Scientific Foundations Committee

January 9, 2015
7:30 – 9:00 am
Mayo B-620

Minutes

2014-2015 Scientific Foundations Committee Members		
MEMBER	**COURSE/ROLE**	**ATTENDANCE**
Steve Katz	Chair (INMD 6814 Physiology)	x
Sharon Allen	INMD 6803/6804/6805 ECM 1, ECM 2, ECM 3A	x
Richard Amado	INMD 6815 Human Behavior	
H. Brent Clark	INMD 6819 HHD – N & P	x
Eli Coleman	INMD 6816 Human Sexuality	
Greg Filice	MS 2 ID Thread	
Glenn Giesler	INMD 6813 Neuroscience	
Bob Kempainen	INMD 6808 HHD – C & R	x
Anne Minenko	INMD 6809 HHD – R, D & O^3	
Kaz Nelson	INMD 6819 HHD – N & P	x
Catherine Niewoehner	INMD 6810 HHD – R & E-R	x
James Nixon	INMD 6803/6805/6806/6807 ECM 1, ECM 3A/B/C	
Jan Norrander	INMD 6801 Human Structure and Function	x
Deborah Powell	INMD 6817 Principles of Pathology, MS2 Pathology Thread	x
Michel Sanders	INMD 6802 Science of Medical Practice	
David Satin	INMD 6803/6804/6805/6806/6807 ECM 1, ECM 2, ECM 3	
Lisa Schimmenti	INMD 6802 Science of Medical Practice	
Peter Southern	INMD 6812 Microbiology	x
Heather Thompson Buum	INMD 6811 HHD – GI & Heme	x
Doug Wangensteen	INMD 6814 Physiology	x
Tony Weinhaus	INMD 6801 Human Structure and Function	x
Kevin Wickman	INMD 6818 Principles of Pharmacology	x
Mary Ramey	MS2 Lab Med/Path Coordinator	x
Kevin Kay	MS2 Student Representative	x
Nicole Cairns	MS1 Student Representative	
Mark Rosenberg	*Vice Dean for Medical Education*	
Kathy Watson	*Senior Associate Dean for UME*	
Jeffrey Chipman	*Assistant Dean for Scientific Foundations*	
Majka Woods	*Assistant Dean for ACE*	
Anne Pereira	*Assistant Dean for Clinical Education*	
Marshall Hertz	*Faculty Advisor*	
Brad Clarke	*ACE Curriculum Specialist*	*x*
Leslie Anderson	*Chief of Staff, Medical Education*	
Scott Slattery	*Director of Learner Development*	*x*
Heather Peterson	*Medical School Registrar*	
Brian Woods	*Lead Course Manager*	*x*

Guests: Chelsey Jernberg

Minutes

Draft minutes from the November 7 and December 5 meetings were approved as submitted.

Student Issues/Concerns/Questions

Kevin Kay, the MS2 student representative, communicated the following concerns that have been voiced by current MS2 students:

1. MS2s in particular are concerned about the number of slides in lecturers' presentation. Students organize their studies using the slides as a unit of measure. As a general rule, 30-60 slides are a good guideline for student organization. Of course, the amount of information to be taught will guide the number of slides. Instead of removing material, condensing slides is a good compromise: put 2-3 bullet points on a slide, instead of just one.

2. Some students have concerns about the number of small groups/lab groups in a day. Kevin submits this as a representative of the students' voice. Personally, he likes the small groups. Also, students in the 2nd semester of the 2nd year (Kevin estimates 30-50%) are more concerned with studying for the Step 1 exam than attending required course sessions. It's difficult for some students to determine if a detail covered in small group will be tested on the exam. Most students do not read the syllabi to find out lecture or session objectives.

Committee comments:

- Yes, there are comments on the course evaluations about small group overload, but the majority of comments are positive.
- Small group learning mimics real-life situations on the wards where teams meet to discuss cases.
- There is evidence that topics covered in small groups usually are the most understood, compared to those topics that are not covered in small group.
- The 2nd semester of the 2nd year is a problem in every medical school. This school emphasizes small group learning as one of many methods to teach materials. It's valuable to some; not to all. That's the same in any field.
- An MS1 committee member sat in on several MS2 small groups in order to look at integration. His impression was that tutors & students were unclear about group objectives.
- Clear objectives must be communicated for each small group & lecture, and put on a slide. Slides are what students use for study.

3. Due to MS1 & MS2 course sessions starting at 8:00am, and often involving required small groups, is it possible to change the SFC meeting time to 7:00am or later in the afternoon?

At this time, the committee will not change the meeting time, so for now, Kevin will come early & then leave early when necessary. Dr. Katz would like at least one of the student representatives present at all SFC meetings whenever possible.

