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Date	Time	Title	Authors	Abstract Body
4-Nov-12	8:30 AM	T10: CMIO/CNIO (This tutorial continues on Sunday, November 4)	P. Fu, Jr.*; J. Carrington; A. Cheriff; J. Gold; L. Harrington; J. Hollberg; J. Kannry; D. Liebovitz; M. Mitchell; R. Schreiber; F. Velasco	
4-Nov-12	3:30 PM	LB02: Late Breaking Session - Update on the Subspecialty Certification in Clinical Informatics: Panel Presentation with AMIA and the ABPM	W. Hersh*; C. Safran; J. Starren; J. Lipsman; W. Greaves	Abstract Body: AMIA and the ABPM are working together to build the subspecialty of Clinical Informatics which has received American Board of Medical Specialties approval under the administration of ABPM and with the American Board of Pathology. Program requirements for fellowship are being developed by the ACGME. Eligibility to sit for the examination will be through a Practice Pathway for the first 5 years of the examination, to begin in 2013. This session will discuss specifics regarding the rules for acceptance as a candidate to sit for the initial certification examination, as well as for the four parts required for recertification under Maintenance of Certification: professionalism, lifelong learning, cognitive examination, and practice performance.The ABPM is a member Board of the American Board of Medical Specialties. The ABPM currently offers certification in the specialty areas of Aerospace Medicine, Occupational Medicine, and Public Health/General Preventive Medicine and in the subspecialty areas of Medical Toxicology and of Undersea and Hyperbaric Medicine.\n
5-Nov-12	10:30 AM	LB03: Late Breaking Session - Realizing a National Learning Health System	C. Friedman*; J. Brown; R. Kolodner; J. Silverstein	Abstract Body: On May 17 and 18, 2012, in Washington, D.C., the Joseph H. Kanter Family Foundation (KFF) convened a two-day Learning Health System (LHS) Summit with over 80 prominent individuals representing organizations and stakeholders across the health care and health IT communities. Participants worked together to begin laying key foundational elements that promise to harmonize and coalesce cutting-edge work presently underway into a national-scale LHS. Utilizing a definition developed by the Institute of Medicine (IOM), a â€œLearning Health Systemâ€ is defined as â€œone in which progress in science, informatics, and care culture align to generate new knowledge as an ongoing, natural by-product of the care experience, and seamlessly refine and deliver best practices for continuous improvement in health and health care.â€ Achievement of a national-scale LHS will improve health care quality by streamlining research, by supporting public health, by advancing patient safety, and by empowering clinicians and patients alike to make better-informed health decisions through enabling investigators to study what works best for every disease for every patient. Through a learning system, new biomedical knowledge will find its way very quickly into health care. Participants in the two-day Summit began working toward achieving multi-stakeholder consensus on a set of principles that would underlie the development of a national-scale LHS benefiting stakeholders across the health care spectrum. Summit participants represented organizations and stakeholder groups including: patient advocacy and consumer organizations, provider organizations, research organizations, government agencies, payers, clinicians, the pharmaceutical industry, health IT vendors, philanthropic organizations, professional associations, research initiatives and organizations, and thought leaders. This late breaking session will describe this historic activity, articulate the outcomes of the summit, and provide information about areas of consensus which led to the endorsement of â€œCore Valuesâ€ by several stakeholder organizations. AMIA has formally endorsed the Core Values of the LHS.\n
5-Nov-12	10:30 AM	AMIA-0517-A2012. Meaningful Use of End-of-Life Data in EHR Systems: Multidisciplinary Challenges and Opportunities	G. Keenan*; A. Khokhar; Y. Yao; A. Johnson; D. Wilkie	Abstract Body: Electronic Health Record (EHR) systems capture and store unprecedented amounts of patient care information and ultimately should allow various stakeholders to access data by queries. This panel will discuss and critique an interdisciplinary initiative in which 1,593 End-of-Life episodes of care extracted from a larger database of care plan data (n=42,403) are being analyzed, mined, and findings converted to point of care decision support. The data were gathered on 9 medical-surgical units (4 unique hospitals) with an innovative web-based electronic care planning system that represented diagnoses, outcomes, and interventions with standardized terminologies. Since the plans of care were updated at every formal handoff, the standardized interoperable data provides information useful for identifying best care practices based on actual interventions and subsequent patient outcomes as well as best nurse staffing patterns that were associated with desired patient outcomes. The findings are being translated into meaningful visualizations of decision support information useful to front line clinicians and administrators. The project, Describing, Contrasting, and Visualizing EOL Care in the 21st Century, is funded by NIH R01 NR012949.\n
5-Nov-12	10:30 AM	AMIA-0666-A2012.R1. Using Electronic Health Records to Identify Patient Cohorts for Drug-Induced Thrombocytopenia, Neutropenia and Liver Injury	J. Pathak*; A. Al-Kali; J. Talwalkar; A. Kho; J. Denny; S. Murphy; K. Bruce; M. Durski; C. Chute	Abstract Body: In this study, we develop and evaluate algorithms to high-throughput phenotyping from EHRs (Electronic Health Records) for symptoms and findings associated with drug-induced thrombocytopenia, neutropenia and liver injury. We discuss preliminary results and experiences in implementing EHR-driven algorithms for drug-related phenotypes in three different EHR environments and academic medical centers.\n

