COLLEGE OF MEDICINE
CLASS SIZE
FEASIBILITY STUDY

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I. INTRODUCTION

Several initial assumptions frame this study:

- University of Kentucky College of Medicine will continue to enroll a class with aggregate qualifications highly similar to current classes
- The aggregate faculty:student ratio will remain similar to the present one
- The structure of the curriculum will be similar to the present Kentucky Curriculum
- Student support services will continue at present levels on a per student basis
- Student facilities will continue at present levels on a per student basis

For most of the changes considered below, these assumptions remain reasonably valid. However, at the upper levels of class size, some modification of these assumptions appears necessary and will be detailed in the discussion.

A significant additional impact will occur in certain basic science courses where dental students are presently integrated into the class. These additional effects will be stated separately and no assumption as to the continued medical-dental integration is made.

Conclusion:

The major conclusion of this study is that increasing medical school class size can be seen as a discontinuous process incorporating three levels conceptually or three phases operationally.

The three levels/phases are:

- Expansion: From the present 95 students to 103
- Renovation: From 103 to 115
- Construction: From 115 to 150

Expansion: 95-103 Students

This phase could be accomplished with only minimal changes in faculty and support staff and without significant alterations in admissions, facilities, or curriculum.

Renovation: 103-115 Students

This phase would require renovation of classroom facilities and some renovation of student facilities. There would be necessary curriculum renovation, particularly in the multidisciplinary courses such as Introduction to the Medical Profession I and II, Patients, Physicians, and Society I and II, and Healthy Human as well as third-year clerkships, particularly pediatrics and obstetrics and gynecology. The admissions process would also have to be renovated with a move towards recruitment rather than the current emphasis on selection.
Construction: 115-150 Students

This phase would require construction of new facilities and a significant reconstruction of certain components of the curriculum. Construction of an education center with adequate lecture and small group rooms, student study and locker space, as well as academic support units may be the most efficient approach. Significant new partnerships or expansion of the clinical enterprise would be necessary for several 3rd year clerkships. Admissions would have to develop an emphasis on national recruiting while scholarships would be available to a smaller proportion of the class. Some of the initial assumptions at the beginning of this report would have to be reconsidered within this phase.

We will discuss each of the four major areas in light of the three levels outlined above.

II. ADMISSIONS AND REVENUE

A summary of admissions for the last 16 years is reproduced below in Table 1.

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Table 1

Any increase in class size is contingent upon admitting increased numbers of adequately qualified students. Faculty feedback shows strong sentiment for maintaining the existing quality of students admitted to the College of Medicine. There is no support, nor would it be appropriate, to lower the standards for graduation. The College makes an enormous commitment to each and every student admitted. The current attrition rate of 1.1% is at the national mean. It is highly desirable to maintain this rate since students who are unable to navigate the curriculum consume considerable faculty and staff resources. These considerations are paramount in light of the decreasing applicant pool in Kentucky and nationally.

We now quote from the admissions report of D. Kay Clawson, M.D. (Appendix A).
The first question to be addressed by Admissions is the Kentucky Applicant Pool and relate this to the number of Kentuckians attending medical school in the State. The pool of Kentucky applicants has been declining steadily from a high of 640 in 1995 to 472 in 2002. The applicant pool for this year does not appear to be any higher. From this the University of Kentucky admitted 89 Kentuckians, University of Louisville 128, and the breakdown is not clear for the Osteopathic School at Pikeville but it is approximately 60. This means there were 149 applicants that did not enter positions in Kentucky last year. For comparison, states of similar size, Kansas 426 applicants of which 156 were admitted leaving a pool of 270; Oregon with 304 applicants admitted 57 leaving a pool of 247; Utah with applicants of 426 admitted 79 leaving a pool of 347. For larger states, Minnesota with 1 private and 2 public medical schools had 563 applicants, admitting 192 leaving a pool of 371; Tennessee with 614 applicants for 2 state schools and 2 private schools admitted 340 leaving a pool of 274; Washington which covers as in-state Washington, Alaska, Idaho, Montana, and Wyoming had a combined applicant pool of 934, admitting 165 leaving 769 in the pool; and California with 3,858 applicants to 5 state schools and 3 private schools admitted 763 leaving an applicant pool of 3,095.

