Project 1:

Project Title: Enhancing the LInC Curriculum With Social Determinants of Health

Faculty Advisors:
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Course for which the project will be completed
This project cuts across courses; results would be reported to the FOM 1 and FOM 2 Curriculum Committees rather than to one specific course director.

Description of proposed project:
In the spirit of the LiNC values, in 2012 UMass students and faculty created the "Enhancing the LInC Curriculum with Social Determinants of Health" project. This project aims to identify appropriate, relevant opportunities to integrate social determinants of health into preclinical years lecture. While these concepts are introduced in the Foundations of Medicine (FOM) 1 course Determinants of Health, the introduction is brief; students' review of the full curriculum has concluded that many missed opportunities exist to expand on these concepts in the basic science courses. Reinforcing these concepts is essential, for we know that students' focus during their medical education tends to narrow rather than expand. Importantly, student engagement through lecture review and feedback has formed the heart of this project to date.

While this project has made significant strides since its inception, much remains to be accomplished. Highlights of progress to date include: completion of a feedback template using the REDCap data collection system; 8 students collectively reviewing 15 relevant lectures from FOM 1 and from FOM 2; review results being analyzed and presented to the Educational Policy Committee; a second year medical student presenting project results at the AAMC's NEGEA meeting; two 2014 summer students developing and presenting specific ideas for DOH element inclusion (buttressed with a brief annotated bibliography) to several course directors. In all instances, faculty have been interested and receptive; in one instance, faculty course leaders elected to include the students' suggested materials in their practice assessment quizzes.

While this project has benefited greatly from being totally student initiated and student driven, it has also had to weather the challenges of students having multiple demands on their time and giving way to students' need to concentrate on mastering course material. While progress on the project has slowed over the past few months, two first year students have picked up the baton and begun reviewing lectures to develop ideas of modifications. Their effort would benefit greatly from having dedicated time during the summer to advance it to the next steps. This is timely, as in response to a student's recent comment that more DOH content needs to be included in courses, curriculum leaders recently addressed this at a Curriculum Committee. The next steps in this project are where the work accomplished to date will bear additional fruit and become the catalyst for change. As in the summer of 2014, these steps include preparing feedback reports for course leaders; creating materials with

accompanying annotated bibliographies for slide edits in response to data already collected; and engaging new, interested students in the research.

Outline of student's role:
A task of appropriate scale for an 8-week summer period would involve the following:

1. Review all work on this project since its inception, including notes from January FOM 2 Curriculum Committee discussion of DOH elements across the curriculum
2. Respond to OSD directors' request for several relevant questions for inclusion in each OSD block formative exams by reviewing current material and drafting questions/responses
3. Review high yield lectures to refresh and update suggestions; create slide edit suggestions for these lectures
4. Review these summaries and edit suggestions with faculty advisors and OUME leadership for accuracy and appropriateness
5. With appropriate input and guidance from faculty course advisors, work with course directors and lecturers to refine and implement suggested changes
6. Begin crafting a project evaluation plan
7. Specify ideas for future student engagement

Preferred student skills:
In accordance with the goal of new student engagement in this project, a rising second year medical student with an interest in curriculum development is preferred. Ideally, the student would have a background in social determinants of health through past study or volunteer/job experience, as well as enough research experience to interpret data from REDCap and an ability work with faculty advisors to draft course presentation edits, and present suggested changes to course directors.

Timeline for required work:
8 weeks total
June 2, 2014 – August 1, 2014

Project 2:

Proposal: Summer Curriculum Development Service Program

Co-Mentors:
Sonia N. Chimienti, MD – Course Co-Director, Organ System Diseases
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Wahid Wassef, MD – Block Leader, Gastroenterology Block of Organ System Diseases
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Course for the project:
Organ System Diseases
- Cardiovascular Block
- Respiratory Block
- Gastroenterology Block

Description of Proposed Project:
With the goal of improving the retention and understanding of the pathophysiology of organ system diseases, and to increase active learning within the course, Dr. Wahid Wassef worked with the OSD course directors in 2014 to develop an innovative simulation exercise in the Gastroenterology Block of OSD. The exercise was highly successful, and very well received by the students. Building upon this experience, we would like to develop similar activities in the Cardiovascular and Respiratory blocks of OSD, and would like to further refine the experience in the Gastroenterology block.

