biobank total twelve million dollars, representing a several-fold return on investment. **Conclusions:** The seamless integration of the automated MyCode process with existing clinical infrastructure maximizes the efficiency of research sample collection and minimizes costs. The process allows resources to be focused on interaction with the patients during consent. The opt-in consent allows samples to be linked to EMR data. The persistent link allows repeat access to the patient's EMR data for longitudinal studies. This approach is highly efficient and does not require patients to have an extra needle stick or research visit, which contributes to the high enrollment rate. The trade-off is a potential lag between consent and sample collection. Future goals include improvements in enrollment efficiency and developing approaches for returning results.

Keywords: Biobank; EMR; MyCode

doi:10.3121/cmr.2013.1176.ps2-7

PS2-8:

ePhenotyping for Abdominal Aortic Aneurysm

Diane Smelser[1]; Gerardus Tromp[1]; James Elmore[1]; Helena Kuivaniemi[1]; Evan Ryer[1]; Jonathan Bock[1]; Ryan Colonie[1]; Kenneth Borthwick[1]; David Franklin[1]; David Carey[1]

[1]Geisinger Health System

Background/Aims: A large volume of clinical data is captured in electronic medical records (EMRs), and feasibly extracting the data to define clinical phenotypes is valuable to health care research. We designed an algorithm to define abdominal aortic aneurysm (AAA) cases and controls. We implemented the algorithm using our institutional warehouse and propose using the HMORN Virtual Data Warehouse (VDW) to replicate our findings. **Methods:** The cohort consisted of individuals enrolled in the Geisinger MyCode biobank or consented for research in other studies (such as the Vascular Department). The Structured Query Language (SQL) algorithm utilized CPT codes and ICD9 codes and vital signs data to define individuals as cases, controls or excludes. AAA cases were defined as having an AAA repair procedure, or at least one vascular clinic encounter with a ruptured AAA, or at least two vascular clinic encounters with an unruptured AAA. AAA controls were neither excludes nor cases, had an encounter within the past 5 years, and never had an ICD9 code 441.3, 441.4, or 441.9. Individuals were excluded based on certain medical conditions, age younger than 40 or older than 89, not having an encounter within 5 years, or having an ICD9 diagnosis of 441. **Results:** We screened the records of 29,770 individuals, identifying 1,155 AAA cases and 17,523 controls. We excluded 337 individuals based on predisposing genetic conditions, 109 individuals without a visit within the past 5 years and 10,398 individuals based on age. To assure that we had true AAA cases, 248 individuals with ICD-9 codes of 441.x (which includes thoracic and unspecified site of aneurysm) were excluded. The algorithm was validated on a subset of individuals by manual chart review and demonstrated a Positive Predictive Value (PPV) of 94% and sensitivity of 100%. **Conclusions:** We designed an ePhenotyping algorithm to identify AAA cases and controls from the EMR with high PPV and sensitivity necessary for research purposes. The VDW provides an excellent opportunity to broaden the study population characteristics and replicate the findings.

Keywords: Electronic Medical Records; Abdominal Aortic Aneurysm

doi:10.3121/cmr.2013.1176.ps2-8

PS2-9:

The NIH Health Care Systems Research Collaboratory

Jeffrey Brown[1]; Andrea Cook[2]; Kimberly Lane[1]; Eric Larson[2]; Lingling Li[1]; Richard Platt[1]; Beth Syat[1]; Ella Thompson[2]

[1]Harvard Pilgrim Health Care; [2]Group Health

Background/Aims: In September 2012, NIH funded the Health Care Systems (HCS) Research Collaboratory to engage health care systems as research partners in conducting large-scale pragmatic clinical studies. The goals of the HSC Collaboratory are to provide leadership and technical expertise to support innovative pragmatic clinical trials leveraging health information technology, specifically electronic health records (EHRs), in partnership within health care delivery systems. **Methods:** The HSC Collaboratory currently consists of a Coordinating Center and seven funded pragmatic trials. The HMORN plays a major role both in the Coordinating Center and in four of the initial seven funded trials. We describe the HMORN contribution to the Coordinating Center. **Results:** The HCS Coordinating Center cores provide technical expertise and support to Collaboratory investigators and their health care system partners; develop technical and policy guidelines to advance research in health care systems; and disseminate lessons learned. The HMORN is leading two cores: the IT core (led by the Harvard Pilgrim Health Care Institute) is developing the NIH Distributed Research Network and is also responsible for providing tools for extracting information from EHRs and for data sharing; the Health Systems Interaction Core (led by the Group Health Research Institute) is responsible for optimizing research interactions with health care delivery organizations. HPHCI and GHRI also participate in the biostatistics core. Additional Coordinating Center activities include defining clinical phenotypes in EHRs; engaging stakeholders and promoting participation by all relevant communities; creating reusable, sustainable models for incorporation of patient reported outcomes; and addressing ethical considerations arising in the conduct of health system based research. **Conclusions:** The NIH HCS Research Collaboratory program is advancing the nation's capacity for cost-effective, large-scale, pragmatic clinical studies. The HMORN leads several aspects of this work and can directly benefit from the Collaboratory's activities as the scope of resources expands to support additional delivery system based research activities.

Keywords: Clinical Trials; Comparative Effectiveness; Electronic Health Records

doi:10.3121/cmr.2013.1176.ps2-9

PS2-10:

Economic Impact of Electronic Health Information Exchange

Christine Bredfeldt[1]

[1]Kaiser Permanente Mid-Atlantic

Background/Aims: More than 40% of outpatient visits involve a transition in care. Effectively coordinating care across providers is critical to reducing healthcare costs and improving patient safety and quality of care. Electronic health information exchange (eHIE) facilitates coordination of care by enabling information transfer across providers and medical clinics. By increasing care coordination, eHIE is expected to reduce healthcare costs resulting from redundant lab tests and radiology studies. In this study, we examine the economic consequences of eHIE in the context of x-ray imaging for bone fractures. **Methods:** We have previously demonstrated that eHIE is associated with a significant reduction in follow-up x-ray imaging for patients with bone fractures of the extremities. This retrospective cohort study of Kaiser Permanente Mid-Atlantic States (KPMAS) members compared the rate of duplicate x-rays in patients with a diagnosis of bone fractures from the Emergency Department (ED) or from outpatient care between 2006 and 2010. Here, we use the Medicare fee schedule to estimate costs for all imaging events, including x-rays, CT scans and MRIs, during the two month period following the initial fracture diagnosis. We estimate total cost by identifying all relevant radiology procedures during the two months following the index event and assigning costs based on published estimates for each procedure. **Results:** The study included 5680 patients from KPMAS with bone fractures diagnoses. 38% of patients were initially seen in the ED, while 62% of patients were seen in outpatient care. The median cost of imaging procedures in the month after diagnosis was \$30.60. Patients who received diagnosis and follow-up care at facilities that did not have active eHIE cost the healthcare system 1.7 times as much as patients who received diagnosis and follow-up care at institutions that electronically shared radiology data between facilities and providers. **Conclusions:** eHIE reduces healthcare costs related to duplication of diagnostic tests, specifically imaging studies. Next steps will be to evaluate the impact of different eHIE access methods on its effectiveness.

Keywords: Health Information Exchange; Health Information Technology; Radiology

doi:10.3121/cmr.2013.1176.ps2-10