This data is important in that it is believed that few highly qualified students from Kentucky are denied admission to one of the three schools. This is born out by the fact that of the 135 students accepted initially to fill our class of 95, the combined average MCAT score was 30 and the accumulative grade point average was 3.71. For the students taken from the Alternate List, who eventually filled the class, the average MCAT dropped to below 27 and the average grade point to 3.57. The Pikeville College School of Osteopathic Medicine lists in its brochure of 62 students matriculating in 2003 the composite or average MCAT was 23 and the overall grade point average 3.4.

To further emphasize the competition for the so-called “best and brightest students,” particularly if we are looking for students with potential to be academic leaders and researchers, this past year the Scholarship Committee rated all the students considered eligible for scholarship and of their top 10 students only 2 accepted our scholarship, 8 went to other medical schools.

In summary it is our feeling that we have generally saturated our admissions from the in-state pool and to significantly expand matriculation we must look to the out-of-state pool.

We have normally limited our out-of-state recruitment primarily to students with significant Kentucky ties, as the yield from the other groups has not been high. We have been offering admission to between 12 and 20 out-of-state students with Kentucky ties in order to enroll between 6 and 10 students. This is significant from the standpoint of the operation of the Admissions Office in that if we are to try to significantly increase our out-of-state pool, we must increase recruitment, process significantly more applications, and conduct far more interviews.

The expansion phase up to 103 students could be accommodated by the existing admissions process. The additional eight students could be 50% in-state and 50% out-of-state.
The next phase, 103-115, requires a renovation of the admissions process and staffing. Returning to Clawson’s report:

**Current challenges in the admissions process:** As a consultant that has viewed the admissions process in over 30 medical schools as faculty, administrator, or surveyor for the Liaison Committee on Medical Education (LCME), I would like to make the following observations. In the current space of 560 square feet is housed the office and workspace of 4 people plus the files on all applicants. Within that square footage is a small room that houses files and is used jointly by others in the Office of Academic Affairs. During the course of a week some 18 people from the Admissions Committee will spend upwards to 5 hours reviewing files on applicants. In addition, the space is used for the members of the Scholarship Committee to review files. The inadequacy of this space is not only my view from reviewing that of the many other schools that have 2 to 3 times that space but has also been commented on by site visitors for the LCME, and the President of the Association of American Medical Schools. If we were to increase our admissions’ activity, we would need at minimum one additional staff person at level 39, at least for the months of August through February. We would also need to increase our space by approximately 300 square foot to accommodate that individual plus the increase in files, and the need for more space for the admissions committee members, as well as the increased number of students coming through for counseling.

In addition, at the present time we are limited to the number of students that we can bring in to interview at any one time. This limitation during weekdays is usually because we are unable to find office/rooms that can be freed up for the interviewers. On Saturdays when we can find enough office/rooms we are unable to recruit sufficient interviewers. This becomes more acute in the winter months as we rely heavily on retirees, many of whom depart for warmer climates after Thanksgiving. An example of the difficulty of expanding the interview pool is that each year we offer classes for interviewers, but usually are unable to attract more than 8 to 10 faculty. This year I have offered to do private sessions at the convenience of the faculty and, indeed, extended it to practicing physicians who are loyal alumni. To date I’ve had no takers on the latter although several have indicated interest. Two have cancelled appointments because of clinical commitments. Those that have completed the training session are usually not able to give us more than 4 or 5 dates in which they can be available. To increase the availability of interviewers, it would be important to look at some way of rewarding those who are dedicated and complete a significant number of interviews such as paying their way to one or more medical meetings of their choice, etc.

Having stated all of the challenges, it would still appear that it would be desirable to increase the number of out-of-state residents that are enrolling in our college of medicine, even recognizing that approximately 50% of those admitted will somehow qualify for in-state tuition by the time they register or within the first year of medical school.

Emphasis should be on recruiting individuals who have a real research potential and are possibilities for our MD/PhD Program and eventually for a faculty position.
If it is decided to move to this new direction, it would seem highly desirable to hire a charismatic, qualified recruiter to visit colleges and universities in-states that have an excess of students to in-state medical school slots, and to set up a tracking mechanism to keep in close contact with those students admitted from the time of admission (usually the fall) until they must give up their dual enrollments in other schools and make their selection. Additional space and secretarial staff would be required. Such an individual could be shared with other Colleges of the Medical Center. (This ends Dr. Clawson’s report.)