Announcements

n/a

Annual Course Review

Human Health & Disease – Cardio & Resp (HHD1)

See attached ACR for detail.

This course prepares students for boards but also demonstrates how to apply knowledge to their clinical preparation. The midterm comes at the end of the 3rd week and is formative. The final is a high-stakes exam. 6 students did not pass this year, after the exam was rescored. Several of these students have previous course failures. USMLE scores show that students are understanding material from this course. Approx. 35% of the class achieved Honors using the new criteria implemented this year.

Evidence of outcomes being achieved:

Course evaluation scores were quite good, including the new questions this year: "Overall I thought this course was excellent", "Public Health topics were integrated in the course". Other results were good, even Quality Improvement & Interprofessional Education, even though they were not explicitly taught. These QI & IE questions are included to get a baseline, per Brad & Suzanne.

Working well:

A special hats-off to Serena Sherrell, the MS2 Course Manager, for all the support & time she puts in to make the course function smoothly.

Small groups get a high rating, though there is a very vocal minority that resents having them required.

Note: the educational value ratings scale on the course evaluation is reversed so that 1 is highest and 5 is lowest. Chelsey will correct this disparity in the Course Evaluation software in order to have all rating scales be consistent. This is a back-end coding fix. Students do not see the flipped ratings scale; only text choices.

Integration across disciplines is strong, as well as the quality of the lecturers.

Areas of concern:

More students failed this year than in the past (6 vs.3). Are the course expectations too high? Should only basic proficiency be taught/tested? Dr Powell commented that if no students fail, then Course Directors need to question what they are doing and teaching in the course.

The recurring topic of not enough practice questions came up again. But what do students really want? Even when more formative opportunities are added, students still comment that there are not enough. Perhaps students need to be surveyed, as they are not content with what Course Directors provide. This is a perennial concern.

Pathology lab faculty is still weak. However, new faculty is coming on.

There a balancing act of redundancy of topics. Dr Kempainen would like to start the course 1 week earlier, before Labor Day. The first week is really tough to deep-dive into when there are only 4 days.
Comment: EKG/cardiac cycle (the first topic) is introduced in Physiology during MS1, so it's not completely new to students. Perhaps students can be instructed to review these MS1 lectures or identify other online lectures of cardio and resp topics for review.

Planned changes for next year:

Tom Stillman would repeat heart & breast sounds, from his ECM lecture. The HHD1 lectures would be more advanced for the MS2s. There could also be a more active promotion of heart/breast sound links on the web.

May add ANKI slides for EKG findings and also label EKGs better on the slides.

Due to low attendance for lectures, Dr Kempainen would like to look for alternate, smaller spaces for lectures. *Comments:* Course Management has started looking at the possibility of reserving a different room. The Med School has to juggle and share room space with the other schools in the Academic Health Center. Also, not all rooms have lecture recording or streaming capability. This would involve additional cost to install it in different rooms. Dr Schimmenti suggested making the lectures more interactive, tying topics together, breaking into smaller groups for discussion, etc.

Discussion

HHD1 –RESPIRATORY SMALL GROUP CASE

See the attached Group Case Demo for details, including benefits of this exercise.

The case is based on the Karolinska curriculum. Student small groups are split in half, so that there are 6 students doing the case at a time, and there is no facilitator. Keeping the same small group helps with the trust issue, so students can be open with each other.

This is the 4th year for the case, but the 1st year that it was given online using Qualtrics. There were minimal hitches. The Case is given in the 5th week, so that students have a good background of the material. The diagnosis in the Case is new, but requires a good review of the material. Students must also give reasons why the wrong answers are wrong.

The case is a good review & bridge to clinical practice. It's also graded, and all students in a group get the same grade. Student reviews/comments were very positive.

Comments: ECM1 did a similar exercise for the HDPE final exam in Fall 2014, which took the subjectivity out of the final.

Access & viewing course feedback cards on BlackBag

Stephen Katz & Brian Woods gave a brief demonstration of accessing course feedback cards on BlackBag. All Course Directors have access to these feedback cards. Students may complete an anonymous Feedback Card on a session's objectives, content, clinical relevance, or offer other comments or improvements regarding the session or instructor. A link is available in every session on the Calendar, and these are usually spur-of-the-moment submissions by students.

To access:

- Go to your course(s) directly.
- Click "CourseAdmin" in the upper left hand menu.
- Click "Feedback Reports". You will see a summary list of all Feedback Cards for your course. The Feedback count indicates the number of students who submitted a Card for a particular session.

