



GEISEL SCHOOL OF MEDICINE  
AT DARTMOUTH

**MEDICAL EDUCATION COMMITTEE MEETING**

TUESDAY, JANUARY 15, 2013

4:00 – 5:30 PM

DHMC – AUDITORIUM A

**MINUTES**

1. **Call to Order - Rich Simons, MD, MACP** – The meeting was called to order at 4:03 PM

Voting Members Present: Mazin Abdelghany, Jessie Bay, Benjamin Colby, Scottie Eliassen, Aniko Fejes-Toth, Sarah Johansen, Carolyn Koulouris, Victor Laurion, Harold Manning, David Nierenberg, Todd Poret, Christiaan Rees

Non-Voting Members Present: Diane Grollman, Virginia Lyons, Glenda Shoop, Cynthia Stewart

Guests Present: Cassandra Holbrook (notetaker)

2. **Approval of the December meeting minutes**

The membership unanimously approved the minutes of the December meeting as written.

3. **Announcements - Rich Simons, MD, MACP**

Mock LCME Site Visit is scheduled for January 28<sup>th</sup> and 29<sup>th</sup> and Dr. Simons feels that this will be very beneficial for all faculty and students.

Next Medical Education Grand Rounds – will be held at the end of March and will be presented by Dr. Martin Samuels from Brigham and Women's Hospital. Dr. Samuels visit to Dartmouth is being sponsored jointly by the Office of Medical Education, the Department of Medicine and the Department of Neurology.

4. **Duty Hour Policy – John Dick, MD**

Dr. John Dick reviewed the policy with the suggested changes listed in red (see attached for full details). Dr. Dick brought the committee's attention to the changes made to section number 3 stating that "Students must work no more than 80 hours per week in the hospital/clinic."

***Dr. Dick made a motion to approve to the policy with the suggested changes as written (see attached for full details – suggested changes written in red).***

Further Discussion:

Dr. Nierenberg – thinks that medicine and OB were 96% compliant, but surgery showed a higher percentage of students reported violations to this policy.

Dr. Simons noted that there had been some confusion among the surgery clerkship directors regarding this rule. Ben Colby, 4<sup>th</sup> year student member, responded and clarified that the confusion had been created by student misinterpretation of this.

Dr. Simons noted that LCME does not set specify duty hours for medical schools. It only states that medical schools must have a policy on such.

Carolyn Koulouris, 4<sup>th</sup> year student member, noted that in her recent interactions with other medical schools, she found that Dartmouth's duty hours are least restrictive in comparison to other medical schools.

The question was asked if there are any other clerkships besides surgery, where it is difficult to maintain work hours – Ms. Koulouris responded that while Medicine may be a possibility, it does generally come close to 80 hours, leaving the biggest challenge with the Surgery clerkship.

Ben Colby, 4<sup>th</sup> year student member, expressed concerns around student wellness that may be affected by the 80 hour rule as well as the need for a better ability/system to track hours. Flexibility in the work hours could pose more of a challenge to track hours accurately. Dr. Dick suggested the possibility of having students log into a system daily to report hours worked in order to track them more accurately and efficiently. Ms. Koulouris suggested less strict rules in order to better maintain compliance by allowing for greater flexibility. Ms. Koulouris also suggested changing the wording to say “7 day period” in place of the word “week” so it would read “Students must work no more than 80 hours per 7 day period in the hospital/clinic”. This suggestion was supported by Mr. Colby. The reason for the requested change in wording is based on the day of the week when a day off may fall (as they can change on a weekly basis) and how that has an impact on the “week”.

Dr. Nierenberg noted that according to data collected by Diane Grollman, we are pretty much where we want to be in most clerkships with the exception of surgery, with that he suggested having surgery clerkship directors and students meet and propose a solution. Dr. Dick noted that the issue partly lies in the fact that clerkship directors do not have access to this information as it is not shared with the clerkship directors. Dr. Simons noted that when he first started working at Dartmouth, Ann Davis told him that, at the request of the students, information will not be shared with clerkship directors for six months (to make it impossible to identify students) so that students are not punished for their feedback during their clerkships. While this serves to protect students, it also has a negative effect on the necessary communication with clerkship directors, by not allowing them to monitor their data which takes away from their ability to monitor their clerkship. As a potential solution, Dr. Simons proposed that he and Dr. Dick could review the data and give a summary of the data back to clerkship directors.

Ms. Koulouris – would like to see the wording remain the same for item number 2 and not change it to read “7 day period”. So it would remain “On average, at least one 24 hour period every week will be free of all patient care and scheduled educational activities, and should be spent outside the hospital.”

It was noted that in order for wording to be changed there would be a need to define when the 7 day period would start and end.

Dr. Dick noted that the proposed policy mimics the previous ACGME resident duty hours. The averaging would allow for students to work less hours in one week and more the next, but still average 80 hours per week.

***A vote was taken by show of hands on Dr. Dick's motion to approve to the policy with the suggested changes as written (see below for full details – suggested changes written in red).***

3. Students must work no more than 80 hours per week in the hospital/clinic.

- Change to “Students must work no more than 80 hours per week (averaged over a 4-week period) in the hospital/clinic

Students will keep track of their own hours and two questions will be added to the end of clerkship survey:

1. During this clerkship, how many weeks did you work over 80 hours? (0,1,2,3,4,5,6)
2. During this clerkship, how many times did you work beyond 30 consecutive hours? (0,1,2,3,4,5,6,>7)

- Change to:

Please answer the following question regarding your work hours on this clerkship. Your answers are not linked to your identity and they go directly to the senior associate dean for medical Education (Dr. Simons). **WORK HOUR POLICY:** Students must work no more than 80 hours per week in the hospital/clinic (averaged over four weeks). Students must work no more than 30 consecutive hours in the hospital/clinic. Students must have a consecutive 24 hour period off each week.