At 103-115 an additional staff person and 300 sq. ft. of space in the admissions area are required. A shift in admissions focus to additional out-of-state students would be necessary and the organizational approach of the office would have to transition to recruitment and selection.

To move into the 115-150 Level a national recruiter, possibly shared with other areas of the University, becomes necessary.

Summary of costs:

95-103 : Operational expenses $1,500-$2,000
103-115 : 1 Grade 39 position, $5,000 operational, 300 sq. ft.
115-150 : Above plus national recruiter $60,000-$75,000

Revenue:

Revenue calculations are affected by two assumptions:
1. The proportion of new students who are out-of-state
2. The conversion to in-state rate for out-of-state students

Dr. Watt has proposed a contract approach to tuition charges. Students would sign a contract for a specific sum for their education. Both they and the University would be bound by this contract for a specified time. This addresses the current problem wherein approximately 50% of out-of-state students achieve in-state status by the end of their first year. The College of Dentistry is presently investigating the possibility of tuition contracts. The contact person is Julie Jakway.

For illustration we assume 50% of the class expansion is out-of-state and that the present 50% conversion rate applies up to 115. Above 115, we assume 80% out-of-state with 50% conversion rate.

\[
\begin{align*}
I &= \text{In-state tuition, currently $13,604} \\
0 &= \text{Out-of-state tuition, currently $31,996}
\end{align*}
\]

\[
\begin{align*}
95 \to 103 & \quad 4 (I) + 2 (I) + 2 (O) = \$145,616 \\
95 \to 115 & \quad 10 (I) + 5 (I) + 5 (O) = \$364,040 \\
95 \to 150 & \quad 10 (I) + 5 (I) + 5 (O) + 7 (I) + 14 (I) + 14 (O) = \$1,097,668
\end{align*}
\]
The formula for X students where X>115 and (I) and (O) are in-state and out-of-state tuition respectively.

\[ 15 (I) + 5 (O) + .6 (X-115) (I) + .4 (X-115) (O) \]

The amounts are per year. Once fully implemented, the increased revenues under various scenarios defined above would be X4:

- Level I - $582,464
- Level II - $1,456,160
- Level III - $4,390,672

III. FACILITIES

A. Student Support

1. Library

   It should be noted at the outset that the size of the library and the inadequacy of available student space have been issues at Liaison Committee for Medical Education (LCME) site visits in the past, but were not listed as items requiring corrective action at the most recent LCME visit.

   The library is losing 91 seats in the AV Library to the Teaching and Academic Support Center (TASC) facility. This will bring total seating and study space in the Medical Center Libraries to 229 from its current 320. This makes the student:seat ratio 380:229 = 1.66. Maintaining the same ratio to 115 requires 48 extra seats, and 150 requires 132 additional seats.

   In addition to seating, the library would require consideration of computing and printing facilities, operating hours, professional staffing, infrastructure, and general services. The extra costs, excluding the additional seating above, is in the neighborhood of $65,000-$70,000. The full report is enclosed as Appendix B.

2. Lockers

   The newly renovated student lounge has about 420 lockers. LCME requires each student to have an individual locker available. We presently have 380 students, leaving about 40 extra lockers. Phase I would expand by 8 students/year adding 32 additional students. A few extra lockers are necessary for turnover and repair.

   The second phase to 115 would require renovation to add 50 more lockers.

   The third phase requires construction to add 180 additional lockers. Without an architect, we are not sure if this can be accomplished in the existing space.
3. Study Space

Study space has been previously cited by LCME as inadequate. The addition of the Learning Center on South Limestone brought it to an adequate level for the recent accreditation. The Phase I expansion is probably workable with the new facility.

Phase II probably needs an additional two rooms. Phase III needs new construction adding 6-7 additional study rooms.

Additional student support detail is incorporated in Appendix C.

4. Academic Computing in Medical Education (ACME)

Analysis of the effects on Academic Computing is enclosed in Appendix D. In summary, dedicated workstation to student ratio is 1:20 while the ratio for study and duty workstations is 1:65.

- Phase I – 2 dedicated and 1 study/duty workstation
- Phase II – 4 dedicated and 2 study/duty workstations
- Phase III – 10 dedicated and 3 study/duty workstations

5. Any increase in the numbers of students will have other generalized infrastructural effects. Examples include increased demands for post office boxes (which are now at capacity), postal, cafeteria, and housekeeping services.

