiovascular innovation are now under-way. The number of endowed chairs at the School of Medicine has increased from 19 to 33. Additionally, five endowed professorships have been added.

Affiliated Hospitals

The School of Medicine continues to enjoy greater support from affiliated hospitals than most other public medical schools. Between 1996-97 and 2003-04, affiliated hospital support increased from \$51.6 million to \$52.6 million. Total hospital support (including ULH), however, decreased as a percentage of the budget from 23% in 1996-97 to 18% in 2002-03 compared to the national figure of 12%.

The School operates within a consortium model of affiliated hospitals including Jewish Hospital HealthCare Services, Inc., Norton Healthcare, Inc., and the University of Louisville Hospital. This relationship has created collaborative opportunities to the extent that the missions and vision of these organizations are compatible. The University of Louisville Hospital, Jewish Hospital HealthCare Services, Inc. and Norton Healthcare, Inc. are both partners and competitors in the local health care market. Given the dependency of the School on these revenues, reduction of support funds from affiliated hospitals due to changes in hospital program priorities or financial performance could be disruptive to medical school programs. However, the dependency of affiliated hospitals on programs directed and staffed by School of Medicine faculty balances this dependency and continues to generate strong support for existing programs and promote the establishment of new programs. To illustrate, the School and Jewish Hospital HealthCare Services, Inc. have collaborated on hand transplant surgery with break through implications on an international scale. Over the past three years, they have also collaborated on the experimental, fully implantable mechanical heart system produced by AbioCor Medical. In addition, strong programs in solid organ transplant and cardiovascular disease in general continue with Jewish Hospital HealthCare Services, Inc. and a \$30 million joint venture has provided funding to build the Cardiovascular Innovation Institute facility.

Strong relationships also continue with Norton Healthcare, Inc. especially in orthopedics, neurosurgery, and pediatrics. The Department of Pediatrics' work in neonatology and infant critical care in Kosair Children's Hospital has been nationally recognized. The School and Norton Healthcare, Inc. also recently re-established their collaborative efforts in gynecology with particular focus on urogynecology, reproductive endocrinology, and laparoscopic surgery techniques. Discussions are currently underway with Norton Healthcare, Inc. to re-establish urology as a major surgical focus after many years of absence in Louisville. Finally, a new Kosair Children's Hospital (part of Norton Healthcare, Inc.) fundraising campaign promises multiple new research chairs, a large research endowment, a \$24 million ambulatory building, growth in pediatric medical and

surgical faculty salary lines and increases in residency and fellowship support. A strong relationship also exists in innovative surgery through a joint venture called the Center for Advanced Surgical Technology (CAST). Norton Healthcare, Inc., and Jewish Hospital HealthCare Services, Inc., serve as Board members with the University of Louisville in governing University of Louisville Hospital. The leadership in each of the entities is committed to cooperation to achieve the best possible health care for the region and the Commonwealth, as well as achieving the potential that collaboration brings to each enterprise. In this arrangement ULH has been generating approximately \$8 million annually in discretionary funding for the School of Medicine. Furthermore, new programs in areas such as digestive disease, cancer, geropsychiatry, stroke, and highrisk pregnancy have been developed. Over the last few years, the average daily census has grown. This growth reflects an increase in the number of commercially insured patients, but also a significant increase in the number of indigent patients cared for at the hospital. The School of Medicine benefits from multiple faculty and resident positions supported by the Veterans Administration Medical Center (VAMC), as well as additional research grant funding and educational experiences, which most students rate highly, but, as noted on page 29, the interactions with the VAMC have become strained. The School of Medicine and VAMC leadership held a retreat with a facilitator to improve the relationship. This resulted in a restructuring of the VAMC/UofL Partnership Council. The VAMC CARES initiative has designated that a new VA hospital be built in Louisville. The exact location has not been determined; however, the downtown medical center is one of two options, and the Dean has been appointed to serve on the planning committee.

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Professional Fees

Professional fees of \$99 million in 1996-97 represented 45% of the School of Medicine's budget, compared to \$116.5 million and 40% in 2002-03. The national average for 2001-02 was 33%. Clinical revenues have shown sustained strength and are now complemented by major increases in philanthropy and research revenues. The decline in clinical revenues predicted in 1996-97 fortunately did not occur, and the school has maintained its long tradition of a clinically active and productive faculty. During this period philanthropic support increased manifold due in large part to the private dollar matching requirement of the State's Research Challenge Trust Fund known locally as "Bucks for Brain." In turn, this program has been responsible for the major increase in research support.

