ANNUAL REVIEW FOR REQUIRED COURSES

YEAR AND COURSE: Year 2, SBM Respiration

COURSE DIRECTOR(S): Hal Manning, MD

DATE OF REVIEW BY MEC SUBCOMMITTEE: Thursday March 22, 5-6 PM, in Rubin 690 (in the NCCC). Attended by Dave Nierenberg, Hal Manning, Tim Lahey, Rich Comi, Benjamin Colby, Jessie Bay

Note: Text in blue reflects the results of our discussion during the review. Text in black reflect material prepared prior to the meeting.

1. OBJECTIVES AND ASSESSMENT

A. General learning objectives on grid (from course director): SBM Respiration has a number of educational objectives: students should emerge from the course with an understanding of the physiological and pathologic changes that occur in patients with a variety of respiratory diseases, and they should be able to correlate the pathological and physiological changes with the symptoms, signs, laboratory, pulmonary function, and radiological abnormalities that accompany lung disease. They should understand the role played by genetic and environmental factors in diseases such as cystic fibrosis, COPD, and lung cancer, and they should be able to apply basic epidemiological principles to diseases, such as lung cancer. Finally, students should begin to learn to piece together the various features of a patient's illness to arrive at a list of the most likely diagnostic possibilities. In addition to lectures, there are a series of small group conferences that deal with each of the main content areas, and there is also a session in the pulmonary function lab. Student proficiency is assessed through participation in the small group conference sessions and a written final exam.

B. Detailed learning objectives on grid: please review the document attached:

C. Methods of assessing student proficiency: There is one final exam, plus the need to participate in conference (total of eight 1-hour conferences). Attendance receives one point per conference; conference leaders have not awarded additional points for quality of preparation or participation, and don’t feel able to give detailed feedback to each student after only 5-8 sessions (each session has up to 15 students).

D. Coverage of specific topics per LCME requirements:
   - Health of populations: Discussed in context of occupational lung disease, asthma, risk factors for lung cancer, efficacy of screening for lung cancer, PBL case about asthma
   - Basic and ethical principles of clinical and translational research: Discussed in context of recent research results about treatment of ARDS and low-volume ventilator support for ARDS
   - Recognize and address gender and cultural biases in themselves: no obvious discussion in course
Instruction in medical ethics and human values: Discussed in context of proper labeling of smoking warnings on cigarette boxes, does sleep apnea in bus driver need to be reported

E. Ongoing assessment of students’ problem solving, clinical reasoning, decision-making, and communication skills: This seems to work pretty well in PBL small groups (8-9 students per group, same tutor, about 34 hours of contact), but much more difficult in respiration conferences (15-16 students per group, often different tutors although one principal tutor, only 8 hours of contact time)

F. Narrative description of student performance whenever possible: same note as above for ongoing assessment

2. COURSE PLANNING
   A. % effort of course director: 4.5% effort (or about 70 hours)
   B. How is course planned? Course director (HLM) plans the course with occasional informal input from other faculty. This seems to work well at this time, plus hard to get others to join in meetings. If overall goal of course changes with new curriculum, then a course planning committee including experts from physiology, anatomy, histology, pathology, etc makes sense
   C. Annual meeting of core faculty? No.
   D. What was new this year? A final interactive session that follows a patient over time, touches upon most of the themes in the course, and emphasizes critical thinking and the application of pathophysiology to patient care. I also met with Greg Ogrinc to find some admittedly modest ways to formally incorporate health care delivery science into the course. There was also new material added to existing lectures about recent research dealing with treatment of ARDS, and recent material about updates in the treatment of head and neck cancer.
   E. How are grad students or fellows who help with teaching trained? Each year, 1-2 fellows serve as conference leaders and run one of the stations in the PFT lab. I meet with each of the fellows to review the material for all of the case conferences and the PFT lab and to set expectations for how they should run the conference sessions.
   F. Any faculty development efforts? None for this course per se. DOM faculty can attend such seminars offered within the department.

3. COURSE OUTCOMES
   A. Assessment by course director of most recent offering: I think this year’s course was successful, and students appear to have enjoyed the course. There was some unevenness among the conference leaders – though I try to minimize this, it seems like an inescapable fact of life. There was fairly widespread dissatisfaction with the pathology images on the exam, which we’ll need to address for the upcoming year’s course.
   B. Student scores and comments at end of course: For course offered in Fall 2011, the overall score for the course was 4.23, ranking first out of the first 8 courses completed thus far this year. This overall score of 4.23 (very good to excellent) compares to 3.900 in the same course last year, and an overall mean score for all courses of 3.57 last year. This year. Strengths included high scores in the areas excellence of the course director; great lecturers; very effective small group leaders; good organization of material; high
value in the many clinical evaluations; and helpful review offered at the end of the course. Students also enjoyed the discussion of how screening for lung cancer would fit into an effective healthcare system, and that a “hands-on” PFT lab experience was included for all students. Students also suggested that some of the images on the final exam could be updated or sharpened, and perhaps your pathologist could select new images (as jpg images) that are sharper.