B. Curricular Facilities

A consistent issue raised by multiple reports is the significant impact on classroom facilities. We will start with Basic Science courses.

1. Basic Science
   a. Lecture facilities

   The MN-63 series lecture halls in the College of Medicine with medicine priority (MN-263, 463) hold 127 to 128 students. These lecture rooms would accommodate Levels I and II for those courses that do not include the 40-50 dental students. Integrated medical-dental classes must presently use HSLC-201, which will seat 298. For Levels I and II these courses and any additional integrated courses would need to share this one room.

   The logistic problems for an integrated medical-dental class are summarized in the report from Dr. Jacob, Appendix P.

   To move to Level III would require construction of new large lecture rooms to accommodate 150 students. If the degree of medical-dental integration stays fixed, then two such rooms are required. If more integration occurs, then one or both of these rooms should be expanded to 200.
b. Small group rooms

Current practice in medical education emphasizes small group learning over large lecture. The College is presently limited in available small group rooms.

Level I expansion would push small group rooms to the limit, but could probably be done without facility expansion.

Level II requires renovation of space to provide two additional small group rooms.

Level III requires construction of four additional rooms. At this point, constructing the total of six might be more cost effective than a mix of renovation and construction. Expansion to 150 would need six rooms total to keep the current student:space ratio. Presently 11 rooms are available for 400 students. To expand by 220 students, six rooms would be necessary. Available rooms are summarized in Appendix E.

c. Laboratory

Several courses currently use the MS-233 laboratory. This can accommodate 105 students, sufficient for Level I. There is some thought that it can be renovated to hold up to 115, which would accommodate Level II expansion. To move to Level III would require construction of a new laboratory facility.

Students also use the Human Anatomy Laboratory MS-203. Level I could be accommodated with existing facilities although additional microscopes and materials are necessary and facilities would be stretched to the limit. Level II expansion would necessitate renovation of the Anatomy Laboratory and significant additional supplies (Appendix F). Level III would require construction of a new Anatomy Laboratory. The specific laboratory requirements are detailed in Dr. Gash’s report in Appendix F.

2. Clinical Sciences

The facility requirements for clinical rotations are more difficult to estimate as there is considerable variability in student:clinic ratios across disciplines.

a. On-call Rooms

Several clerkship rotations require students to stay in the hospital overnight. Existing sleep rooms are very limited and any increase in student numbers would need proportionate increases in sleep rooms. There are presently four rooms with eight beds for 380 students of which 190 are in clinical years. Maintaining this ratio would require 0 rooms for Level I, 1 room for Level II, and 2 rooms for Level III.
b. Clinic Space

The present third year class consists of 105 students. This size class has caused significant scheduling and clinic placement problems. The problems have been particularly difficult in Pediatrics, OB-GYN, and AHEC placements. This sets the limit of Level I expansion. To give some flexibility for repeats, transfers, etc., 103 is the upper limit with existing facilities. Level II would require renovating rotations to provide additional clinic and inpatient sites. There is some thought that this could be done with existing clinical enterprise facilities by switching more students from general clinics to specialty clinics or putting more students per ward/clinic team. Both of these changes have potential significant educational and LCME accreditation implications. This is discussed in detail in the reports from Pediatrics (Appendix R), OB-GYN (Appendix S), Internal Medicine (Appendix W), and Family Practice (Appendix V). There are serious concerns that Level II would require additional clinical facilities and patient volume. Expansion to Level III unequivocally requires expansion of the Clinical Enterprise or new clinical partnerships to provide adequate patient volume. Dr. Nelson notes in the Pediatric report (Appendix R), that the average community-based faculty (CBF) member spends 45 additional minutes per day in the office when a student is present. We do not compensate CBF, and all of the reports above raise serious questions about the impact on CBF of significant expansion. This problem may be the single largest barrier to expansion to Level III. Failure to resolve this problem at both Levels II and III could have profound consequences for clinical education and possibly accreditation. Innovative solutions may need to be considered. Some, such as creation of a rural track or incorporating new institutions into a rural track are briefly discussed in Section V-B.

