



SESSION INFORMATION

Submission ID#: 549460416

Topic Category: Health Informatics Edu, Career Develop & Diversity

Sub-Topic: Competencies for Health IT Professionals

Format/Level: 60 Minute Lecture/Intermediate

Audience Professional Roles: Academics (professors/students), Clinical Informaticists, Physician, CMO, CMIO

Session Title: Educating the Next Generation of Physician Informaticians

Submitted By: Geisinger Health System

Brief Description: Clinical Informatics is not merely a subspecialty of medicine, but a crucial component of the practice of 21st Century medicine. The roles of the Physician Informatician (PI) and CMIO are rapidly changing. Originally focused on the implementation of health information systems, PIs and CMIOs are focusing more on optimization of existing systems, interoperability within and between health systems, and data analytics. While there are a growing number of ACGME-accredited Clinical Informatics Fellowships, there is practically no training in clinical informatics in the remainder of undergraduate and graduate medical education. This session will describe the origins for the training of the next generation of PIs, provide examples of existing training, and outline a comprehensive informatics training program for medical students and residents.

Learning Objectives:

- Describe the evolution of the roles and responsibilities of the physician informatician and CMIO
- Explain the purpose and goals of ACGME fellowship training and board certification in clinical informatics
- Identify the sub-competencies within clinical informatics that all physicians in the 21st Century need to know to be effective practitioners
- Design an effective educational program for medical students and residents in the relevant sub-competencies within clinical informatics

CONTENT DETAILS

Describe the TOPIC/ISSUE that will be presented and how it was identified.

Clinical Informatics is the interdisciplinary study of the use of information in health care by and for clinicians. It sits at the core of and drives the current evolution in the delivery of safe, effective and efficient health care. It has been obvious for some time that current medical education does not address the educational needs of physicians in the field of clinical informatics. While there continues to be a small subset of physicians who specifically pursue informatics experiences, and now formal fellowship training and board certification, this group is woefully inadequate to meet the demands of 21st Century medicine or the projected physician informatician workforce demand. Currently, both undergraduate and graduate medical education in "informatics" consists of little more than providing basic training in the use of whatever specific EHR is in use within the medical school or health system, typically restricted to the specific tasks that the student or resident is expected to perform. As a result, we are training a generation of physicians who know not much more than their senior colleagues, many of whom trained in paper-based medical systems. This not only leads to practice inefficiencies from poor EHR use habits and perpetuates clinician dissatisfaction with EHRs, but also does not provide the opportunity for clinical informatics to attract the brightest medical students into the field to address workforce demands.

Please describe the APPROACH(ES) used to address the topic/issue.

Education for undergraduate medical students and residents in clinical informatics has lagged CI education for nurses, allied health professionals, and other professionals in this rapidly growing field of health care. Medical students have expressed interest in CI training [Int J Med Ed. 2013; 4:1-8. J Am Med Inform Assoc. 2015; 22:41-47], but clerkship directors remain ambivalent to incorporation of CI into undergraduate medical education. [Teach & Learn in Med. 2012; 24:219-224] There are only a few examples of any CI education being provided to undergraduate medical students, most notably at Oregon Health & Sciences University [Adv Med Ed Prac. 2014; 5:205-212], University of Arizona [Academic Medicine. 2012; 87:84-90], and Medical University of South Carolina

[BMC Medical Education. 2001; 1:3], but with mixed results. We have looked at these examples, as well as examples of educational opportunities in other medical provider education, and educational examples from outside the United States, to help inform us of the current state. We built the components of what we believe are the essentials aspects of clinical informatics that every physician needs to know. We then proceeded to build an educational program for undergraduate and graduate medical students to meet those needs.

Please describe the CHALLENGES/BARRIERS faced.