All Feedback Cards may be downloaded in Excel format, or viewed in Course Summary or Raw Data views using the links at the top of the page.

At this time, BlackBag does not have the capability to notify Course Directors when a new Feedback Card has been submitted, so Course Directors need to log-in to their course to view. This has been a request to the BlackBag developer & committee for some time.

FUTURE AGENDA ITEMS

Suggestions from Course Directors for future SFC meeting topics:

- Student disability services and accommodations
- ExamSoft & BlackBag assessments
- ILT feedback
- Copyrights & resources (focused on what we *can* do)
- Course co-directors (not the dyad)
- Future joint meeting of CEC and SFC on longitudinal integration of basic science and clinical medicine
- Perhaps have Jan Norrander present in her capacity as a Blackbag committee member
- More Blackbag search examples
- SFC web site for action item storage
- Second year students tutoring of first year students

The meeting was adjourned at 9:00am.

The next meeting is February 6, 2015 in room Mayo B-620.

Respectfully submitted,
Brian Woods

Annual Course Review (ACR)
University of Minnesota Medical School

Course: *Human Health & Disease: Cardio & Resp*
Course Director(s): *Bob Kempainen, MD*
Course Manager: *Serena Sherell*

Date of course: *Fall 2014*

Overall evaluation of the course: *4.1*

Course grading rubric: *See below*

Number of failures for academic year: *6*

	Required?	***Point Value***	***% of All Possible Points***
Formative Assessments			
Path lab attendance and participation	*Yes*	*25*	*7.0*
Independent Study in Pathology cases	*Yes*	*5*	*1.4*
Cardiology small group attendance	*Yes*	*15*	*4.2*
Cardiology small group quizzes	*Yes*	*15*	*4.2*
ID small group attendance	*Yes*	*10*	*2.8*
Respiratory small group attendance	*Yes*	*0*	*NA*
Mid-term examination	*Yes*	*35*	*9.8*
Formative Subtotal		***105***	***30%***
Summative Assessments			
Final written exam	*Yes*	*200*	*56.3*
Path lab practical exam	*Yes*	*20*	*5.6*
Exam subtotal		*220*	*62*
Respiratory group case	*Yes*	*30*	*8.4*
Summative Subtotal		***250***	***70%***
Total Course Points		***355***	***100%***

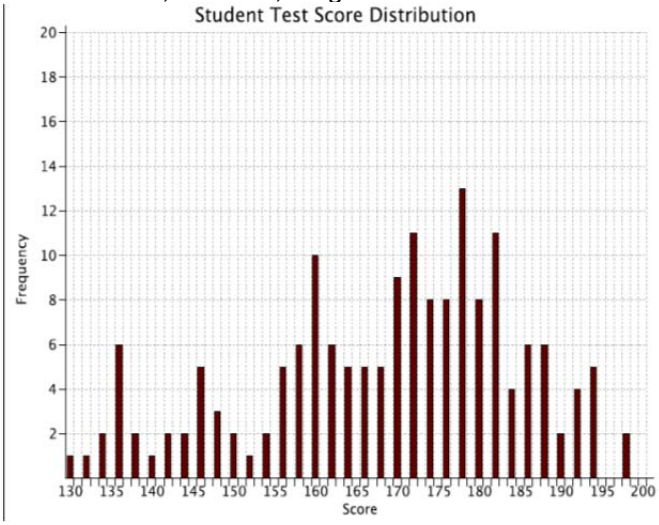
Briefly describe the learning outcomes for your course

The primary objective of Human Disease One is to provide an in-depth introduction to major topics in pulmonary and cardiology medicine. The course integrates the relevant pathophysiology, pathology, and pharmacology. Relevant aspects of infectious disease pathophysiology and antimicrobial pharmacology are also included in the course. Upon successful completion of the course, student will possess a firm scientific foundation to approach clinical management of patients in their Third and Fourth Year clinical rotations.

1. Describe what evidence you have that the outcomes are being achieved. Include student review information.

A. Scores on MCQ Written examination

a) Mean and median 84%, SD 16%, range 132 – 198



B. Scores on Pathology Lab Practical

a) Mean 18.5 out of 20 pts, range 12 – 20 pts

C. Scores on respiratory group case

a) Worth 30 points. Scores ranged from 26 to 30 with mean close to 29

D. 2013 USMLE Step I scores on relevant HHD1 content (class that took HD1 in 2012):

a) Cardiovascular system and Respiratory system above US/Canadian mean

b) Difficult to gauge ID, Pathology and Pharmacology HHD1 content performance.