Even with increases in average daily census and increased percentages of private patients at University of Louisville Hospital, the School's hospital-based departments, specifically Anesthesiology and Emergency Medicine, continue to suffer from very poor "payor mix" among patients. As a result, Anesthesiology and Emergency Medicine require subsidies from the Dean and

ULH. Due in part to efforts by the Department Chairs and technical assistance from the Dean's Office, the departments improved their financial performance and will break even or better in fiscal year 2005. The long term financial status of each department continues to receive attention by the department leadership and the Dean. At the time of the previous accreditation, the formation of the Medical School Practice Association, Inc. (MSPA) was described as a vehicle for single point contracting and for coordinating the clinical enterprise. It has evolved into a new and more effective organization, University Physician Associates, Inc. (UPA), which is administered by the 15 Clinical Chairs, the Executive Vice President for Health Affairs, the Dean, and the CEO of the University of Louisville Hospital. University teaching clinics have been improved and somewhat stabilized, but still require subsidy. This year, the organization successfully partnered with ULH and the University of Louisville to establish a new medical malpractice captive, Kentuckiana Medical Reciprocal Risk Retention Group, hopefully stabilizing the cost and availability of professional liability insurance for the clinical departments and University of Louisville Hospital. A targeted planning process is underway and active consideration is being given to consolidated practice space, centralized services, and organizational approaches to enhancing internal referrals. Several other new ventures are being considered, most significantly the creation of a clinical practice presence outside of the downtown area-possibly in eastern Louisville and western Kentucky/southern Indiana.

In addition, the established goal of forming University Health Care, Inc. (a provider owned and sponsored Medicaid Managed Care HMO), doing business as Passport Health Plan, has been achieved. Moreover, Passport has grown from the initial 95,000 covered lives to a current membership in excess of 130,000 members and a budget in excess of \$500 million. With its statutory net worth approaching \$30 million, Passport is a stable, high quality provider of care and a successful business operation ensuring the availability of patient revenue and a patient teaching base within the Medicaid population. In addition to clinical revenue, Passport Health Plan continues to annually provide approximately \$7 million in safety net revenue, \$3.7 million in medical education revenue, and \$15 million for Graduate Medical Education (GME) for the Health Sciences Center hospitals. Passport has been a success by any measure.

Practice Plan

A liberal and stable federated model Professional Practice Plan provides incentives for clinical productivity, discretionary funding for the Dean, and revenues for major academic program support for the departments. At the time of the last review, a revision to the practice plan structure had recently been implemented. This structure is now well established and, over the past five years, has resulted in universal faculty compliance. Also, growth has resulted in 2002-03 total practice plan income of \$83.8 million compared to \$76.6 in 1996-97. The Dean's Tax increased from \$3.2 million in 1996-

97 to \$3.6 in 2002-03, and Academic Program Support increased from \$18.1 million in 1996-97 to \$25.4 million in 2002-03.

In fiscal year 2004 Academic Program Support dropped from the previous year due to financial pressures on several practice groups. The financial pressures on the practice groups are not unique, and include lowered reimbursement, delayed cash flow from insurers, and extraordinary increases in malpractice insurance premiums. The Department of OB/GYN was especially affected. With help from new departmental leadership and technical assistance from financial staff of the Dean's office, a revised and aggressive departmental financial plan was developed for fiscal year 2005 and is being implemented. Several other departments also experienced manageable cash deficits and will use reserves or make other adjustments to bring their accounts into balance. The School of Medicine has retained sufficient reserves to meet episodic financial shortfalls if other avenues are not available.

While clinical revenues have not fallen overall, increased financial pressure from reduced reimbursement rates and increased liability insurance rates has created a need for increased time and focus of physician faculty to maintain the clinical revenues. These

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financial pressures have resulted in a changed orientation to financial management. The interim EVPHA and Dean have a concerted and intentional focus on tracking and rewarding responsible departmental financial management, increasing revenues and decreasing costs.

As these changes have occurred, the School of Medicine leadership and faculty have taken steps to insure our commitment to medical education. These steps included adding a significant number of faculty on the term track to provide clinical service and teaching and changing the promotion document to reward those individuals recognized as critical to the School of Medicine mission. In addition, major educational and curricular emphasis and support have been provided by the Dean. All faculty have a teaching assignment and there is strict adherence to annual job assignments in the process of annual review, the assignment of merit pay and in promotion considerations. Research has grown and has always been and continues to be valued and rewarded, and a new research incentive plan has been put in place to facilitate research growth even further. On the whole, we believe that our growth has been balanced among education, research and services, and that our response to financial pressures has been more than adequate to the task faced across the nation.

Capital Funding

Since the 1996-97 accreditation visit, the physical plant for medicine has been expanded, improved, and altered to meet the changing needs of the medical education as well as the research and clinical growth noted elsewhere. These enhancements have been funded through hospital support, philanthropy, university funding and state appropriations. During this time, \$100 million was expended at University of Louisville Hospital on facilities

and equipment upgrades. Two major research buildings were completed, Baxter I (\$28 million) in 1999 and Baxter II (\$42 million) in 2003. A \$40 million cancer center fundraising campaign designed to help achieve NCI designation has resulted in major capital expenditures and construction at the James Graham Brown Cancer Center as well as cancer related inpatient and outpatient renovations at University of Louisville Hospital. This includes the installation of a state-of-the-art tomotherapy radiation treatment unit. Three major buildings near the Health Sciences Center, Med Center I, II, and III, have been funded and constructed or renovated by the Louisville Medical Center Development Corporation (LMCDC), and several educational, research, and commercialization activities of the medical school are housed in these three facilities. LMCDC is a cooperative organization that includes the University of Louisville, Norton Healthcare, Inc., Jewish Hospital HealthCare Services, Inc., and Metro Louisville government (formerly the City of Louisville). LMCDC recently acquired land to develop a new biopark within two blocks of the Health Sciences Center. A Request for Proposals has been released, the University is participating in the selection of a developer, and already discussions about research and clinical opportunities at the site are under discussion. The \$30 million Cardiovascular Innovation Institute has already been funded and construction is just beginning on the Health Sciences Center Campus. A \$24 million pediatric ambulatory building is anticipated in the near future. And finally, a recent response to an RFP for a BSL3 laboratory valued at \$140 million has been filed.