**1.\*** Have you exceeded the work hours defined by this policy on the clerkship you just completed? If yes, why did you exceed the work hours?

*Those in favor = 4 - Opposed = 6*

*Will need to revert back to using the previous policy as this was not approved. Dr. Shoop will share this information with Dr. Swenson and Dr. Dick will discuss this at the CECD meeting.*

**5. Essential Clinical Conditions – John Dick, MD**

Dr. Dick reviewed a summary of the document that has been shared with the committee (see attachment for full details).

*A motion was made, seconded and approved that the MEC formally change the policy for "essential clinical conditions" such that we **REQUIRE** that each student see at least one patient with each of those essential conditions. Targets will no longer be used. We propose to continue tracking total encounters for reasons of monitoring site comparability.*

*A motion was made and seconded that the MEC formally change the policy for "essential clinical skills" such that our learning targets are suggestions for each student to aim for and that we **REQUIRE** that each student be observed and certified as performing that skill up to the expected level of proficiency for a Y3 student as currently documented on the clerkship specific Competency forms.*

Further discussion ensued with the following points made:

Dr. Nierenberg supports both suggestions, but also feels that the more practice a student gets the more improvement they will see.

Student motivation should not change as clerkships require a certain number of patients to be logged on a daily basis.

*A vote was taken and passed on the motion to formally change the policy for "essential clinical skills".*

**6. Approval for the HSP 2013 course objectives – Virginia Reed, PhD**

The HSP course objectives were presented by Cindy Stewart (Associate Director for Bio-Med Libraries

and is in her 3<sup>rd</sup> year as a small group facilitator) in Virginia Reed's absence. See the attachment for full details of the presentation.

Discussion ensued with the following points made:

Scale for evaluation = Pass/Fail

Course objectives stand as they have been, just need MEC approval

*A motion was made, seconded and approved to approve the course objectives as presented*

**7. Year 1 Microbiology Course Review – David Nierenberg, MD & Paula Sundstrom, PhD**

Dr. Nierenberg reviewed his PowerPoint presentation on the Review of Y1 Microbiology Course as reviewed by the PreClinical Subcommittee. See the attachment for the full details of Dr. Nierenberg's presentation.

The action plan was presented by Dr. Paula Sundstrom in response to the review. Details of her action plan are found within the attached PowerPoint presentation.

Discussion ensued with the following points made:

Ms. Koulouris made a suggestion for improvement of labs.

Dr. Nierenberg thanked Dr. Sundstrom for her engagement.

*A motion to accept the review and action plan as presented was made, seconded and passed.*

**8. Student Feedback – Student Representatives**

Year 1 – Getting ready for the next round of quizzes. No additional feedback to report.

Year 2 – no feedback to report

Year 3 – no feedback

Year 4 – Carolyn Koulouris has been on the interview trail and has been surprised to find that some medical schools do not have family medicine clerkships.

**9. Other Business**

**UPCOMING SCHEDULED MEETINGS:**

Feb. 19	Mar. 19 Need to reschedule	Apr. 16	May 21	June 18	July 16
Aud. A	Aud. A	Aud. A	Aud. A	Aud. A	Aud. A

## Third and Fourth Year Student Learning/Work Hour Policy

Note: This policy was approved by the Medical Education Committee (MEC) at its meeting on May 17th, 2011 to replace the previous “Balanced Hours During Clerkship” guidelines outlined in previous editions of the Geisel Student Policy Handbook.

The primary educational goals for third and fourth year clerkships is to help medical students learn about the evaluation and management of patients with a variety of medical conditions, and expand their levels of mastery in a number of important competency domains. A second important goal is for students to have the opportunity to learn more about each discipline as a potential career choice, from both residents and attendings. We recognize that some of the best opportunities for learning occur on nights and weekends, while “on call”, and we encourage having students take call during clerkships when it is feasible and productive. Student conferences led by faculty are also excellent learning experiences and are required in all clerkships. Students often learn best by active participation in patient care, especially following patients and taking responsibility for their care over time as their condition evolves and changes. Students also learn best when not excessively tired. Sometimes these two goals—enhancing student learning by hands-on experiences, and minimizing excessive student fatigue—come into conflict.

Interns and residents in post-graduate training are required to limit their total in-hospital work-and-learning hours to no more than 80 hours a week, with additional requirements pertaining to continuous hours served and time off. These requirements for GME programs were instituted in response to concerns about patient safety and in recognition that the dual roles of house staff in learning and service needed thoughtful balance. These concerns are less directly relevant for medical students for several reasons. Students do not have ultimate responsibility for patient care, procedures, prescribing, etc.; and, students often obtain more sleep during nights on call than residents, since they may admit just one or two patients compared to 3-10 admitted by residents. Also, several student clerkships do not have night call at all, thereby making the third year less stressful overall.

Nevertheless, the MEC believes that some regulation of student hours “on call” during clerkships is reasonable in order to provide the optimum learning experience for all students on all clerkships at Geisel, and in order to help students achieve a healthy balance of study and personal time during the clerkships. In addition to being the “right” thing to do, the LCME requires each school to develop school-wide guidelines in this area.