E. Student course evaluation – see next page

- Response rate down from last year but good (135/174 = 78%)

	2012	2013	2014
The course objectives were made clear to me	4.4	4.3	4.3
The assignments planned for ILT facilitated my learning of course material	4.2	3.9	3.9
There were adequate opportunities for non-graded self-assessments	3.9	3.7	3.4
Resources provided for class were useful in learning material (BlackBag, packets, etc)	4.3	4.1	4.1
There was close agreement between the stated objectives and info taught	4.3	4.3	4.2
The graded assessments appropriately tested the course objectives	4.2	4.1	4.0
Overall, I acquired an understanding of the stated course objectives	4.4	4.3	4.2
Course integrates basic science with clinical practice			4.2
Public Health topics were integrated into the course			3.7
Overall I thought this course was excellent			4.1

Ratings for integration of topics on Quality Improvement and Interprofessional Education were 3.3 and 3.1 despite no course content on these areas

2. Describe what is working well in your course.
    1. Office of Med Ed support
        a) special hats off to Serena
    2. Respiratory and Cardiology Pathophysiology small groups
        a) educational value both rated at 1.6 and 2.0 on a 1 – 5 scale
        b) large number of positive written comments although vocal minority unhappy with required attendance
    3. Improved integration and communication of course logistical material and course content across disciplines
    4. Strong lecturers
        a) 67% of lecturers rated ≥ 4.0 on a 1 – 5 scale
        b) higher rated lecturers tended to give multiple lectures
    5. Able to again offer a new optional Chest Imaging lecture early in course

3. Describe any areas of concern.
    1. 6 students failed course vs 3 last year. Good exam scores but are expectations too high?
    2. Do we have enough good opportunities for self-assessment prior to exams?
        a. Formative midterm. 50 questions. Meant to be challenging as final exam
            - 40% of class "failed" with score <70%
        b. Additional 115 practice written questions plus practice path lab practical
        c. Average of > 3 practice written questions per lecture hour
        d. 3rd cards pathophys review session added this year
    3. Adding Pathology faculty will help with Path lab ratings
        a. Large variation in tutor ratings (2.4 to 4.8)
        b. Faculty giving Respiratory Path lectures leaving, new faculty identified
    4. Not enough redundancy/too much overlap for some lectures?
        a. variable desire for redundancy among students
        b. EKG/cardiac cycle lectures overwhelming on day 1 – Tues start difficult

5. Lack of actual heart sounds and breath sounds for students to listen to
6. Lecture slides not consistently user-friendly for note taking.
    a. Need to label key parts of graphs, EKGs
    b. Clean up abbreviations and cut down on # of slides
7. Faculty unhappy with giving lectures to mostly empty room
    a. 40% of students estimated attending < 25% of lectures
    b. Monday and Friday especially low
8. Lukewarm ratings of accompanying FCT case
    a. too much TB in year 1 and 2
    b. model FCT case needed

4. Describe the progress of the changes being made as the result of your previous ACR

1. Detailed review of overlapping content across disciplines (in progress)

- epidemiology and treatment covered in only 1 lecture

- ensure consensus on accuracy of content

2. Consider more cards pathophys review sessions and practice questions (done)

3. Consider more pathology practice questions (needed?)

4. Add health disparities content – (done, but unclear how effective)

5. Improve guidance on how to use ILT time (not clear if this Q applies to course)

6. Encourage faculty to provide ppt files in modifiable format or B and W only (in progress)

- consider finding alternative lecturers when faculty not flexible

7. Possible integration of heart sounds and lung sounds into lecture or small group or ECM

5. Describe any changes you intend to make for the next academic year

1. Further review of overlapping content across disciplines
    - eliminate unnecessary redundancy, eliminate inconsistencies, reduce slide number
2. Tom Stillman slated to repeat his sessions on heart and lung sounds during HHD1 2015
3. Call more attention to course website link to listen to heart sounds. Integrate into small groups if reliable way to play sounds off laptop.
4. Create Anki slide equivalent for EKGs and rhythm strips
5. Re-write FCT case from scratch with new topic?
6. Consider having lectures on Mon and Friday in smaller room (capacity 100?).

Respiratory Group Case Demo for SFC, January 9, 2015

1. Students work through case in groups of 6 (1/2 of their small group) without a facilitator
2. Case presented in step-wise fashion with group answering a question with each step.
3. Complex case that draws on material throughout course plus requires finding new knowledge
4. Points awarded for each correct answer
5. Open book/open computer

Example *Screen 1: Clinical information*

Chief Concern: chest pain and dyspnea

History of Presenting Illness: The patient is a 30 year-old woman who is at 35 weeks gestation in her first pregnancy when she experiences abrupt worsening of dyspnea 1 hour prior to presenting to the Emergency Department. She's had gradually increasing exertional dyspnea over the past few weeks such that she has had to stop to catch her breath after climbing 2 flights of stairs. She now reports abrupt onset of dyspnea at rest ever since she bent down to tie her shoes. She felt light-headed walking to the phone to call 911. She coughed up 2 tablespoons of bright red blood on the way to the hospital but otherwise has not had recent fever, chills, or cough. She notes knife-like pain in both anterior lung fields with inspiration.