The primary challenges to the inclusion of informatics education within undergraduate and graduate medical education includes the lack of time, appropriate teaching expertise/experience, and internal institutional politics. The current American Medical Education System is based on the now century old Flexner Report, which defined the needs for medical education since prior to the First World War. While it served the needs of medical education and health care well for the past century, it no longer addresses the modern challenges of health care today and tomorrow, of which informatics is one of key deficiencies. Current medical education at the undergraduate and graduate levels are consumed with the teaching and memorization of an ever increasing knowledge base of basic science and clinical facts. Memorization of these facts are no longer relevant in the information era where facts are literally at everyone's fingertips. In addition, the rigidity of the medical education system has created literal fiefdoms, where professors are fighting to maintain all their face time with students in order to protect their departments. This leads to an inordinate amount of inertia with a very high activation energy for educational innovation. In addition, there is currently a lack of trained and credentialed CI professionals within medical education to provide the necessary training.

Please describe the CONCLUSION/OUTCOMES ACHIEVED.

The solutions to the above challenges and barriers to the introduction of clinical informatics training within medical education are obvious. Just as clinical informatics is not merely a subspecialty of medicine, but the de facto practice of medicine in the 21st Century, informatics education needs to be incorporated, or threaded, throughout the entire medical education program. Merely presenting a series of lectures or educational sessions on clinical informatics is clearly not sufficient. Informatics needs to be a part of every educational experience in medical school and residency. This starts with the ample use of library science and evidence-based medicine concepts within the basic sciences portions of medical education. The key component that needs to be incorporated into the clinical portions of medical education is the Educational Electronic Health Record (or e-EHR). Through the use of the e-EHR, students can be trained in proper methods to efficiently enter data on patients, effectively search for data already contained within the e-EHR, and gain experience in analyzing data for the benefit of their patients and practice. This educational plan incorporates the existing faculty into informatics education, representing less of a threat to their precious time with students. Training faculty in the uses of informatics will expand their knowledge and value to the school, as well as expose them to more efficient tools that will assist them in teaching their subject areas to students. At the same time, medical students and residents learn the value of informatics in their medical practice, and are exposed to informatics at the time they are making decisions on the future of their medical careers. The result should be the training of a generation of informatics-savvy physicians, as well as the development of a physician informatician workforce for the future. We have designed and are in the process of building an example of the future of medical informatics education based on this model.

Please describe the RECOMMENDATION(S) you would offer.

I will recommend that other medical schools and academic medical centers explore the possibilities presented during this session. I would encourage collaboration between already existing educational programs and aspiring programs to create synergy between systems and movement towards common educational goals for informatics training in medical education. We also need to lobby the organizations accrediting medical schools and residencies, as well as those providing the licensing and board examinations to include informatics requirements and testing. Additionally, we need to work with already existing educational programs for nurses, other health professionals and health IT to develop a framework for informatics education across disciplines and encourage multidisciplinary education and training in clinical informatics.

If submitting for an Essential Conversation session, please list details on how you would facilitate this session with attendees. If not submitting for an Essential Conversation session, please continue.

SPEAKER DETAILS

Speaker Role: Primary Speaker

Name: Bruce Levy, MD, CPE

Title/Org/City/State: CMIO, CNIO, CCIO, Geisinger Health System, Danville, PA

Worksite: Academic Education Institution

Time in Field: Greater than 15 years

Speaker at HIMSS17: No

If so, Venue:

Speaker at Past HIMSS Conferences: 0

Bio: Bruce Levy, MD, CPE is a Professor at Geisinger Commonwealth School of Medicine (GCSOM), as well as Program Director of the CI Fellowship and Associate CMIO at Geisinger. He is board certified in Clinical Informatics, in addition to Anatomic, Clinical and Forensic Pathology. He is the current Chair of the Community of Clinical Informatics Program Directors. Dr. Levy has been involved with informatics and medical education for decades. As a practicing forensic pathologist and Chief Medical Examiner for Tennessee, he created one of first forensic information systems, which led him into the field of informatics full time. He also founded the first forensic fellowship in Nashville where he taught many physicians, attorneys and law enforcement professionals. At the University of Illinois at Chicago where he was Associate CHIO and Director of Pathology Informatics, Dr. Levy founded one of the initial group of ACGME-accredited clinical informatics programs. At Geisinger, Dr. Levy is not only the CI fellowship program director, but is also responsible for the informatics educational programs at GCSOM that includes undergraduate medical students, residents and fellows, and graduate students. As ACMIO, his focus is on facilitating the informatics needs of its research division, including Geisinger's MyCode initiative, precision medicine and population health. He is also actively involved with the operational informatics needs of Geisinger as ACMIO.

Past Speaking Experience: •"Towards Multidisciplinary Synergy in Academic Health Informatics Programs: CCIPD, NIPD, and Beyond," presented at AMIA InSpire Annual Conference:June 2017. •"Sustaining Excellence in Clinical Informatics Fellowships: Best Practices, Program Requirements and Milestones," presented at AMIA InSpire Annual Conference:June 2017. •"Re-imagining the Microscope to Facilitate Collaboration and Integration of Big Data in Medicine," presented at United States and Canadian Academy of Pathology Annual Meeting:March 2017. •"Geisinger Experience with FHIR," presented at American Medical Informatics Association Annual Symposium:November 2016. •"Introduction to Pathology Informatics," presented at American Society for Clinical Pathology Annual Meeting:September 2016. •"Big Data and Computational Pathology – The Future of Pathology Informatics," presented at Pathology Informatics Summit:May 2016. •"Clinical Informatics Fellowships–From Conception to Actualization," presented at Pathology Informatics Summit:May 2016. •"Clinical Informatics Fellowships and its Impact on Opportunities for Pathology Informatics," webinar presentation for Association for Pathology Informatics Series:January 2016. •"Pathology Informatics for the Practicing Pathologist and Laboratorian," presented at American Society for Clinical Pathology Annual Meeting:October 2015. •"Pathology Informatics: Shaping the future of Clinical Informatics," Workshop Coordinator and Presenter, Pathology Informatics Summit:May 2015. •"Re-imagining Pathology Consultations Using the Scalable Adaptive Graphics Environment," presentation and live demonstration, Pathology Informatics Summit:May 2015. •"Setting up a Clinical Informatics Fellowship," presented at Pathology Informatics Summit:May 2015. •"Clinical Informatics: The first formal fellowship and board certification for physician leaders," presented at Annual Meeting of the American Association for Physician Leadership:April 2015. •"Scalable Adaptive Graphics Environment (SAGE): A novel way to view and manipulate whole-slide images," presented at International Academy of Digital Pathology Meeting:November 2014. •"Autopsy 2.0: Informatics can enhance postmortem examinations, improve their relevance, and increase the autopsy rate," presented at American Society of Clinical Pathology:October 2014. •"Informatics and Forensic Medicine: Two peas in a pod," presented at Pathology Informatics Summit:May 2014. Plus many additional presentations and medical interviews

Speaker Introduction: Dr. Bruce Levy is an Associate CMIO at Geisinger and a Professor at Geisinger Commonwealth School of Medicine. He is board certified in pathology, forensics and clinical informatics. Dr. Levy is a leader in clinical informatics education, having founded one of the first CI fellowships accredited by the ACGME at the University of Illinois at Chicago, and is currently the program director of Geisinger's CI fellowship. He is responsible for developing clinical informatics education for undergraduate and graduate medical education at Geisinger. Dr. Levy is the immediate past chair of the Community of Clinical Informatics Program Directors. Please welcome Dr. Bruce Levy.

Will provide up to two pieces of content (i.e., a blog post, pod cast, twitter chat, or other type of content)

leading up to conference that will promote your session to a broader audience: Yes

Will comply with the HIMSS18 deadline dates to be published upon acceptance: Yes