All clinical rotations and electives must adhere to the medical student learning/work hour policy as follows:

1. The frequency of on-call experiences for each clerkship will be established by the respective clerkship directors, with the intent of optimizing the total educational experience for each student. No student should be on call more often than one night in three.
2. On average, at least one 24 hour period every week will be free of all patient care and scheduled educational activities, and should be spent outside the hospital.
3. Students must work no more than 80 hours per week in the hospital/clinic.  
- Change to “Students must work no more than 80 hours per week (averaged over a 4-week period) in the hospital/clinic
4. Students must work no more than 30 hours consecutive hours in the hospital/clinic.

5. If the clerkship allows, a student may switch call days during the course of the clerkship if an event of significant educational opportunity is at a time when the student is scheduled to be post-call. However, the student must complete the total number of required call nights for the clerkship.

6. Didactic conferences should be scheduled so that as many students as possible can attend. Post-call students should attend required teaching conferences if occurring within the above-outlined learning/work hours. However, post-call students may be required to miss didactic conferences in order to abide by the learning/work hour restrictions.

7. On-call rooms at DHMC will be available twenty-four hours a day for post-call students wishing to take a nap prior to driving home after their nights on call, if they feel too tired to drive home safely. The Office for Clinical Education should work with other affiliated hospitals that have night call for Geisel students, and try to arrange a similar arrangement for having rooms available to students during the afternoon while they are post-call.

To implement this policy, the following shall occur:

☐ Clerkship directors must arrange the clerkship schedule (i.e. didactics) to comply with this proposal

☐ Clerkship directors must announce this policy to all attendings and residents who work with students (including the contact physicians at away sites)

☐ Clerkship directors must announce this policy at all clerkship orientations

☐ The work hours policy will be easily accessible on the Geisel website

☐ **Students will keep track of their own hours and two questions will be added to the end of clerkship survey:**

**1. During this clerkship, how many weeks did you work over 80 hours? (0,1,2,3,4,5,6)**

**2. During this clerkship, how many times did you work beyond 30 consecutive hours? (0,1,2,3,4,5,6,>7)**

- Change to:

**Please answer the following question regarding your work hours on this clerkship. Your answers are not linked to your**

**identity and they go directly to the senior associate dean for medical Education (Dr. Simons). WORK HOUR POLICY:**

**Students must work no more than 80 hours per week in the hospital/clinic (averaged over four weeks). Students must work no more than 30 consecutive hours in the hospital/clinic. Students must have a consecutive 24 hour period off each week.**

**1.\* Have you exceeded the work hours defined by this policy on the clerkship you just completed? If yes, why did you exceed the work hours?**

☐ The MEC will evaluate student work hours and re-assess enforcement of this policy in 6 months from implementation

## Medical Education Committee – January 2013

### Essential Conditions and Skills Revision Proposal

John F. Dick III, MD – Associate Dean for Clinical Education

#### Overview:

In order to fulfill the LCME ED-2 standard pertaining to the definition of types of patients and clinical conditions that students must encounter and a means by which to monitor and verify these experiences, the MEC has previously codified the list of “essential conditions” after a process of soliciting input from each department through clerkship directors and the clerkship directors committee (CECD). This process resulted in a list of “essential conditions” and also a list of clinical skills that students should practice and demonstrate to a satisfactory level. The MEC assigned these to clerkships and established learning targets for them.

These conditions and skills are logged into DMEDS by the students for review by the clerkship directors and coordinators. To date, the learning “targets” for each condition vary in number. If students did not reach the required number of encounters, then that essential condition was not deemed to be completed for that student and additional cases or experience would need to be arranged. Additionally, we require that the clinical skills are observed and certified by house-staff or attendings.

#### Concern:

Many clerkship directors and students believe these targets for essential conditions to be somewhat arbitrary. In addition, by focusing on numbers rather than quality of experience, they place a burden on the clerkships and students that may not lead to improved education. In discussion with other schools and with our LCME consultants, it has become clear that most other programs focus on binary outcomes for these conditions, ie. experienced or not experienced.

#### Proposal:

That the MEC formally change the policy for "essential clinical conditions" such that we REQUIRE that each student see at least one patient with each of those essential conditions. Targets will no longer be used. We propose to continue tracking total encounters for reasons of monitoring site comparability.

That the MEC formally change the policy for “essential clinical skills” such that our learning targets are suggestions for each student to aim for and that we REQUIRE that each student be observed and certified as performing that skill up to the expected level of proficiency for a Y3 student as currently documented on the clerkship specific Competency forms.

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**LCME Standard ED-2:** An institution that offers a medical education program must have in place a system with central oversight to ensure that the faculty define the types of patients and clinical conditions that medical students must encounter, the appropriate clinical setting for the educational experiences, and the expected level of medical student responsibility. The faculty must monitor medical student experiences and modify them as necessary to ensure that the objectives of the medical education program are met.

The institution that offers a medical education program is **required to establish a system to specify the types of patients or clinical conditions that medical students must encounter and to monitor and verify**

**the medical students' experiences with patients so as to remedy any identified gaps. The system must ensure that all medical students have the required experiences.** For example, if a medical student does not encounter patients with a particular clinical condition (e.g., because it is seasonal), the medical student should be able to remedy the gap by a simulated experience (e.g., a standardized patient experience, an online or paper case) or in another clerkship.