For this project, Dr. Wassef and Dr. Chimienti will co-mentor a rising second year student who will work on developing these innovative simulation exercises. The student will meet with Dr. Wassef and Dr. Chimienti, together with the students who have been involved with this innovative GI simulation exercise over the past year. Focusing on pathophysiology of disease, the student will work with this team over the 4-8 weeks of the summer break to develop simulation exercises to facilitate learning the mechanisms underlying the development of one type of cardiovascular disease and one type of respiratory disease. Additionally, further development and refinement will occur with the GI case. Examples of potential simulation scenarios include:
1. the pathophysiology of different types of heart failure
2. the pathophysiology of respiratory failure due to various disease processes.
The project will need to be administered over a 2-3 hour session during a given block, and will be run over 3 days for each exercise, in order to accommodate all 125 students in the class. Ideally, the scenarios will also involve some interprofessional threads, and could potentially include students from the graduate school of nursing if the timing is appropriate. There may also be a didactic session to which students could be randomized, with a debriefing and assessment tool at the end to evaluate the two approaches. If this approach is taken, we would seek approval from the Students as Research Subjects Ad Hoc Advisory Group and the Institutional Review Board as necessary.

Having worked on this exercise during this past year's course, Dr. Wassef is an excellent mentor for this project, given his knowledge of the steps required to implement such an exercise. Dr. Chimienti has been working with the organ system diseases course since 2011, and is interested in ongoing innovation with regard to active learning.

Student's Role:
There will be weekly meetings to discuss the process and project development. In addition there will be 1 to 2 days per week spent working on the logistics/specifics and case development of the scenarios. There will be 1 scenario developed for cardiovascular, and 1 scenario developed for respiratory. Additionally two scenarios will be further refined for the gastroenterology block, involving G.I. bleeding.

Preferred student skills:
Excellent time management skills are a must. Also a dedication to following through the project to the end. An interest in simulation would be helpful. Also an interest in curricular development would be important. Basic knowledge of randomized studies is not required but would be helpful.

Time required for the project:
The project will be completed over the summer, within the 4 to 8 week period assigned.

Project 3:

Development of a Student Self -directed Curriculum in Patient-Reported Outcomes Measurement

PI: Patricia D. Franklin MD MBA MPH, Professor and Director, Clinical and Outcomes Research, Department of Orthopedics and Physical Rehabilitation, UMMS, 55 Lake Ave North, Worcester, MA 01655. 508-856-5748. patricia.franklin@umassmed.edu

Co-I's: Barbara Gandek, PhD, Instructor, Department of Quantitative Health Sciences
John E. Ware, Jr., PhD, Professor, Department of Quantitative Health Sciences

Course for which the curriculum development fund project will be completed:
Flexible Clinical Elective in Patient-Reported Outcomes Measurement

Patient-reported outcome (PRO) measures are often used in clinical research and practice, and are of increasing interest to payers and regulators. For example, PROs are used in osteoarthritis to obtain information from patients about joint function and pain, which is crucial in making treatment decisions. Medicare anticipates mandating that orthopedists collect PROs to assess patient outcomes after total joint replacement surgery. Because PROs will be increasingly important to physicians, there is a need in the medical school curriculum for a brief course that provides an introduction to PRO measurement. This course would describe some of the most widely-used PRO measures and also discuss the science behind PRO measurement, to allow physicians to more confidently judge the properties of PRO measures they might use or read about in the future.