Overall Financial Position

The overall financial position of the School of Medicine is sound, and the financial resources are meeting the needs of the educational objectives. At the close of the most recent fiscal year for each entity, all of the University and related organizations were cash positive. Those educational, research, and clinical activities managed directly through University financial auspices, in total, experienced positive cash flow with approximately \$50 million positive cash flow (most in restricted accounts) at the close of the fiscal year. University of Louisville Hospital ended the year dividing revenues in excess of expenditures between the hospital reserves and construction, and the School of Medicine with \$8 million being allocated to the School. Although there were specific instances of financial stress in certain clinical activities, all clinical entities paid the appropriate Dean's Tax generating \$3.6 million in discretionary funding for the School of Medicine. Overall, revenues have increased substantially with State support relatively stable, clinical revenue increasing, and additional growth in research and philanthropy increasing significantly. However, pressures on the clinical side of faculty activity have often been difficult. The faculty and administrative leadership have reacted appropriately and it is anticipated that the School will continue to grow and diversify as it moves forward to meet its clinical and academic goals.

General Facilities

The School of Medicine facilities are functional and geographically clustered on the Health Sciences Center (HSC) Campus. Overall they project a positive and attractive image. The major facilities for the School of Medicine include the Research Tower, the Instructional Building, and the Library and Commons Building, which, along with the School of Dentistry, make up the HSC quadrangle. Other facilities include the Medical-Dental Research (MDR) Building, the Kentucky Lions Eye Center, the James Graham Brown Cancer Center, Kosair Charities Pediatric Center, the Research Resources Center (animal care facility), the Cardiovascular Research Institute, the Carmichael Building, the Kidney Disease Program Building, and the Abell Administration Center. Additional faculty offices and educational space are also provided in the Ambulatory Care Building (ACB), University of Louisville Hospital, Kosair Children's Hospital, the Veterans Administration Medical Center (2 miles east) and other affiliated institutions.

Classrooms and Teaching Labs

The educational facilities for the first two years of medical school consist of three large lecture halls, twelve unit labs (see page 27), the Alumni Center for Medical Education and a number of small classrooms located in the Instructional Building. The lecture halls have been renovated and provide an effective and comfortable educational environment for medical students. In 2004, the Instructional Building was updated for wireless Wi-Fi Internet access for PDA and notebook usage. Since the last visit, the major auditorium (in the Library and Commons Building) used for school-wide functions and test taking has been completely renovated and all lighting in the auditorium has been replaced. In general, students find the education facilities to be adequate.

In 2001, the School of Medicine opened the Alumni Center for Medical Education (ACME) on the third floor of the Instructional Building. This Center includes the Patient Simulation Center, which supports the medical simulation educational needs of the School of Medicine, the Health Sciences Campus, and the local community. The Center boasts four adult and one pediatric state-of-the-art computer controlled patient simulators housed in separate simulation suites. There are also four portable simulators for use at off campus settings. The Patient Simulation Center provides medical students with opportunities to hone their medical skills before contact with patients. Currently medical students have 24 – 28 formal educational activities in the Simulation Center over their four years. This is anticipated to increase. Contiguous with the Patient Simulation Center is the Standardized Patient Clinic, with eight fully equipped exam rooms and a central control room from which all exam rooms can be monitored and videotaped. The success and growth of the Standardized Patient program has prompted consideration of constructing four additional exam rooms. With the current

curriculum students have about 90 standardized patient encounters in their four years of medical school.

Common Space

The lobby of the Instructional Building was recently refurbished to create a more welcoming environment. Just off the lobby is a modern student lounge; it was recently renovated to provide comfortable recreation and relaxation space for students. "City Café," a popular restaurant, is located across the courtyard in the Library and Commons Building and is open from 7:30 am until 3:00 pm. The new HSC Fitness Center (6,000 sq. ft.), which has a full range of exercise equipment, is also available to students. The Center is staffed by a professional trainer and has over 100 users (mostly students) daily. Outdoor recreational areas include basketball and volleyball courts in the courtyard. These areas are heavily used during good weather. Students also have full use of the extensive facilities on the Belknap campus and can purchase discounted memberships at the nearby Downtown YMCA. A campus bookstore is also located on the HSC Campus.