When clerkships/clerkship rotations in a given discipline are provided at multiple instructional sites, compliance with this standard (ED-2) may be linked to compliance with standard ED-8, which requires that the medical education program demonstrate comparability of education experiences across instructional sites.

### **Geisel LCME Self-Study Response:**

**Definition of “Essential Conditions” and Logging of Clinical Encounters:** Geisel has well-defined requirements regarding the types of patients and conditions that our students should encounter and learn about during each clerkship and we have a web-based tracking system for encounters, DMEDS (Dartmouth Medical Encounter System). The Medical Education Committee (MEC) codified the list of “essential conditions” after a process of soliciting input from each department through clerkship directors and the clerkship directors committee (CECD). This process resulted in a list of “essential conditions” and also a list of clinical skills that students should practice and demonstrate to a satisfactory level. The MEC assigned these to clerkships and established learning targets for them. This list is reviewed and modified by the MEC upon periodic review of the clerkship program (~ every 15 months).

**Tracking clinical encounters using DMEDS has been important to evaluate student experiences and comparability of sites and services within a clerkship. Students, clerkship directors and coordinators track progress toward the learning targets. Each student must meet at least 90% of the learning targets and, if a student is significantly behind, clerkship directors will modify their clerkship experience accordingly.** The associate dean for clinical education evaluates the overall ability of students to meet learning objectives at each site, with reports to the MEC.

**Finally, each student must demonstrate an adequate level of proficiency in the performance of each of the essential clinical skills to an attending or teaching resident. This level of proficiency is documented by the resident or attending on a form designed for each skill. In the unusual case of a student not reaching that level of competency in a clinical skill, the clerkship director designs a program of remediation during the last two weeks of the clerkship. In the rare case of a student still not achieving the level of required competency, the associate dean for clinical education designs a program assuring opportunities for further practice during a subsequent clerkship or an experience in the simulation center.**



## Health, Society, & the Physician (HSP)

The overarching aim of HSP is to provoke study, reflection, and honest conversation about difficult or new issues that graduating medical students will face in the next stage of their careers. \*How\* this is accomplished varies from year to year.

Since 2010, HSP has been conceptualized as a clerkship in health care delivery science and has focused on the 10 competencies clustered under systems-based practice and the science of health care delivery (Geisel School of Medicine Competencies). Students will join a team involved in an ongoing improvement project at DHMC or in the community. Each of these projects was begun with the desire to make things better in a situation in which no one intended them not to work initially. This is an important distinction. The concept of improvement acknowledges that while systems and processes are created with the best of intentions at particular times, fresh eyes and new techniques can help us see them in a clearer light. Once we see them more clearly, we have the opportunity to change or re-engineer them to become safer, more efficient, more cost-effective, and more patient-centered. Fostering these changes requires knowledge and skills that, heretofore, have not been generally part of the medical education curriculum.

As with any clerkship, you will join a team at a unique time in its ongoing practice. You will jump into a dynamic experience, learning the content and practicing the skills specific to the situation. Our goal is that by having the opportunity to engage with professionals who care and who are working to improve local healthcare in specific ways, you will become increasingly savvy about the need, opportunities, skills and tools needed for such work. We believe that taking these learnings with you to residencies will position you uniquely for participation in this ongoing work.

This is a new and evolving experience to which we invite you. As with any clerkship, we anticipate you will experience both joys and frustrations. HSP invites you to be part of a learning community - both in your project and in the course. We will treat you as colleagues, trying to make healthcare and medical education work. We expect that you will share the responsibility for that with us.

Don Berwick, recent head of Medicare and Medicaid for the U.S., and former head of the Institute for Health Improvement, has been known to say something along the lines of, "now is the time to stop getting ready to begin to plan for some time in the future." So - join us and jump in!

Because HSP is designed to be a constantly evolving course, the introduction of new ideas and new methods is an expected component of the course. Course directors and faculty constantly scan the education and practice horizons for important themes and issues that not only have broad applicability but that will have immediate relevancy as residency approaches. Each component of the course is evaluated by students and faculty and the results of those evaluations are considered in the planning for the subsequent year's course. The components of the course have been carefully designed to enhance learning.

## HSP 2013

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Since 2010, HSP has been conceptualized as a clerkship in health care delivery science and has focused on the 10 competencies clustered under systems-based practice and the science of health care delivery.

### 2013 Learning Objectives

By the end of the course, students will be able to:

- Discuss the role of the physician, the patient, and the family in health care and addressing health care challenges;
- Participate in the QI project of an ongoing team within the Dartmouth community;
- Explain and apply QI principles and tools;
- Recognize, identify, and collect outcomes data and other data as appropriate to the QI project;
- Demonstrate team skills by participating in and contributing to team discussions and to the small group QI project and presentation;
- Practice self-reflection and peer review group process in teams.

Criteria for passing the course include:

- Satisfactory progress in meeting the course objectives
- Attendance and participation at small group sessions
- Participation in the preparation and presentation of the small group project
- Satisfactory completion of the final exam
- Completion of the final Course Evaluation Survey

### Evaluation methodology

The course final exam will consist of a single reflective question. It will be available electronically after large group on Tuesday, February 26. It will be due by 9:45 AM on Friday, March 1. Material included in the exam will reflect the course content and should require no more than 2 hours of student time.