IV. SUPPORT SERVICES

A. Student Services

Any increase in students will necessitate increased student support services. Present support is maintained by 2.5 administrative/clerical positions, two financial aid FTE, one registrar, and a director of student services all under an assistant dean. Level I expansion would require a fractional FTE increase. Level II requires 0.5 FTE administrative/clerical and 0.5 FTE in financial aid. Level III requires 1.0 administrative/clerical and 1.0 FTE in financial aid.

Financial aid represents an additional issue. There is no apparent source of increased funding for loan and scholarship programs. Thus, limited financial aid will be stretched further. Until increased alumni support from larger enrollment is realized, the net effect on aid per student will be negative. Further details are included in Appendix G.
B. Student Assessment and Program Evaluation

Dr. Stratton has provided in Appendix H a detailed analysis of the increased costs of administering the Clinical Performance Examination (CPX) as well as individual course exams and faculty evaluations. Total incremental costs for 150 students are about $25,000 plus 0.5 FTE. Level I would have minimal costs while Level II is about 40% of the above.

C. Curriculum

The Curriculum Office presently provides direct support to the majority of the required medical school courses. This effort consolidates logistic and curricular support across a number of individual departments into 3.5 FTE educators. This group also supports significant educational research efforts in the College of Medicine. Level I could be accomplished with existing staff. Levels II and III would require an additional 0.5 FTE with the step at the upper end of Level II. The Curriculum Office report is enclosed in Appendix I.

D. Academic Computing in Medical Education (ACME)

The facilities requirements of ACME were reported in Section III A 4 above and Appendix D. Students are frequently given individual assistance by ACME personnel. Present staffing is 2.5 FTE staff. Level II would require an additional 0.5 FTE and Level III 1.0 FTE. This would maintain the existing student:staff ratio. The current trend in medical education is toward greater reliance on informatics. The above estimates are based on maintaining the present level of function with no enhancements. Upgrading informatics might also offer opportunity for educational efficiency, but that is beyond the scope of the present report.

E. Admissions

The personnel needs of Admissions are incorporated into Section II and Appendix A.

F. Center for Excellence in Medical Education (CEME)

The Center provides a large number of faculty development workshops, activities, and awards including Grand Rounds in Medical Education. The role of CEME was cited as a strength at the recent LCME site visit. Increased students will necessitate more faculty, but development opportunities are presently underutilized. Thus existing staff can accommodate the expansion. This again assumes maintenance at the current level. If significant curricular innovations requiring major faculty training and development are considered, then additional resources should be considered.

V. CURRICULUM

In this final section we will consider the impact of expanded class size on individual required courses and departments. This section will consider the effects of additional instructional time on faculty resources.
A rough estimate of faculty resources can be obtained by the following method. As of 6/30/03, there were 554 full time faculty in the College of Medicine for 380 students giving a faculty:student ratio of 554:380=1.46. If 220 additional students are added 220 · 554/380=321 additional faculty are necessary to maintain the same ratio. Another way to estimate is to look at total instructional faculty FTE by taking educational effort from the DOE’s of all faculty. This was done by the Dean’s Office (Appendix J) and gives 118 FTE. By this method, Level II requires 80 · 118/380=25 instructional FTE and Level III 220 · 118/380=68. These estimates do not account for economies of scale or the use of community-based faculty, both of which could reduce these numbers. These numbers are net instructional FTE. The number hired would depend on the title series and actual DOE’s of the new faculty.

An alternate approach is to assume that regardless of faculty, there isn’t sufficient clinical volume to accommodate Levels II and III and to look to expanded community placement for a solution. This proposal was developed by Dr. Jim Norton and the Area Health Education Center (AHEC) staff. I quote from Dr. Norton, “A small increase in student complement could be accommodated with existing resources. Were we to look at 50 additional students, it’s my belief that we would have to establish probably two remote campus locations (as U of L has already done), we would have to assume we could entice 40 or so students to ‘elect’ a rural track, and we would have to have the additional recurring resources to pay for at least one FTE coordinator per site ($40,000), probably .5 FTE physician director ($60,000) and some operating costs here and at each site ($40,000)……. Each rotation costs about $400 (rent + food stipend + travel). Therefore, if all 50 students chose rotations that required that they utilize housing rather than commuting (which will undoubtedly be necessary), the additional cost would be around $20,000 per year.”

A. First and Second Years

We will discuss faculty needs according to individual department reports.