C. **Student scores/comments on the AAMC GS**: not available for this course

D. **Performance on Step 1**: Over past 4 years, DMS students have averaged scores of 0.49 SD above the national average in the Respiratory system, ranking this area #1 out of 10 systems reported by the NBME. In 2011, the DMS mean score was 0.57 SD above the national mean score.

E. **Performance on local exams**: appears to be good and stable over past 4 years

4. **PEDAGOGY**

A. What formats are used?

B. % Lecture, lab, conference, PBL, other?

   a. Lecture, standard 26 h (46%)

   b. Interactive lectures 03 h (5%)
      (more active involvement of students, with Manning, Welch)

   c. Lab (Pathology) 8 h (14%)

   d. Measure clinical/physiologic processes with data: 2 hr (4%)
      (This was the PFT session for all students, in which each student measured his or her own PFTs)

   e. Conference: 8 hr (14%)

   f. PBL conference: 6 h (11%)

   g. Patient presentation/panel discussion: 0

   h. Physical sign/dx session with patients: 0

   i. Exam: 4 hr (7%)

   j. Total scheduled hours: 57 h

C. **Y2 themes covered during lectures (more in conference and PBL)**:

   a. Pediatrics: 4 hr

   b. Pathology: 10 hr (2 h lecture plus 8 h labs)

   c. Imaging: 1 hr

   d. Improvement (HCDS): 01.5 hr (including Gil Welch session on the value of screening for lung cancer)

   e. Neoplasia: 3 hr

   f. Nutrition: --

   g. Genetics: 1 hr (Moeschler, CF)

D. **Opportunities for active learning (student assess own learning needs, find-analyze-synthesize new information, assess credibility of information sources, share new info with peers)**: this happens most often when students prepare on their own for the weekly small group conferences, PBL conferences, and during the PFT lab at the medical center.

E. **Develop skills of critical judgment based on evidence, skill of medical problem solving**: These skills are practiced mostly in the conference and PBL groups, though I
did introduce an interactive session at the end of the course that emphasizes critical thinking and challenges the students’ ability to piece together clinical information.

**F. Labs where biologic data are observed, measured, analyzed?** During the PFT lab, students do spirometry manually (i.e. rather than computerized testing, they perform spirometry on an “old-fashioned” water seal spirometer with a rotating drum, and they calculate the FEV₁, FVC, etc. from the graph paper). They also measure their MIP and MEP (maximal inspiratory and expiratory pressure). These exercises do not “analyze” or manipulate those data to any great extent (for example, attempt to show a regresson of FVC on student height, weight, gender, etc).

**G. Is detailed written feedback to students given? No**

**5. PLANS FOR SPECIFIC CHANGES/IMPROVEMENTS FOR NEXT YEAR:** Based on our review of all issues above, this course continues to be overall excellent in quality, as measured by both student scores and comments, and performance of students on objective exams such as NBME Step 1. Every year this course “rises to the top” of the quality of Y2 courses, despite having many excellent courses offered during Year 2. Nevertheless, there are a few areas where we could try to improve a bit for next year, including:

1. Improve the images on the final exam; students report they were hard to read as printed (possibly quality of image itself, possibly related to use of new printer/copier)
2. Provide a few more practice questions prior to the exam
3. Continue trend to a few more active, “interactive” large learning conferences to replace more traditional and more passive lectures
4. Consider reducing time spent in the 8 hours of pathology lab exercises, which students reported as not being very useful, with poor student attendance. Consider reducing this 8 hours to 4 hours, and make the time more useful and more structured exercises, perhaps more case based with unknown slides. With the 4 hours of time saved, consider investing in more active student exercises, such as conferences, a physical diagnosis session, and/or a patient panel discussion before the class.
5. Do more with the PFT lab, for example, studying how various PFTs (e.g. FVCX, FEV1, MIP, etc) vary with student height, weight, gender, athletic training, presence of underlying pulmonary disease, etc.

**THIS REPORT WILL BE SUBMITTED TO THE MEC FOR APPROVAL, likely at our April meeting**