# Health, Society, & the Physician (HSP) 2013

# Overarching Aim

- to provoke study, reflection, and honest conversation about difficult or new issues that graduating medical students will face in the next stage of their careers.
- \*How\* this is accomplished varies from year to year.

# Competencies addressed

- Since 2010, HSP has been conceptualized as a clerkship in health care delivery science and has focused on the 10 competencies clustered under systems-based practice and the science of health care delivery (Geisel School of Medicine Competencies).

# 2013 learning objectives

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# Criteria for passing the course

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- Satisfactory completion of the final exam
- Completion of the final Course Evaluation Survey

# Evaluation methodology

- The course final exam will consist of a single reflective question.
- Students will have 48+ hours in which to complete the exam.
- Material included will reflect the course content and should require no more than 2 hours of student time.



# Review of Y1 Microbiology Course PreClinical Subcommittee

December, 2012

Mazin Abdelghany (Geisel 2), Kathleen Muldoon (Anatomy), Dave  
Nierenberg (SBM Program)

1. Course **learning objectives**
2. Course **learning opportunities**
3. **Learning assessments** for students
4. Measures of overall quality for the course
5. Specific suggestions for improving course

# 1a. Course Learning Objectives in ILIOS

- A,B,C:ILIOS learning objectives (Dave)
  - There are 32 course learning objectives
  - (1) The first 23 address specific knowledge objectives in the basic science domain, and seem appropriate
  - (2) One (#28) addresses a clinical skill (disinfection)
  - (3) One (#25) addresses communication and interpersonal skills, and should be reassigned to that domain
  - (4) Four (#24,26,27,32) address different aspects of professional behavior, and seem appropriate
  - (5) None seems to address practice-based learning and improvement, or preparation for lifelong learning
  - (6) One (#29) addresses working with other members of the healthcare team within the HC system
  - One (30) is not clear in its current form

# 1a. Learning Objectives (Kathleen)

- There appeared to be two sets of course learning objectives:
  - Those in LCME style prepared in May 2012 (32)
  - Those in the back of the syllabus (>200 over 10 pages of notes)
- Course objectives are presented to students at the end of a 300-page syllabus
- Objectives in syllabus vary in format and style
- **Suggestions:**
  - Place 32 (LCME) course objectives at the front of the syllabus
  - Use measurable outcomes format for all of them
  - Have slides and notes reflect these
  - Have session learning objectives at the front of each session
  - Make sure that each course objective is assessed in some way

## 1d. Course Learning Objectives from NBME (Microbial biology and Infection)[Dave]

- **Microbial identification and classification, principles, microorganism identification, and immunologic lab diagnosis**
- **Bacteria: structure, processes, replication, genetics, oncogenesis, antibacterial agents**
- **Fungi: structure, processes, replication, and genetics, antifungal agents**
- **Epidemiology, outbreaks, and infection control**
- **Parasites (covered in Y2 SBM course)**
- **Prions (covered in Y1 Biochemistry)**
- **Viruses (covered in Y1 Virology course)**

## 1e. Learning objectives form national organization (Kathleen)

- The Association of Medical Schools Microbiology and Immunology Chairs (AMSMIC) does outline core learning objectives:  
<http://mmi.creighton.edu/CoreObjectives/Default.aspx?tabid=55>
- Compared to that outline, the Geisel course learning objectives appear to cover the important aspects of the AMSMIC document
- The Geisel objectives seem to be focused at the “gathering information” level of Bloom’s taxonomy

# 1f. Learning objectives addressing additional specific LCME topics (Dave)

- **Health of populations:**
  - Course objectives include discussion of vaccines, epidemics, and development of resistance
- **Basic and ethical principles of clinical and translational research:**
  - Course objectives include discussion of ethics related to medical human experimentation
- **Gender and cultural biases in students themselves:**
  - Not present in course objectives at this time
- **Instruction in medical ethics and human values**
  - Not otherwise addressed in the course objectives

# 1. Course Learning Objectives: Recommendations

- Switch to one set of course learning objectives, in the LCME (ILIOS) format, with action verbs and observable outcome(s) for each one
- Place these course learning objectives at the beginning of the syllabus and course
- Use these course learning objectives to structure each learning exercise (e.g. lab, lecture, etc)
- Use these course learning objectives to help determine most important points to be tested on exams and quizzes
- List session learning objectives at the beginning of each session
- Be sure that student competence for all learning objectives (esp #25-32) is assessed in some fashion, even if not on the exam
  - Example: have students demonstrate proper safety techniques, disinfection, use of gloves, staining, etc right in the lab; better than on an exam

## 2. Course Learning Opportunities 2011-12

- Total hours: 69 (including 5 “optional” microbiology large group discussions and review)
  - Traditional lectures = 38.75 h (56.2% of total hours)
  - Large group discussion and Q/A sessions = 10 h (14%) (*Note: these were labeled as “optional”; student narrative comments indicate that most students did not attend*)
  - Lab (classical) = 20.25 h (29.3% of total hours)
  - Lab (simulation) = 0
  - Small groups/conferences = 0
  - PBL groups = 0
  - Direct patient contact = 0
  - Panel discussion = 0
  - Other formats = 0



## 2. Learning opportunities

- Laboratory sessions:
- 29.3% of hours are spent in lab (classical), although the laboratory examination is only worth 5% of final grade
  - syllabus states that “Laboratory sessions are essential components of Microbiology course. Laboratory attendance is required for every laboratory session. .... In order to receive a passing grade in the course, you must complete a brief written report on each laboratory and earn a passing grade in an open-book practical examination in Basic Science of Microbial Diagnosis and Therapy (syllabus, p. 1)
  - how is this reflected in the grade?