First Year

Human Structure/Department of Anatomy and Neurobiology

The department is responsible for three courses (Appendix F) all of which use a lecture and laboratory format. The lecture component is predominantly a space issue as the number of lectures would not change. The department estimates roughly one additional faculty member per ten-student increase to cover the laboratory demands of the three courses. This gives one for Level I, two for Level II, and five for Level III.

Cellular Structure and Function/Departments of Microbiology, Immunology & Molecular Genetics and Molecular & Cellular Biochemistry

This block consists of medical biochemistry and medical genetics. These courses are taught in a predominantly lecture-based format. Dr. Jeff Davidson, Course Director for Medical Genetics notes in Appendix K that the major barriers
are facilities and admissions issues. These have been incorporated into prior sections. No additional faculty impact is noted for this block.

**Human Function/Department of Physiology**

This block is also predominantly lecture format with some laboratory sessions. Drs. Reid and Jackson see no significant faculty barriers to expanding class size as noted in Appendix L.

The biggest impact in the first two years will be in Healthy Human (HH), Patients, Physicians, and Society (PPS), Introduction to the Medical Profession (IMP), Immunity and Infectious Disease, and Mechanisms of Disease and Treatment, all courses which have a significant small group component and are thus very faculty resource intensive. Small group teaching is an anchor of current medical education and failure to adequately accommodate it could seriously undermine the foundation of the Kentucky Curriculum.

**Patients, Physicians, and Society/Department of Behavioral Science**

The impact of more students in PPS I and II on faculty and facilities is summarized in Appendix M. Facilities have been discussed above. Each nine-student increment requires an additional faculty member for each course. This is summarized together with IMP in Table 2 below.

**Introduction to the Medical Profession (IMP)/Department of Internal Medicine**

The small group portion of IMP, like PPS, requires one faculty member for each nine-student increment. The Primary Care Externship (PCE) requires a community preceptor for each additional student. Each two students require a physical exam preceptor (PEP). There is also concern regarding adequate patient volume for the additional student exams. The Standardized Patient Program would need to be expanded significantly as would support staff for these complex courses. These concerns are addressed in Appendices N and O for IMP I and II.

**Healthy Human/Department of Family Practice**

This course consists of 12 2-hour lectures and 12 2-hour small groups. The lecture component has facilities issues identical to other basic science courses. For the small group component, the same incremental ratio as above can be expected to apply. This is also in Table 2.

<table>
<thead>
<tr>
<th>Faculty Required</th>
<th>PPS I</th>
<th>PPS II</th>
<th>IMP I</th>
<th>IMP II</th>
<th>HH</th>
<th>PEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Expansion</td>
<td>0-8</td>
<td>9-20</td>
<td>21-55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I (0-8)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>II (9-20)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>III (21-55)</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 2
Unless faculty are hired with the expectation of precepting more than one of these courses, the numbers mount quickly. The possibility of integrating PPS, IMP, and HH has been discussed and might offer an option to lessen somewhat the number of faculty required for Levels II and III.

**Second Year**

**Immunity, Infection and Disease/Department of Microbiology, Immunology & Molecular Genetics**

This course has lecture, laboratory, and small group formats summarized in Appendix P. The need for increased lecture, small group, and laboratory space for Levels II and III have been noted. The laboratory and small group teaching requires one faculty member for each 15-student increment.

Thus:

- Level I – 0.5 faculty
- Level II – 1.5 faculty
- Level III – 3.5 faculty

**Mechanisms of Disease and Treatment/Department of Pathology and Laboratory Medicine**

This course, which is the largest single block of time in the curriculum, also has lecture, laboratory, and small group formats. These are summarized in Appendix Q. The facilities issues noted have been discussed above. There are also significant infrastructural costs detailed in Appendix Q. The extensive small group and laboratory components require about three faculty per 14-student increment. Thus:

- Level I – 1.5 faculty
- Level II – 3.5 faculty
- Level III – 12 faculty

If some faculty were hired either part-time or predominantly to teach or shared with other departments, these numbers might be decreased.

**Mechanisms of Disease and Treatment/Department of Pharmacology**

Similar to Physiology, this course is predominantly lecture based and is thus affected mainly by the facilities issues discussed above. There would be increased infrastructure costs.
B. Third Year

Beyond a Level I expansion, the most serious issues in the third year clerkships are adequate inpatient and ambulatory sites, and clinical volume to provide meaningful clerkship experiences. This is the single biggest barrier to going beyond a Level I expansion. It requires a coordinated academic and clinical enterprise approach.