Faculty Offices and Laboratories

There is adequate office space for faculty. The expansion of the research laboratory space with the opening of Baxter I and II has also increased faculty office space and staff space. The University has also leased 33,000 sq. ft. of space in Med Center I for faculty and staff office space. The School of Medicine expanded its research space dramatically to facilitate the recruitment of research faculty. The two new research buildings, Baxter I and II, house 96 new laboratories and associated office and support space. In addition, the School developed a space allocation system for research space based on dollars (direct and indirect support on grants and contracts) per sq. ft. Over the last four years, this system has been used to reallocate about 15,000 sq. ft. of research space.

To meet the expanding needs of the dramatic research growth at the School of Medicine (projected to continue over the next several years), new research buildings and major renovation projects are in the planning stages. A 265,000 sq. ft. research building that would provide laboratory space for 87 investigators is being planned (but

35 is contingent on state and federal funding), and the new Cardiovascular Innovation Institute, 60,000 sq. ft., will provide laboratory space for 24 investigators. The Medical-Dental Research (MDR) building will also be completely renovated with new laboratories and building systems installed and renovation of the Research Tower will also begin with a complete renovation of laboratories on two floors.

Building Access/Security/Parking

Security for all physical facilities and parking areas on the HSC campus is provided by the University of Louisville's Department of Public Safety (DPS). DPS also provides an escort service upon request for students and employees from their buildings to parking lots. Since the last accreditation visit, DPS has installed card access systems on the exterior of all HSC buildings, and additional

sidewalk lighting has been installed on all the streetscapes within the Medical Center. A branch office of DPS is now located on the HSC Campus on the ground floor of the Abell Administration Center. The security force for the HSC Campus is comprised of police officers (with full arrest capabilities) and security guards who use patrol cars and bicycles to patrol the entire HSC Campus.

Although fewer serious crimes occur on campus than in some of the surrounding neighborhoods, a serious incident occurred in fall 2003. In response to the concerns that followed, security was increased. Effective July 2004, ten additional security guards, each equipped with a police radio, and two additional police officers were added to the HSC security force. The efforts to strengthen security on the campus have improved students' and employees' feelings of well-being both inside campus facilities and in the parking areas.

In order to better serve HSC parking needs, a \$4.9 million garage addition was opened in 2004 that added 462 parking spaces. These spaces were needed due to the increase in HSC students and employees.

Clinical Teaching Facilities

In-Patient Facilities

Students identify the quality of the clinical teaching facilities as a major strength in their educational experience. The School of Medicine utilizes multiple hospitals and clinics to provide clinical training for students. The University of Louisville Hospital with its level I trauma center, the Brown Cancer Center, the Veteran's Administration Medical Center, Kosair Children's Hospital with its Level I trauma center and Level 3 nursery, and two private adult affiliated hospitals (Norton Hospital and Jewish Hospital) collectively provide a robust and diverse inpatient training experience. Students also have the opportunity to spend their third and fourth years at the Trover Campus in Madisonville, Kentucky. The hospital on the Trover Campus is a modern 400-bed regional hospital with all of the facilities needed for medical education. Regarding education, all affiliated hospitals have the quality facilities, patient volume, state-of-the-art technology, learning environment and services necessary to support the educational mission.

The clinical teaching facilities represent a consortium. Institutional affiliation agreements have been developed with University of Louisville Hospital (ULH), Kosair Children's Hospital (KCH) and the Veteran's Administration Medical Center (VAMC); programmatic affiliation agreements exist with Norton Hospital and Jewish Hospital. Of particular note with ULH is the excellent relationship and shared academic vision between the CEO and management of the hospital and the administration of the HSC and the School of Medicine. The link between the ULH administration, the School of Medicine administration and the clinical chairs and teaching faculty is active at several levels. The EVPHA, the Dean of the School of Medicine, the Vice Dean for Clinical Affairs, and the Chief of the Medical Staff at ULH all serve as regular or advisory members of the ULH Board and the Hospital Medical

Executive Committee. The CEO of ULH participates on the board of the University Practice Association, the governing structure for faculty practice initiatives. In addition to these interactions, the ULH CEO meets regularly with the EVPHA and Dean to discuss common concerns and joint endeavors. Similarly, the EVPHA invites the CEO to attend his weekly administrative staff meeting. The finance officers of the ULH and the School of Medicine also meet regularly.

At Kosair Children's Hospital, the Medical Director has a Department of Pediatrics appointment. School of Medicine School staff members are part of the medical staff leadership, and the medical staff presidency generally
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rotates each year between an academic physician and a community physician. Department of Pediatrics faculty members staff the ICUs as well as the Emergency Department. Also, most of the community pediatricians on staff at KCH have gratis faculty appointments at the School of Medicine. Education is an acknowledged mission of KCH, and the level of cooperation, resources and academic space allocated clearly supports the School of Medicine's educational mission.

Ambulatory Facilities

The ambulatory settings are also robust and diverse and include the University teaching and service learning clinics at the Ambulatory Care Building (ACB), general pediatric and full pediatric subspecialty clinics, faculty private practice offices in primary and subspecialty care and numerous community ambulatory sites. Full-time faculty members provide teaching and supervision in many of these ambulatory settings. In addition, gratis faculty members in the local community and throughout the state also provide clinical education.