(The clinical scenario will continue with additional history including past medical, social history, family history, medications, allergies, and review of systems that may add complexity to the case.)

Physical Examination

Vitals: BP 90/58, HR 102/min, T 38.2 °C, RR 22/min, O_2 sat 91% on room air

Chest: faint, bilateral end-expiratory wheezes with decreased breath sounds at the left posterior base. There is dullness to percussion over this region.

Cardiovascular: Tachycardic, regular, with a loud P2 component but otherwise with normal heart sounds.

Extremities: no cyanosis, clubbing, or edema.

Chest x-ray: moderate sized left pleural effusion. Otherwise normal *(for the actual exercise, you may be given an image to interpret rather than receiving the result. You may also receive additional lab results)*

Screen 2: Multiple-choice question

Question 1

For 2 Points: Which of the following is the most likely cause of this patient's dyspnea?

- **A. Pneumonia with parapneumonic effusion**
- **B. Malignant effusion**
- **C. Congestive heart failure due to cardiomyopathy of pregnancy**
- **D. Pulmonary embolism**

For 2 Points: Provide one reason why 2 of the above choices are incorrect. Please be specific but please limit to 1 or 2 sentences. For instance, rather than stating "Clinical presentation not consistent with "X", explain why presentation not consistent with "X".

Choice ____ is incorrect because: _____
Choice ____ is incorrect because: _____

You will be warned once your answer is submitted, it is final.

Screen 3: Answers to question 1

Question 1 Answer: D

Explanation: (you may have thought of additional reasons worthy of credit not mentioned below)

Choice D is correct. This patient's presentation (abrupt onset, pleuritic chest pain, low-grade temperature, loud P2 heart sound, effusion, pregnancy as risk factor) is highly suspicious for pulmonary embolism. Reasons the alternative explanations are less likely are discussed below.

Choice A is incorrect. A chest x-ray revealing an infiltrate is needed to definitively diagnose pneumonia. Pneumonia can cause hemoptysis, effusion, and fever, and it is possible that pneumonia might be apparent on a chest film if the effusion were drained. However, the abrupt onset of symptoms, loud P2, lack of purulent sputum production, and absence of infiltrate on initial chest film make this less likely.

Choice B is incorrect. The abrupt onset of symptoms, bilateral pleuritic chest pain, loud P2, and lack of risk factors make malignant effusion highly unlikely in this setting. Pulmonary embolism can cause an exudative, sometimes bloody, effusion.

Choice C is incorrect. The patient's unilateral effusion, pleuritic chest pain, low-grade fever, and abrupt onset of symptoms make heart failure highly unlikely. The patient also has a loud P2, which is characteristic of pulmonary hypertension, but the patient does not have an S3 gallop or murmur to suggest cardiac disease. The patient's elevated jugular venous pressure can be caused by left or right-side failure.

Screen 4: Additional Clinical Course

Clinical Course:

The patient undergoes a chest CT angiogram which reveals bilateral emboli. Her dyspnea is unchanged and she has not had any further hemoptysis. Labs include: WBC 12.5 x 10^9/L, Hemoglobin 12.0 gm/dl, Platelets 150,000/µL. Her electrolytes and renal function are normal.
(all of the clinical information preceding question 1 will follow for reviewing purposes)

Screen 5: 2nd Multiple-Choice question:

Question 2

For 2 Points: Which of the following is the best next step in treating the patient?

A. Warfarin
B. Intravenous unfractionated heparin
C. Thrombolytics (e.g. tPA)
D. Placement of an inferior vena cava filter

For 2 Points: Provide one reason why 2 of the above choices are incorrect. Write 1 sentence for each explanation.

Choice ____ is incorrect because: _____
Choice ____ is incorrect because: _____
You will be warned once your answer is submitted, it is final.

Screen 6 will provide answers to question 2. The same cycle repeats itself the remainder of the case.

Group Case Benefits:

1) test students on their clinical reasoning skills as well as medical knowledge
2) test students on their ability to access new knowledge in a timely fashion
3) test students ability to weigh the relative merits of various sources of information
4) students learn to reach consensus when there are differences of opinion
5) students likely more effective teaching one another than having a tutor at this point in course