**Women’s Maternal and Child Health/Department of Pediatrics**

An extensive discussion of the problems is provided in Appendix R. The significant infrastructural costs are well summarized in this report and apply to all Third Year Clerkships. We quote from Appendix R. “More students will cost the departments of the medical school more money. The fixed costs of printing syllabi, paying for NBME exams, hiring standardized patients for OCSE/practical examinations, etc. are already significant, and these costs are not shared by the Dean’s office presently. Quality education is expensive, and this expense is borne largely by the departments.”

From an instructional viewpoint the limiting variable is clinic space and inpatient volume. Although no formula for calculating additional faculty is given, they would be required either here or in the community to both teach and care for the greater patient load. Another option, both in Pediatrics and Internal Medicine is to rotate more students on specialty services such as Heme/Onc or Pediatric ICU. This is pedagogically unsound, as the medical student’s first clinic exposure to a discipline should be a general one.

The present third year class of 105 has stretched third year clerkships to the limit and provides the upper limit for Phase/Level I in this report. Any consideration of going beyond Level I must address the issues in this report and those below.

**Women’s Maternal and Child Health/Department of Obstetrics and Gynecology**

The department’s report is enclosed in Appendix S.

The pre-clinical component in IMP would result in increased infrastructural costs but could otherwise be accommodated. The clinical clerkship presents the same problem as Pediatrics. The number of deliveries and gynecologic patients are already marginal. It is difficult to provide adequate meaningful experiences for all students. Additional patient volume and appropriate faculty are necessary. The problem is nicely summarized by Drs. Ferguson and Zachman. We quote from Appendix S: “The current clinical practice at the medical center does not have an adequate clinical volume to tolerate an increase in the total volume of medical students within the areas of Obstetrics and
Gynecology. In order to create adequate clinical experience, new partnerships would have to be identified for medical students to gain experience and exposure away from the medical center. Community-based partnerships would have to be established to enable adequate clinical experiences for our students. Quality control and logistics for didactics and clinical exposure would be challenging at the least.”

Clinical Neurosciences/Department of Psychiatry

Psychiatry, in Appendix T, raises the same issues as above: more inpatient beds, more clinics, and more faculty. They also note the possibilities of greater use of community-based faculty, but remind us of the supervisory burden of students as opposed to residents and the difficulty recruiting CBF.

Clinical Neurosciences/Department of Neurology

Neurology continues the same themes in Appendix U. Dr. Robertson also notes the admissions issues discussed in the first section of this report.

Principles of Primary Care/Department of Family Practice and Community Medicine

The Family Practice Clerkship already makes extensive use of CBF, splitting the current class between AHEC sites and local placement. This is summarized extensively in Appendix V. The University Family Medicine Clinic can only accommodate a limited number of students and is already saturated. A previous attempt to expand the number resulted in each student with 5-8 half-days without hands-on learning activities in a four-week rotation. This is unacceptable pedagogically. With significant infrastructural support Family Medicine can place additional students in community sites. There is concern that a saturation point will be reached.

Medical and Surgical Care/Department of Internal Medicine

The inpatient medicine clerkship issues are discussed in detail in Appendix W by Drs. Griffith and Haist. The details provided in this report are likely applicable to most of the clerkships. The issue is again, adequate general medicine patient volume and faculty. The strategy of greater use of subspecialty rotations creates students who may miss major disorders. Solutions offered include greater use of CBF with the same problems as noted above, and an expanded 16-week combined inpatient clerkship which deserves further investigation.
Drs. Haist and Griffith note that the current third year class of 105 is about the limit without significant recruitment of CBF and renovation of the clerkship.

Medical and Surgical Care/Department of Surgery

The surgical clerkship could accommodate increased student numbers as noted by Dr. Mentzer in Appendix X. This would likely result in greater use of subspecialty rotations as well.