Regarding ambulatory sites, some faculty express concerns that the resources allocated to operating the ACB clinics are not adequate to support faculty teaching efforts. An external consultant has been brought in and discussions are underway to explore a different operating model for the clinics. However, from the medical student perspective, students consider their clinic experience at the ACB to be good. For the various ambulatory sites away from the main campus, clinical clerkship directors work closely with full-time and gratis faculty to educate them about the overarching objectives of the educational program. All students are also required to participate in rural/intercity ambulatory experiences during both the third and fourth years. The eight Area Health Education Centers (AHEC) located throughout Kentucky provide high quality coordination for these educational experiences. The Director of our Special Programs Office is also the Director of the statewide Kentucky AHEC program for both the University of Louisville and the University of Kentucky. Overall, the quality of the clinical teaching facilities enhances and supports the educational program. Students frequently comment that the volume and wide variety of clinical opportunities offered are reasons they chose to attend this medical school.

Library

The Kornhauser Health Sciences Library, one of eight libraries that comprise the University of Louisville Libraries system, serves the students, faculty and staff of all academic programs on the HSC campus as well as the citizens of Louisville and the State of Kentucky. The University Libraries recently achieved membership in the Association of Research Libraries, a distinction awarded to only 123 of the more than fourteen hundred academic libraries in the country. The University Libraries are also members of the State-Assisted Library Consortium of Kentucky and the Kentucky Virtual Library, which provide access to a vast array of electronic resources through cooperative agreements. Most specifically, the Kornhauser Library serves as a Regional Resource Library of the Greater Midwest Region of the National Networks of Medical Libraries, providing access to DOCLINE, which allows users to obtain books or copies of almost any health sciences document at minimal or no charge. In addition, the Kornhauser Library is a member of several local and regional consortia of health sciences libraries, which include academic medical centers, hospitals and special libraries throughout our area, providing reciprocal borrowing, cooperative purchasing agreements, and shared resources.

The Director of the Kornhauser Library, who reports to the Dean of Libraries on the Belknap campus, has been very responsive to School of Medicine needs. The library staff includes 7 professional, 14 clerical support, 3 technical specialist/paraprofessional and 4 student/hourly support personnel. Although a 2001/2002 survey of the health sciences libraries at 14 institutions (13 benchmarks plus the University of Kentucky) indicated that the Kornhauser Library ranked in the bottom third in librarians, staff, and budget, users indicate that the library provides a high level of service and convenience. That said, however, the library building has not undergone significant renovations/expansions or improvements since opening in 1971, and shelf space is full. Also, access to the library is not optimally ADA compliant. A user in a wheelchair must ring a bell to access an elevator and be admitted to the library.

Holdings and Services

As evidenced by surveys of students and faculty, one of the strengths of the Kornhauser Library lies in its holdings and services, especially resources available through remote electronic access. In fact, the availability of electronic medical resources has revolutionized how information needed for education, research and clinical

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service is accessed. The library maintains a well-designed, easy to use Internet portal that allows remote access to all of its electronic resources, such as Medline and other databases via Ovid, clinical and health information resources, journals, books and other reference resources. The Internet-based "ILLiad" interlibrary loan management system provides easy and generally fast access to

resources that the library does not hold or subscribe to. The increases in the library budget that have occurred over the last several years have largely been allocated to increasing electronic resources. Electronic journal subscriptions have doubled in the last two years.

Convenience and Usability

Surveys of medical students indicate that they are generally satisfied with the functional convenience and accessibility of the library, with students in the clinical years scoring these qualities even higher than do students in the preclinical years (data from Student Self-Study).

The library is open 7:30 am -11 pm, Monday – Thursday; 7:30 am - 6 pm, Friday; 10 am - 6 pm, Saturday; and 1- 9 pm, Sunday, with extended hours provided during exam periods. The hours are appropriate. Within the library, there are seven group-study rooms, large tables where students and faculty can spread work out, and 44 single person carrels where students can find quiet study space. There are, however, no classrooms. Computer access within the library includes 26 public workstations and 12 laptop computers with wireless access available for checkout within the library. In addition, the Kornhauser Library Web Portal, which creates access to information electronically from anywhere via Internet access, makes frequent trips to the library unnecessary.

Contribution to Education

The assistance provided by the librarians, and their competence in training users on library skills, for example, retrieving and managing information electronically, received the highest scores on user surveys. The library maintains a help desk near the entrance, and, when requested, librarians make personal visits to departments to help users. Training opportunities are marketed electronically and via posters and fliers in the library and around the campus. The library also maintains a listserv, "KornNews," to distribute announcements on library classes and services. Librarians also serve on a variety of committees that support medical education including the Educational Policy Committee (EPC), the School of Medicine Technology Committee, the Course Directors Committees, and others. Librarians also attend the student leadership meetings hosted by the Senior Associate Dean. Library staff worked closely with the EPC to develop a set of library and information technology "Core Competencies" for first year medical students.