### 3. Quizzes (3) (Kathleen)

- Some questions appeared to test material that was not clearly presented in lecture or in notes
- This may relate to organization and could be ameliorated by emphasizing learning objectives for each session
- The clinical relevance of some of the items was unclear (e.g. Quiz 1, #4: clinical relevance could be emphasized, rather than question about reaction mechanism)
- Most of the items focused on simple recall, rather than applying what they know to new situations (clinical or experimental)
- Format was all MCQ, but did not follow NBME guidelines
  - Which of the following statements is FALSE?
  - All of the following are true EXCEPT?
  - None of the above
  - Answers of different lengths

### 3. Learning Assessments: Final Exam content (Dave)

Course objective number	Brief course objective	Items
1	Internal, external structures of microbial cells	3
2	Structures of bacterial and fungal cells that are important for disease	3
3	Growth forms of fungal pathogens	1
4	Stages of microbial growth and importance to disease	2
5	Features of microbial genomes, mutation, recombination, DNA	7
6	Basic metabolic properties of microbial cells	3
7	Pathogens that grow <u>intracellularly</u>	1
8	Characteristics of pathogens that aid in recognition	5
9	Clinical specimens, essential properties, hazards with handling	2
10	Describe lab staining and culturing, and limitations	8
11	Basic principles of chemotherapy and disinfection through labs	2
12	Mechanisms of antimicrobial resistance to antibiotics	9
13	Symptoms and clinical features of diseases	16
14	Postulates used to establish that a pathogen causes a disease	0
15	Describe factors important for virulence if known	4
16	Describe how microbes spread between people, in environment	6



# Exam content (continued)

17	How infections are prevented and treated	2
18	Explain whether infection caused by toxin or invasiveness	3
19	Toxins, mechanism of action, how antitoxins are used	3
20	Describe vaccine availability, and basis of function	4
21	Properties of vaccines in terms of live, killed, subunit, toxoid	2
22	Describe risk factors in mammalian hosts that increase risk	0
23	How clinical labs diagnose infection, <u>vs</u> normal flora	5
24	Behave respectfully and responsibly	0
25	Solve problems effectively in groups of students	0
26	Take responsibility for own work	0
27	Meet professional responsibilities fully	0
28	Practice utilization of effective procedures for disinfection	0
29	Interact professionally with clinical lab specialists	0
30	Benefit from physician input during case discussions	0
31	Enhance communication between instructors and students	0
32	Discuss ethical issues related to clinical research	0

## Exam content (continued)

- A number of the 32 course learning objectives had no questions on the final exam (in red above), or fewer than expected (1-2 items, in orange above).
- The distribution of items on the final exam should be examined in terms of enabling the exam to assess adequately students' ability to apply knowledge learned for each of these course-designated learning objectives.
- Some of the course learning objectives, especially #24-32, do not lend themselves easily to testing in MCQ format. However, they could be assessed with other types of questions, or observation by faculty during small group or lab exercises.

### 3. Learning assessment: Exam style

- All of the questions were multiple choice of some type
- 8 of the items utilized a vignette, and required using knowledge learned to address a new problem or question
- 11 of the items utilized a “negative format”, not consistent with NBME standards
- 7 of the items utilized a “multiple T/F” format, e.g. “All of the following statements about pneumococcus are correct except which one?”
- 1 of the items was in the format “All of the above, none of the above, etc”
- 10 of the items were in a format that included “A,B, both, neither”
- 61 of the items were testing simple memorizations of facts, as compared to assessing the ability of students to apply knowledge learned in the course to a new clinical or experimental situation
- **Impression: There are many items in formats that should no longer be used, and these need to be rewritten, dropped, or changed. The large majority of items test “simple memorization”, rather than the ability to apply knowledge learned to new situations. These items should be converted to items that use clinical or scientific vignette, to better test application of that knowledge.**

# 3. Learning assessment

- Attendance at each lab session was mandatory, and assessed via written lab reports
- 29.3% of hours are spent in lab (classical), although the laboratory examination is only worth 5% of final grade
  - syllabus states that “Laboratory sessions are essential components of Microbiology course. Laboratory attendance is required for every laboratory session. .... In order to receive a passing grade in the course, you must complete a brief written report on each laboratory and earn a passing grade in an open-book practical examination in Basic Science of Microbial Diagnosis and Therapy (syllabus, p. 1)
  - Is there a better way to assess student competency of course learning objectives in the lab (e.g. disinfection, wearing gloves, setting up plates, reading gram stains, etc)??