C. Fourth Year

Most of fourth year is elective and students tend to spread out such that most electives would not be overburdened. Also, students are more independent and Medical and Surgical Acting Internships are spread across the year and multiple specialties such that students are likely to be accommodated. Some logistical issues are discussed in Appendix W by Dr. Griffith. The only two courses where the entire class is together are Advanced Clinical Pharmacology and Anesthesiology (ACPA) and Dean’s Colloquium. The Dean’s Colloquium and 60% of ACPA are lecture based and thus only have facilities and materials issues.

The remaining 40% of ACPA is small group including one-on-one operating room experiences. The present structure could accommodate the Level I expansion per Dr. Montgomery (Appendix Y). Levels II and III would require additional faculty for small groups, estimated at 5-10, as discussed in the appendix. Levels II and III require expansion of available OR case load. This is the same clinical volume issue raised throughout the 3rd year clerkships.

The required Emergency Medicine course is spread out over the year and already makes use of community sites and thus doesn’t anticipate major problems as stated in Appendix Z.

A diagram of the four-year curriculum is included for the reader’s convenience as Appendix AA.

D. Student Response

The issue of expansion as been discussed at the Student Advisory Council composed of numerous student representatives. A response from the third-year class is reproduced in its entirely below. Please note that the students identify the same issues raised by faculty.

“I know it was mentioned in the SAC meeting that there has been some interest in increasing the class sizes of UKCM. After talking with various students and a few faculty members, I want to share with you that many do not support increasing the medical school class sizes. My third year class is a prime example of some of the problems that occur with an increased class size. Not only is the
space not adequate in lecture halls, there is not enough space available in the
gross anatomy lab or microscopes/space in the histology/micro lab. An increased
class size has a particularly negative impact in the 3rd and 4th years when Med
students are trying to get clinical experience by interacting with patients.

I know members of my rotation group in particular have had to flip coins as to
who got the opportunity to see the next patient, while the others had to sit around
and wait for other patients to come in, sometimes seeing only 1 patient in the 4
hours they were in clinic. This has happened more than once and is obviously not
facilitating learning. If there are more students to “compete” with to see patients,
this will decrease the learning opportunities for all students.

Many times I have been told this year that with our large class size of 103
students, that they just cannot accommodate us all (i.e., AHEC) and we will have
to bear with them. If we continue to “bear with” everyone, we are going to miss
many opportunities to learn this year. These situations will only be exacerbated in
the future by increasing the number of students at UKCOM.

I am writing this to share with you that we are concerned about the detrimental
effects that increasing the class sizes may have on the educational opportunities
for all members of the UKCOM. A great increase in facilities, clinical loads
and/or facilities, and staff would need to be in place before this could benefit the
learning experience for UKCOM students.”

VI. SUMMARY

Increasing medical school class size is a complex issue. The greater use of small group
teaching initiated by the Kentucky Curriculum and the necessity of close supervision and broad
clinical exposure in the third-year clerkships create rate-limiting steps that must be carefully
considered.

An initial expansion of eight students per year for 32 total students seems reachable with
primarily infrastructural support. A specific proposal for Phase I is included below.

Level II might be possible with significant facilities and clerkship renovations, but would
require more extensive planning and cost estimates than were within the scope of this initial
report.

Level III requires major facility construction, curricular re-construction, and an intense
strategic planning process.

VII. PROPOSAL

Implement Phase I over the next academic year. Add eight students to this admission cycle.
Use the assumptions from Section II, page 7, to calculate revenue.
This cohort will add—when fully implemented in four years—$582,464 in revenue to the University, assuming six in-state and two out-of-state students.

Use the College of Medicine portion of the tuition increment to support educational infrastructure. Specifically:

- Add 0.5 FTE to OAA to be split between Student Services, Admissions, etc.
- Fully support from the Dean’s Office the three administrative coordinators, Grade 41, that manage the multidisciplinary courses: IMP I and II, PPS I and II, and Healthy Human. These administrative costs are currently borne by individual departments: Internal Medicine, Behavioral Science, and Family Practice respectively.
- Divide the remaining money, accounting for the positions above, by a plan based on educational need, formulated by the Dean. This money is to provide infrastructural support for the additional eight students per year.
- Convene a task force to do a detailed analysis of the feasibility of implementing Phase II. This task force should use this report as a starting point and must address the enterprise issues raised in this report. The EVPHA and new Dean should have significant input into the implementation and operation of this taskforce.
- The feasibility of the kinds of construction necessary for contemplating Phase III should be considered at the highest levels of administration.