Indiana University School of Medicine in collaboration with Regenstrief Institute used the AMA-ACE grant to create a teaching electronic medical record (tEMR) by de- and mis-identifying the medical records from over 10,000 actual patients. Curriculum was then created utilizing the tEMR to teach medical students Health Systems Science. We have created a unique course for 3rd year medical students that is run concurrently with required clerkships. The course enables the students to discuss and practice teamwork and communication skills. Students in small groups create comprehensive care plans for a tEMR patient with complex medical issues followed longitudinally so that a variety of Health Systems Science issues including barriers to care, health care literacy, transitions of care, medical errors, interprofessional collaboration, and end of life care can be addressed in a clinically relevant manner.

**Resources Needed and Potential Barriers**

1. Faculty and students dedicated to the development of the program
2. tEMR expertise to help select and modify the case(s)
3. Assessment/Evaluation team input to develop rubrics and assessment plan
4. Administrative support for group development, selection of rooms for in-person meetings, identification and communication with preceptors and students
5. Messaging to students, clerkships and faculty regarding the program
6. Volunteer faculty participation as preceptors
7. Learning technology specialist to ensure best ways for students to interact as well as to ensure small group attendance could be remote if necessary
8. Significant interaction with other healthcare schools to ensure adequate and mutually beneficial interprofessional involvement

**Timeline Proposed**

We began planning this program in October 2015 and it began in October 2016. Much of the early months were spent in performing a gap analysis and determining the manner in which the course would be presented.

If there were plans to implement a similar program using the same case should take only 3-4 months. If different cases were used, it would probably take 6-8 months to be prepared to institute

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**Innovation Identified**

Indiana University School of Medicine

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**Need/Gap Addressed**

Health Systems Science materials in general have not been formally addressed during the clinical rotations. There have also been few formal interprofessional activities available for all students. Third year medical students generally get few opportunities to be involved in medical care that is longitudinal so they get few opportunities to deal with patients over the entire course of disease management. Students also get few opportunities to work in groups and collaborate with peers or to discuss and reflect on issues that affect quality of care and healthcare outcomes.

It is important for students to be prepared to work effectively in interprofessional teams. The Health Systems Science course allows students to gain competence within EPA 9: Collaborate as a member of an interprofessional team.

**Stakeholder Input**

1. Clerkship Directors and Residency program directors were surveyed to determine which of 13 separate topics were felt to be important to provide to third year medical students: In order these topics were: Clinical problem solving, Medical errors, Hand-offs, Chronic care within and across systems, High value care, Transitions of care, Quality improvement, Chronic health care (palliative care, hospice, Screening for mental health issues, Violence/abuse, Population health, Advanced documentation, Research ethics, Learning technology specialist to ensure best ways for students to interact as well as to ensure small group attendance could be remote if necessary

2. Mid-course evaluations:
   - Identify up to 3 Strengths: collaboration with peers and other health care workers (65%), realistic medical case, well organized course, good feedback, on-line approach
   - Identify up to 3 challenges: large group size, time involved, working on line, unequal roles, difficulties obtaining consultations, repetitive assignments, tEMR
   - Recommendations – smaller groups, delineate roles of group members, in-person instead of online, schedule around clerkships, provide at earlier time in the curriculum

**Creation of a Course to Educate 3rd Year Medical Students Utilizing Synchronous/Asynchronous Methodology, Interprofessional Consultations and the Teaching Electronic Medical Record**

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