This team includes internationally known PRO developers (Ware, Gandek) and an orthopedic researcher (Franklin), who have taught extensively in traditional classroom settings and have begun to develop a self-directed course in PRO measurement. We have prepared an initial set of eight narrated PowerPoint presentations for the course. We want to expand this into a full clinical elective, with a self-guided lecture component, a directed reading component, and clinical shadowing in the arthritis and joint replacement clinic to better understand the use of PROs in arthritis practice. Adding a medical student to the course development team will allow us to understand what is and isn't working well with the current materials and what else is needed to best help future MD students learn about PRO measurement. In the process, the student would learn a lot about PRO measures and have the opportunity for discussions with experienced researchers. While parts of the course will focus on PRO measurement in arthritis, it also should be useful for students with a variety of clinical interests.

Student's role:
The student would work with the instructors to fully develop the PRO curriculum. This would include reviewing the narrated PowerPoint presentations and helping to revise them from the perspective of an MD student, reading articles to help define the course bibliography, and shadowing clinicians in the arthritis and joint center to see how the PROs are used in practice. At the completion, this self-directed course can be available to both FCE students (1 week) or could be added to the standard musculoskeletal curriculum.

Preferred student skills:
Interest in learning more about PRO measurement and in helping to design an educational elective is vital. Understanding of basic statistics is helpful. Ability to help with final revisions to existing

PowerPoint presentations would be useful. Capability for both independent library and research work and teamwork.

Estimated time required for student to complete the project:
8 weeks

The student will:
Weeks 1 through 4: Update literature review, self-study of key papers on PROs, and shadow surgeon in clinic using PROs. Revise PowerPoint presentations, assist with changes in the voice narrative.
Weeks 5 and 6: Develop the one week FCE curriculum to include daily tasks, readings, self-assessments, procedures to shadow PRO use in clinic.
Weeks 7 and 8: Develop the web-based self-managed curriculum to complement the musculoskeletal course and/or other core curricular segments.

Project 4:

Contact information
Rachel Gerstein
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Course for which the curriculum development fund project will be completed:
Capstone Scholarship and Discovery Course (CSD)

Description of proposed project:
An integral aspect of the Capstone Scholarship and Discovery Course (CSD) is curriculum development. As a relatively new, required course for medical students, the course leadership continually strives to improve to course and implement student feedback. To assist with collecting and integrating this feedback, the student will working closely with the CSD leadership team to review data collected from students and faculty regarding course feedback, time on tasks, and project demographics. The student will help to develop plans to analyze these data to both inform ongoing course development and to communicate findings with the larger Scholarly Collaborative community outside of UMMS. The student will help to create and plan implementation for additional tools to ensure thorough and informative data collection from both students and advisors. CSD leadership as well as other faculty will work with the student to help identify areas of particular interest to the student in the context of this project as well as areas of value to the course to maximize benefit to both. The degree of flexibility in this work lends itself to becoming a student's Capstone project.

Brief outline of student's role:
Development and review of data collection instruments and data; creation of research questions and data analysis; relevant literature searching and related tasks.

Preferred student skills (if relevant):
Interest in learning and/or knowledge of excel, redcap or other data collection and storage tools.

Estimated time required for student's work to complete the project:
8 weeks

Project 5:

Mary Lindholm, MD, Director 3rd year Family Medicine Clerkship
Contact: Mary.lindholm@umassmemorial.org

Course: Clerkship in Family Medicine

Description of proposed project:
The 3rd year clerkship presently has a core curriculum that all students participate in while on the clerkship which involves a virtual family, the McQ's. The McQ's (three generations, including 9 patients) presently have paper charts that are reviewed by students. This project would involve transferring the McQ charts to an electronic medical record (EMR) which could be used during core clerkship sessions. Ideally the EMR would allow us to order appropriate tests and follow up, and could be reviewed throughout the 5 week clerkship.