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Computer/Information Resources

Under the direction of the Vice President for Information Technology on the Belknap (main) Campus, the University has implemented a network infrastructure utilizing a gigabit Ethernet and an intercampus fiber optic ring to create a 4-gigabit backbone network with access to Internet 1 and 2. The University serves as a dial-up internet service provider offering low-cost service for its students, faculty and staff. The Louisville Medical Center facilities, including the

School of Medicine, ULH, Jewish Hospital, Norton Hospital and Kosair Children's Hospital, are connected by highspeed fiber to form LMCnet, which is used for educational and library resources. Wireless access to the network is currently available in parts of the HSC Plaza, Kornhauser Library, the Instructional Building, Abell Administration Center and the K-Building. Expansion to other areas of the HSC is ongoing.

The School of Medicine is also supported by a University Informational Technology (IT) staff member. This individual meets regularly with the relevant educational and technology committees on the HSC campus, assists the School of Medicine with long-term technology planning, and provides information on emerging technologies and services. Computer support is organized via a Two-Tier structure. Tier 1 personnel provide school or department specific training and support while the University IT unit (Tier 2) provides technical expertise, planning, standards, training, HelpDesk (24/7) and maintenance of Universitywide systems. Some departments do not have an inhouse departmental Tier 1 support person, so response times can sometimes be lengthy. Opinions regarding the effectiveness of this organization and planning are mixed. The School of Medicine has a representative on the Academic Technology Committee, which provides advice on University-wide technology planning. Additionally, both the EVPHA and the Dean serve on the Strategic Technology Executive Committee, which has input into the University's strategic technology planning process and advises the President on University-wide technology issues. Adoption of University-wide standards and software provides a relatively uniform technology environment to facilitate accomplishment of the School of Medicine's mission. These standards/software include the UofL Information Network (ULink) for Internet access to University technology and services; GroupWise for email, calendar and scheduling; Blackboard for course management; Norton's for virus protection; and the Microsoft Office Suite for daily educational and administrative tasks.

School of Medicine Specifics

A Technology Coordinator was recently appointed by the School to provide better coordination and management of the School of Medicine's computer and information resources. The Coordinator serves on the School of Medicine Technology Committee and other educational committees and works closely with student representatives and with the Office of Medical Education.

University IT operates a computer center/classroom with 33 workstations that can be used for computer-based instruction or for drop-in use. In addition, the School of Medicine supports the 48 workstations in the small group rooms (see page 27). All of these resources are available to students 24/7. Three large lecture halls (used for preclinical courses) and twelve additional HSC classrooms, which accommodate 20-130 students, are equipped with computer-driven data projection technology. Several classrooms are equipped for distance education

delivery; however, some of the computer and AV equipment is becoming dated. Although there is no annual budget in the School of Medicine specifically set aside for replacing this equipment, the upgrade and replacement of computers are usually able to be accomplished. Support for classroom AV equipment is currently provided through a service level agreement (contract) with University IT, while the computer equipment is under School of Medicine supervision. Bringing both under School of Medicine supervision would lead to better integration and service. Computer and audiovisual facilities and resources for education and students are adequate.

In addition to technology equipment and these services, all of which facilitate and enhance the educational process, the School of Medicine has been recognized nationally for its innovative Personal Digital Assistant (PDA) program. Each incoming student receives a PDA pre-loaded with reference software and a patient-encounter log developed in-house. It should be noted that first year students this year (2004-05) voted to delay purchasing their PDAs until spring 2005, when a "new generation" of wireless PDAs will become available; the administration supported the students' decision. The PDAs are used appreciably in the preclinical years but more extensively in the clinical years for drug and clinical consult and patient management information. The School of Medicine has also implemented a web-based course evaluation system, "CoursEval," for collecting student feedback on all required courses and clerkships. Awards for Curriculum Innovation Through Technology are presented annually to faculty, staff and students.

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Strengths and Concerns

Strengths

- Success at achieving admission goals related to diversity and non-academic qualities (e.g. communication skills, maturity, commitment to service) while, at the same time, increasing the academic quality of the incoming class (as measured by MCAT and GPA scores)
- An effective academic program learning environment and student support services that have facilitated progressive improvement in student performance, ~20th percentile on MCAT, 40-50th percentile on USMLE Step 1 and 50-60th percentile on USMLE Step 2 and success in the NRMP
- Excellent in-patient and out-patient clinical facilities with a diverse patient base for the educational program which are the result of multiple hospital partners and a faculty who are committed to educating students and are also clinically strong and productive
- A new and improved educational management structure that emphasizes active partnering with faculty and students and strong decanal support, oversight, and improvement of the curriculum

through the Educational Administrative Committee (EAC), the Educational Policy Committee (EPC) and the new Office of Medical Education

- Significant investment in medical education as visibly evidenced by construction of the Alumni Center for Medical Education, which houses the Standardized Patient Clinic and the Patient Simulation Center, and implementation of the PDA initiative
- Innovative state funding for research and strategic use of the funding by UofL, which have led to a substantial increase in new research space, establishment of interdisciplinary research centers, recruitment of a number of strong faculty and a tremendous increase in research productivity as measured by quantity and quality of publications and by extramural grant support
- An especially strong working relationship and shared medical education vision between the School's administration and the CEO and management of UofL Hospital and continued support from other medical center hospital partners