# Learning Objectives not Assessed on Final Exam: How to assess #24-32?

17	How infections are prevented and treated	2
18	Explain whether infection caused by toxin or invasiveness	3
19	Toxins, mechanism of action, how antitoxins are used	3
20	Describe vaccine availability, and basis of function	4
21	Properties of vaccines in terms of live, killed, subunit, toxoid	2
22	Describe risk factors in mammalian hosts that increase risk	0
23	How clinical labs diagnose infection, <u>vs</u> normal flora	5
24	Behave respectfully and responsibly	0
25	Solve problems effectively in groups of students	0
26	Take responsibility for own work	0
27	Meet professional responsibilities fully	0
28	Practice utilization of effective procedures for disinfection	0
29	Interact professionally with clinical lab specialists	0
30	Benefit from physician input during case discussions	0
31	Enhance communication between instructors and students	0
32	Discuss ethical issues related to clinical research	0



# 4. Feedback about course from March 2012 AAMC GQ

- How well did each of the following sciences basic to medicine prepare you for clinical clerkships and electives?
- All Year 1 disciplines (n=9): mean = 3.1
- All Year 2 disciplines (n=4): mean = 3.4 (3.3)
- Microbiology (Y1 + Y2): 3.3 (national 3.1)

## 4. Feedback about course from Step 1:

	2009	2010	2011		Means (last 3 years) 09-11
Pass rate/DMS	98.5%	100.0%	98.8%		99.1%
Pass rate/National	92.6%	91.3%	93.7%		92.5%
Mean score/DMS	238	231	236		235.0
Mean score/National	221	222	224		222.3
<b>TRADITIONAL CORE DISCIPLINES</b>					
Biochemistry	0.50	0.30	0.40		0.40
Biostatistics/Epidemiology	0.65	0.90	0.73		0.76
Genetics	0.40	0.30	0.48		0.39
Gross anatomy/Embryology	0.50	0.35	0.53		0.46
Histology/Cell biology	0.53	0.30	0.40		0.41
Microbiology/Immunology	0.63	0.42	0.41		0.49
Pathology	0.55	0.35	0.42		0.44
Pharmacology	0.63	0.15	0.39		0.39
Physiology	0.67	0.32	0.47		0.49

# 4. Feedback about course: Student survey scores

**ent Course Evaluation Summary Year I  
Courses 2011/12**

	Overall Satisfaction with course	Usefulness of attending lectures	Usefulness of printed or electronic course material	Usefulness of suggested Text(s)	How well the course provided me with a useful and relevant introduction to this field or discipline.	Congruence of quiz and exam questions to the most important content and emphasis of the course	Overall usefulness of small groups and conferences (if applicable)	Overall usefulness of laboratory sessions (if applicable)	Overall, roughly how often did individual lectures include an example (such as a clinical case, vignette, story, etc.) illustrating how the basic science material covered in that lecture would be of direct usefulness to you in your future	Mean 2011/12
IAE II	4.70	4.58	4.75	n/a	4.90	4.45	3.85	4.40	4.20	4.48
IAE I	4.59	3.96	4.51	4.18	4.69	3.73	4.20	4.53	3.96	4.26
BIOSTATISTICS& EPIDEMIOLOGY	4.40	3.17	4.67	n/a	4.29	4.61	4.11	n/a	3.63	4.12
ON DOCTORING	4.04	n/a	n/a	n/a	3.99	n/a	4.02	n/a	n/a	4.02
METABOLISM	4.00	3.41	4.22	5.00	4.29	4.11	3.19	n/a	3.89	4.01
BIOCHEMICAL & GENETIC BASIS OF MEDICINE	3.94	3.44	4.18	3.60	3.79	4.21	4.57	3.80	3.35	3.88
CELLS TISSUES & ORGANS	4.00	4.05	4.28	3.67	4.13	3.92	n/a	2.95	3.85	3.86
NEUROSCIENCE	3.85	3.60	3.83	4.00	4.03	3.47	3.74	3.18	4.00	3.74
PHYSIOLOGY II - RENAL	3.59	3.75	3.85	3.71	3.82	2.75	3.15	n/a	3.11	3.47
MICROBIOLOGY - VIROLOGY	2.95	2.38	3.45	2.94	3.43	2.90	n/a	n/a	4.05	3.16
PHYSIOLOGY I - RESPIRATION	2.79	2.70	2.63	3.20	3.29	2.86	3.50	3.32	3.05	3.04
PHYSIOLOGY I - CARDIOVASCULAR	2.79	2.70	2.51	3.45	3.18	3.00	3.29	n/a	3.18	3.01
PATHOLOGY	3.00	3.28	1.97	3.41	3.40	2.58	2.86	2.52	4.03	3.01
MICROBIOLOGY (Basic Science of Microbial Disease)	2.33	2.00	3.26	3.94	3.15	2.09	1.50	3.33		2.70
PHYSIOLOGY II - ENDOCRINE	1.94	2.18	2.19	n/a	2.47	2.06	3.06	n/a	2.88	2.40
MICROBIOLOGY - IMMUNOLOGY	1.71	1.70	2.09	4.13	2.23	1.87	2.41	n/a	2.67	2.35
2011/12 MEAN	3.41	3.13	3.49	3.77	3.69	3.24	3.39	3.50	3.56	3.47

4. Feedback about course: Review how student participation in small groups, conferences, etc. is assessed by the faculty, and whether narrative feedback is possible (Mazin)

- Large group review sessions were termed “optional”, and (based on student responses), very few students attended them
- These sessions did not attempt to assess student participation, and no narrative feedback was given/possible
- There were no small group conferences
- Narrative feedback was not given during the course save for during the lab sessions

## 4. Review how lab or practical exams are structured (Mazin)

- Each lab session was detailed in a lab manual that was distributed at the beginning of the term.
- Attendance at lab sessions was mandatory.
- Labs were assessed by completion of lab reports.
  - Reports were checked but not graded.
- The lab exam consisted of identification of bacteria by micrograph smears and culture plates. Streaking for isolation was also performed.