Student's role:
Develop and implement transformation of paper chart into EMR. This may involve meeting with Allscripts staff to develop the McQ files in Allscripts if possible, or researching alternative EMR's if Allscripts is not available. Dr. Lindholm will be available though out the project to assist and mentor as needed.
Some experience with EMR's preferred but not absolutely necessary.

Estimated time required for student to complete the project:
6-8 weeks

Project 6:

Samir Malkani, MD
E mail: samir.malkani@umassmemorial.org
Phone: 508 856 3800

Course for which the curriculum development fund project will be completed:
Flexible Clinical Experiences Course (FCE)

Description of proposed project:
FCE was started as a new course in 2012-13 with the following main objectives:

a) Career exploration and discovery
b) Self directed learning in fields of interest
c) Opportunities to explore health care related fields not normally covered in the core curriculum.

The program will complete its third year at the end of AY 2014-15.

The goal of the student's project would be to assess if the objectives for the course are being met, and get feedback from students who have completed the FCE courses on how to improve the program.

The process by which this would be achieved would be:

a) Administer a survey to all rising fourth year students who have just completed the FCE course to assess if the course helped them achieve the goals with regards to:
b) Career choices
c) Capstone project
d) Explore areas of medicine not normally available in core curriculum
e) Further their interest in a field of their choice (and details of the field)
f) Outside or international experience
g) The survey would also assess if there are suggestions for improving the content our administrative aspects of the course

The student may also convene focus groups of available 4th year students, or interview them individually, to further explore responses to the survey, and formulate specific recommendations.

The student would be expected to write a report and prepare a poster of the findings.

The project will be supervised by Samir Malkani, MD (director of FCE course) and Colleen Burnham, MBA (Course Manager for the FCE).

This project has potential to greatly enhance the FCE course in the future years, and will give the student involved insight on medical education and curriculum development.

Preferred student skills (if relevant):
Basic knowledge of statistical methods is a plus but not a requirement

Estimated time required for student's work to complete the project :
Project can be completed in 4 weeks, but we would prefer an 8 week commitment

Project 7:

Inter-Professional Oral Health Curriculum Development

Hugh Silk, MD, MH
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978-501-7909

Part 1: Enrichment elective
Part 2: Interstitial

Description:
The Association of American Medical Colleges (AAMC) and American Dental Education Association (ADEA) have common goals in medical and dental students having more Inter-Professional Education (IPE). Currently at UMMS, students get a basic introduction to oral health in anatomy, Physical Diagnosis 1 and the Oral Health Interstitial. However, this topic is perfect for teaching principles of IPE both with other students and clinically. In fact other schools are already offering medical students clinical exposure to dental settings to improve their knowledge, skills and understanding of the overlap of the specialties. Furthermore, recent studies have shown the role that oral health makes on health conditions such as heart disease, diabetes, pregnancy outcomes and rheumatoid arthritis not to mention general well-being and the ability to secure a job. These are brooder principles that students can only gain by seeing the interactions of oral health and overall health in a more dynamic environment.

Part 1: Enrichment *elective* – to design a one day experience for students to work in a dental setting in the greater Worcester area. Objectives would include observing approaches to a proper dental history and exam; effect of oral health on other diseases; discussions of how the dental team interacts with the medical team. Currently there is a 2-4 week elective in the 4th year; this enrichment elective would be offered in the first 2 years for students to gain exposure. The goal would be to use the results of this new enrichment experience to eventually make this a part of the curriculum for all students.

Part 2: Interstitial – to improve our current oral health interstitial curriculum to include cases that take a team approach to patient health issues with an oral health focus. Utilize iCels for patient encounters either with standardized patients or selected real patients with oral pathology.

Student's Role:
Part 1: Enrichment elective – work with Dr. Silk to define objectives, talk with local dentists and hygienists about their role (many already work with medical learners) and create a brief evaluation tool of the student and the student experience. This will take a lot of brainstorming with Dr. Silk, emails, phone calls, and brief meetings.