Concerns (Prioritized)

- The need to continue to change the educational culture, which is currently more focused on individual courses and clerkships than the educational program as a whole and has just begun to utilize the objectives for the educational program for planning course content, learning experiences, and assessments
- Lack of functional processes in most disciplines for determining the number and types of patients and clinical settings students must be exposed to in order to achieve individual clerkship goals and then monitoring outcomes and actual student-patient encounters
- While clinical revenues have not fallen overall, increased financial pressure from reduced reimbursement rates and increased liability insurance rates have created a need for increased time and focus of physician faculty to maintain clinical revenues
- Need to fill the permanent EVPHA and Dean positions and permanent chairs in Surgery and Anesthesiology
- Limited intramural research funds to support start-up packages and new projects and to bridge funding gaps, particularly for junior faculty
- Financial difficulties experienced by the hospitalbased departments and the need for significant subsidies
- Financial/program dependence upon hospital partners and vulnerability to their changed financial status and occasionally competing agendas, including the VAMC's decreasing emphasis on education and research
- Too few minority faculty
- Lack of full implementation of a centrally coordinated and monitored training and evaluation system for all

individuals (especially residents) who participate in medical student teaching

- Need to increase clerkship director interaction with Trover Campus faculty

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Changes/Potential Changes Since the 1998 Site Visit

1. Medical Education/Curriculum

Since 1998 the Office of Curriculum has been renamed the Office of Medical Education (OME) and has been reconfigured and expanded (with staffing increasing from 3 to 19); in addition, significant changes have been made in the educational program. These changes include the development of competency-based objectives for the educational program. These objectives have undergone several revisions, and serious efforts are underway to increase faculty and student knowledge of the objectives and, ultimately, use of the objectives to drive curriculum planning and evaluation. The latter is just beginning. To support the work of the OME and the implementation of the educational objectives, the Alumni Center for Medical Education (ACME) was constructed in 10,000 sq. ft. of space on the third floor of the Instructional Building. The Alumni Center includes a high tech auditorium, the Standardized Patient Clinic, the Patient Simulation Center and offices for OME and Medical Education Research Unit (MERU) staff. The Standardized Patient and Patient Simulation programs represent major initiatives that have been well integrated into all four years of the curriculum and are used for both teaching and evaluation.

To facilitate central coordination of the curriculum and related activities, a new educational management structure centered around the Educational Administrative Committee (EAC) was implemented. The EAC consists of the Vice Dean for Academic Affairs, the Senior Associate Dean for Students and Academic Affairs, the Associate Dean for Curriculum and the Associate Dean for Medical Education. The EAC meets weekly and oversees interdepartmental courses, coordinates the Program Advisory Council (a senior level faculty "think tank" that works mainly in subcommittees) and provides oversight to the Student Process Improvement Committees, which report to it. The EAC also advises the Educational Policy Committee (the School's curriculum committee) and interacts with department chairs as needed.

Finally, educational activity at the Trover Campus in western Kentucky has been greatly expanded. Since the early 1970s, students have been taking single rotations there. However, since the last site visit, a full-time Associate Dean and a Director of Student Affairs have been added to the Trover Campus. Since 2000, students have been able to take their entire third and fourth years there. On average about six students are accepted for this option each year. The program is working well and students are very positive about their experience.

2. VPHA/Dean

In late 2003 the President separated the positions of Vice President for Health Affairs (VPHA) and Dean. Many years

ago these positions were held by two different individuals, but in recent years they had been combined. The VPHA position was elevated to Executive Vice President for Health Affairs (EVPHA) and became part of the Office of the President. The EVPHA and the President, along with the Provost and the Senior Vice President for Research, now constitute the Office of the President. The purpose of this reorganization was strategic - to unite the campuses of the University and to move toward becoming "a life sciences university." Currently there is an Interim EVPHA and an Interim Dean. The search for the permanent EVPHA is well underway and the search for the permanent Dean will begin soon. This timing will allow the permanent EVPHA to lead in the selection of the permanent Dean. As these two permanent positions are filled, division of resources will certainly be one of the issues.

3. Research

Since the last site visit, the School has made tremendous progress in research. This progress is a direct result of State government and University leadership focusing resources on the goal of becoming a "major research university," in which the School of Medicine would play the central role. The University has received \$100 million from Kentucky's Research Challenge Trust Fund. Of this funding, \$47.5 million has come to the School of Medicine and has been matched one-for-one in private giving to provide the School with a total of \$95 million. These resources have been spent wisely to recruit and retain prominent researchers, to facilitate their work and to essentially change the research culture. NIH funding has increased 270%, the number of endowed chairs has risen from 19 to 33 and the number of postdoctoral research fellows has increased from 31 to 103.

4. New Facilities and Facilities Upgrade

Since the 1998 visit, \$100 million has been spent to upgrade the facilities at the University of Louisville Hospital. Two major research buildings have opened – Baxter I (\$28 million) in 1999 and Baxter II (\$42 million) in 2003. A third and larger facility is under design, but is dependent on state funding. Major construction and upgrading at the Brown Cancer Center has occurred as part of a \$40 million fund raising campaign. In January 2005 construction began on the \$30 million Cardiovascular Innovation Institute. Three major buildings near the HSC, Med Center I, II and III, have been built or renovated by the Louisville Medical Center Development Corporation.