#### 4. Are papers or oral presentations utilized, and how? (Mazin)

- Neither papers nor oral presentations were utilized during the course
- The teaching methods consisted of traditional lectures and laboratory sessions

## 4. Greatest strengths of the course (summarized by Mazin from student comments)

- Written notes are all in one place
- Material is clinically applicable
- The work done in the microbiology lab sessions was educational



## 4. Students suggestions for course improvement

- Written (printed) notes are disorganized, should be formatted more uniformly, and updated
- Lecture on fungi is in an odd place
- Place more emphasis on clinical relevance of the material presented
- Coordinate laboratory sessions with course lectures (timing)
- Possibly suggest a good textbook, and base the course organization upon that book's outline and chapters



## 4. Student suggestions for improving the lab sessions

- Labs were generally useful, and helped students understand, apply, and solidify material taught in lecture
- Find a solution for the shortage of some slides—there were long waits in lines
- Better correlation between labs and lectures
- Factor time and performance in lab into the final grade
- Make sure clinical relevance of each lab exercise is explained
- Correct lack of professional behavior by some professors in the lab and lecture environment (expand on this\*)

## \*Two student comments:

“There was a general atmosphere of a lack of professionalism during the lab, Instead of circulating around the lab, being proactive in assistant students, most of the faculty congregated on one side of the lab...having disruptive conversations... regarding their personal lives, highly inappropriate to disclose in a professional environment. They also made jokes at the expense of students (who were having difficulty with parts of the labs).”

“This kind of behavior is unacceptable for this institution.”

## 4. Other student suggestions

- The optional large group review sessions were not felt to be effective, and virtually no one attended them
- The content on quizzes and exams seemed mostly fair overall (final exam seemed more fair than quizzes)
- All of the material tested was findable in the written notes
- Many students felt that the content of questions focused excessively on small or picky details in the notes, rather than on more important information, general principles, or application of knowledge
- Use session learning objectives to make more clear what the most important information is to focus on learning

## 5. Recommendations for Next Year

- Learning objectives:
- Learning opportunities:
- Learning assessment:
- Faculty issues:
- Other issues:

# **Action Plan**

in response to

Review of Y1 Microbiology Course

PreClinical Subcommittee

Jan. 15, 2013

Paula Sundstrom

# Course Objectives

1) Content of objectives and their placement in the syllabus.

- Re-write one course objective that was not clear.
- "Switch" to one set of course objectives.
- Course objectives will be placed at the beginning of the syllabus.
- Session objectives will be placed at the beginning of each session in the notes and in the lectures.

# Course Objectives

2) Relationship of course objectives to learning exercises.

- Learning exercises will be driven by the objectives.
- Faculty will review the session objectives and course objectives and will match the content with the objectives.

# Course Objectives

- 3) Relationship of course objectives to exam questions.
- Each exam question will be evaluated for linkage to session objective and course objectives.
  - Questions will be removed or added to make the quizzes and exams consistent with the course objectives.



# Course Objectives

- 4) Assessment of learning objectives esp #25-32.
- For skills such as practicing proper disinfection strategies in the lab, each student will be observed by an instructor who will initial a form verifying proficiency.
  - Communication skills, solving problems through collaboration with student colleagues and taking responsibility for own work are assessed by completing lab reports after student interactions with faculty in the labs.

# Course Objectives

- 4) Assessment of learning objectives esp #25-32.
- Skills such as recognizing, identifying and differentiating structures of prokaryotic and eukaryotic cells and identifying essential properties of clinical specimens will be assessed by graded lab reports, quizzes and exams.

# Learning opportunities

- Move content from lecture into laboratory sessions.
- Introduce case-based laboratory learning exercises that include student collaboration to identify pathogens and answer questions about the cases followed by faculty-led discussion of the cases.
- Reduce time in traditional lecture.
- Introduce active learning exercises into lectures.
- Reduce Optional Review Sessions to one per quiz.

# Quizzes

- Review quiz questions along with session and course objectives to make sure that the most important points are emphasized.
- Correct that the format of questions is consistent with NBME guidelines.
- Reduce the amount of fact recall questions.
- Add items that use clinical or scientific vignettes.

# Final Exam

- Review exam for underrepresented content.
- Correct the format of questions to be consistent with NBME guidelines.
- Reduce the amount of fact recall questions.
- Add items that use clinical or scientific vignette.

# Learning Assessment: Exam Style

- Replace questions that are in formats such as negative, T/F, all of the above and A,B both neither and replace with items that use clinical or scientific vignette.

# Learning Assessment

- Increase the proportion of the laboratory grade in the overall course grade from 5% to 15-20% to reflect the proportion of the overall course that is spent in lab and skills learned in the lab.
- Add “skills” objectives to laboratory exercises in the lab manual to be consistent with and reinforce assessment of procedures in each laboratory by lab reports. The skills assessed will be consistent with objectives. Assess skills by having faculty observe students and verify skills.

# Faculty Issues

The lack of professionalism commented on by two students will be addressed in two ways;

- 1) Awareness about how we are perceived by some students and discuss how to avoid the appearance of unprofessionalism will be discussed by faculty in preparation for the course.
- 2) Reminders about being attentive to student needs will be added to the Faculty Notes for the laboratory session.



# Other Issues

Coordinate laboratory sessions with course lectures (timing)

- Course schedule has been altered to move laboratory sessions close to the relevant class sessions, and in the same quiz period as relevant class sessions.

Find a solution for the shortage of some slides in the laboratories.

- Additional slides will be purchased or obtained from the DHMC Microbiology laboratory.