Part 2: Interstitial – help evolve our current cases to engage students from 4 disciplines (medical, nursing, dental hygiene, and pharmacy – the latter two will join us from Mass College of Pharmacy and Health Sciences for the day). Work with iCels personnel to coordinate the ability to have student rotate through rooms to interact with patients; help coordinate with local oral health professionals to have patients that could come in to tell their story and show their oral lesion(s). This will take a lot of brainstorming with Dr. Silk, emails, phone calls, and brief meetings.

Preferred Student Skills:
An interest in oral health; strong organization skills; confidence to talk with medical and dental providers by phone with Dr. Silk's help.

Estimated time required for student's work to complete the project:
Each part is a 4 week project. A student could choose to work one or both and commit 4 or 8 weeks.

Project 8:

Project Title:
ShadowBox Clinical Problem Solving Curriculum Development

Director:
Scott Wellman, MD
scott.wellman@umassmed.edu

Course:
DCS and/or Clinical Skills Elective

Reason for Project:
Improve Clinical Problem Solving by having learners compare their thinking with that of experts. It is an independent learning opportunity thus efficient use of faculty time as subject matter experts are *not* needed beyond the development phase. Active and engaging learning modality

Description of Project:
Improve teaching of Clinical Problem Solving skills of medical students using the ShadowBox Method of Cognitive Skill Development described by Gary Klein and Neil Hintze in 2013.

The project requires the development of clinical case materials as the trigger for skill development. Using think-aloud protocols and expert opinion developed by having experts solve the cases and answer questions at specific decision points and write down their rationale solutions to cases will be developed explicitly demonstrating the clinical thinking of experts.

Learners will attempt to solve the cases and answer the same "decision point questions" the experts answered. They will also write down their rationale or thinking process. The learner will then be able to compare his or her thinking with that of the expert's and will describe the differences noted.

Student's Role:
The student will prepare the clinical cases, help write the decision point questions, synthesize the expert's answers to the decision point questions along with their rationale, and format the materials for use by students. The student will pilot these materials and then will then design a study which will take place at a later time, to test the material's effectiveness.

Estimated time required for student's work to complete the project:
4-8 weeks

Project 9:

Project title:
"Developing an Optimal EMR Student Template For Fourth Year Medical Students in the Emergency Department"

Faculty:
Paul A. Zgurzynski MD Assistant Professor Dept. Emergency Medicine Director ECPS
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Constance Nichols MD Associate Professor Dept. Emergency Medicine Director Division Medical informatics

Curriculum development fund course:
ME-4004 ECPS & ME-404 Sub-I in Emergency Medicine
Back ground:
Medical student documentation is a key skill in order necessary skill to transition to internship. Currently at UMMS there is inconsistent and limited accessibility to perform documentation. Additionally, ideally a medical student template could be design to facilitate a focused presentation, medical decision making, and advances diagnostic reasoning with prompts for cognitive checks. The proposed project would be an IRB approved crossover comparison of paper versus 1 or 2 versions of electronic templates for a group of fourth year medical students enrolled in ECPS and/or the emergency medicine sub-internship. The proposed project would use a crossover design to compare student experience with different templates to determine features of an ideal system for student learning. Additionally, it is hypothesized implementation would allow better student engagement and ownership in their sub-I level clinical experience increasing their ability to learn patient management.

Student Role:

- Complete CITI training
- Assist in literature search on medical student use of EMR
- Assist Co-PI's with student survey development
- Assist faculty development of student template training and use EMR
- Data collection and management
- Participate in weekly (and additional as needed) methodology/analysis meetings
- Assist PI in completing results and discussion portion of the manuscript
- Produce a poster suitable for presentation by end of summer

Required Skills:

- Ability to work independently and efficiently with instructions from PI
- Comfortable using library resources and Pub med to perform literature search
- Good written and oral English communication
- Interest in emergency medici

Location of Research: UMass Department of Emergency Medicine

Estimated time required for student's work to complete the project:
8 weeks