These facilities are being rented for academic and
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administrative activities of the School and are serving as incubator facilities for emerging research companies. Finally, a \$24 million pediatric ambulatory care building is anticipated in the near future.

5. Veteran's Administration Medical Center (VAMC) relationship

For the past several years, the School's relationship with the VAMC has been strained, due primarily to an expanded VA focus, both nationally and regionally, on patient care at the expense of educational and research activities. For the last year, the medical school leadership has been

working actively with the VA leadership to address these joint concerns constructively. Recently they held a halfday retreat. In addition, the VA CARES Report recently recommended that VA services and facilities be expanded in the Louisville area. One option would be to build a new VA hospital in the HSC area. The Dean serves on the committee reviewing these options.

As the above discussion makes clear, the last seven years have been very positive for the University of Louisville School of Medicine. Major resources have been made available to the School, and they have been converted into significant progress in the educational, research and clinical programs. We have now entered a period of much more limited resources and face the challenge of maintaining the momentum and building upon it. To date, this effort has been successful. We foresee no obviously overt problems in the near future, but there are sure to be challenges.

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Major Recommendations for the Future

1. Objectives for the Educational Program

The efforts to integrate competency-based objectives for the educational program into the individual courses and clerkships must remain a priority. Although course and clerkship directors are aware of the program objectives, their actual use of the objectives must be greatly expanded. A poster campaign planned for January-March 2005 should increase awareness of the objectives among teaching faculty and students. Use of the objectives for curricular planning and evaluation must then follow. A subcommittee of the Program Advisory Council is currently working with individual course and clerkship directors to match, and ultimately align, their learning objectives to the program objectives. As this effort proceeds, we anticipate that gaps, redundancies, etc. will become apparent and that curricular changes will be required. The EAC and the Educational Policy Committee, with the support of the Dean, will ultimately need to require and facilitate these curricular changes to ensure that all students master the School's educational objectives and that the educational program is driven by a centrally coordinated curriculum.

2. Requiring Specified Patients, Pathologies, Procedures, etc.

Recently the clerkships have been defining the numbers and kinds of patients and the clinical settings needed to master the learning objectives of an individual clerkship. (The University of Louisville has excellent clinical facilities and a large patient population; historically, the assumption was that patient exposure was adequate. Clearly, that assumption is no longer an acceptable one.) The OME has been assisting the clerkship directors with these initial efforts. One approach is to use a PDA to record patient encounters (PDAs are provided to all students in the first year). Establishing standards in each clerkship for the kinds and numbers of patients and the clinical settings that

students must be exposed to, and a process for monitoring student progress toward achieving these standards, must be required. In addition a process for making needed corrections during the course of a clerkship will be needed. The EPC will be responsible for providing oversight to assure that these standards are achieved and that these processes are successful.

3. Relationships with Partner Hospitals

It is essential that the School of Medicine continue to build upon its relationships with its partner hospital organizations. These partners include ULH, Jewish Hospital HealthCare Services, Inc., Norton Healthcare, Inc., VAMC and Trover Clinic Foundation. The relationship with the VAMC has been strained and the School very appropriately has initiated a formal process to improve the situation. If issues threaten the relationship with any of the other partner hospitals, the School must be aggressive in working to maintain a strong but fair relationship.

4. Clerkship Director Presence at Trover Campus

The student experience at Trover Campus has been excellent. In many ways the communication between the Louisville and Trover Campuses is very good. The Associate Dean at Trover teaches a course on the Louisville Campus and thus is present on those days and other days when he is needed. He also interacts with groups in Louisville by ITV and telephone conferencing. Members of the OME make regular visits to the Trover Campus. However, the presence of clerkship directors visiting the Trover Camps is not adequate. The Dean's Office, through the EAC, will begin to facilitate and monitor clerkship director interaction with the Trover Campus. Some of this interaction may be electronic, but some interaction will also need to be face-to-face.

5. EVPHA and Dean Positions

The EVPHA and Dean positions are currently filled on an interim basis. The search is well underway for the EVPHA. Great care must be taken to fill these positions and to provide the individuals who take the permanent positions with the resources they need to be successful.

6. Training Residents to Be Teachers

An Acting Assistant Dean has been appointed to meet this need. In summer 2004, he began this process with training sessions with new residents on how to be good teachers and with a session for rising third year medical students on how to ask for and provide constructive feedback to resident teachers. He is now working department-by-department to provide additional training. The quality of resident teaching will continue to be monitored by the processes that are already in place and the program will be adjusted as appropriate.

7. Minority Faculty

The School of Medicine established major programs in 1984 to recruit and assist minority students and faculty. Very good progress has been made with students. (The graduation rate of URM has increased from 64 to 90% and the number of graduates has increased from 2.5 to 10.5

44 individuals/year.) Only minor success has been made with faculty. The University has launched a major diversity

program aimed at faculty and the School of Medicine is playing an active role in that program.

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