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5-Nov-12	10:30 AM	AMIA-0216-A2012. Electronic Tools for Cognitive Support During Resident Handoffs: State of the Practice and Future Directions	K. Dunn Lopez*; V. Arora; A. Johnson; A. Boyd; G. Keenan; D. Wilkie	Abstract Body: In the years following reduced resident work hours, single resident accountability for patient care has disappeared replaced by frequent care transitions and shared responsibility between residents emerging as the necessary paradigm for delivery of care in acute settings. With this change, there has been increasing patient acuity and complexity as well as increased cognitive demands for clinicians, potential for miscommunication at care transitions and preventable errors. Importantly, forgetting to transmit needed information during hand-offs is a major contribution to overall suboptimal care processes including: delays in diagnosis and treatment, task omissions, work redundancies and near misses. To address these quality and safety problems, electronic tools embedded in the electronic health record are beginning to emerge. These tools when designed to provide cognitive support for intra-disciplinary sharing of care can play a role in reducing information overload, miscommunication and omission of patient care tasks. Less common are electronic tools that are designed for interdisciplinary information sharing. These interdisciplinary tools have greater potential for decreasing system inefficiencies and improving the overall quality of care delivery than intra-disciplinary tools. This presentation will provide an overview of existing electronic tools and design implications for the design of future tools.\n
5-Nov-12	1:45 PM	AMIA-1011-A2012.R1. Indication-Based Prescribing Improves Problem List Content and Medication Safety	William Galanter*; Suzanne Falck; Matt Burns; Marci Laragh; Surrey Walton; Bruce Lambert	The connection between medication and indication is fundamental to prescribing, but is often not explicitly defined in electronic medical records (EMR's). Explicitly linking indications and medications through the use of clinical decisions support (CDS) during computerized physician order entry (CPOE) may improve the quality and completeness of the problem list, and it may also stimulate a thoughtful "time-out" during the ordering process when clinicians are asked to consider the indications for the medication. Our earlier publications describe the accuracy of CDS for indication-based prescribing for a variety of alerts. We are now analyzing the indication alerts program at our medical center with respect to problem list additions and medication error reduction. Preliminary analysis identified over 100,000 indication alerts at our 450-bed hospital and 450,000 visits/year ambulatory center over a 6-year period. In the ambulatory setting, where patients return more frequently, we found that firing of indication alerts decreases over time as problem list documentation of targeted chronic diseases improves. Preliminary analysis of all indication alerts for oral anti-hyperglycemic medications demonstrates a medication error interception rate of ~0.8/1000 orders. This was produced by a reduction in both look-alike/sound-alike (LASA) errors as well as wrong-patient errors.
5-Nov-12	1:45 PM	AMIA-0494-A2012.R1. An Evaluation of the NQF Quality Data Model for Representing Electronic Health Record Driven Phenotyping Algorithms	W. Thompson*; L. Rasmussen; J. Pacheco; P. Peissig; J. Denny; A. Kho; A. Miller; J. Pathak	Abstract Body: The development of Electronic Health Record (EHR)-based phenotype selection algorithms is a non-trivial and highly iterative process involving domain experts and informaticians. To make it easier to port algorithms across institutions, it is desirable to represent them using an unambiguous formal specification language. For this purpose we evaluated the recently developed National Quality Forum (NQF) information model designed for EHR-based quality measures: the Quality Data Model (QDM). We selected 9 phenotyping algorithms that had been previously developed as part of the eMERGE consortium and translated them into QDM format. Our study concluded that the QDM contains several core elements that make it a promising format for EHR-driven phenotyping algorithms for clinical research. However, we also found areas in which the QDM could be usefully extended, such as representing information extracted from clinical text, and the ability to handle algorithms that do not consist of Boolean combinations of criteria.\n
5-Nov-12	5:00 PM	AMIA-1085-A2012. Grouping and Translating Value Sets	G. Sharma*; E. Motan; L. Rasmussen; A. Winter; J. Starren	Abstract Body: The Northwestern Medical Enterprise Data Warehouse has developed a methodology to define common sets of data in containers called Groupers. Using a web interface, users can interact with Groupers such as â€œdiagnosis of diabetesâ€ or â€œmedications indicative of diabetesâ€ that are stored in a database environment. Users can access the Grouper value sets directly or utilize custom database functions to return data elements for common clinical queries like â€œpatients diagnosed with diabetes.â€ A translation layer is provided to translate between medical terminologies.\n
5-Nov-12	5:00 PM	AMIA-0431-A2012.R1. Open Source Workflow Tools for Electronic Health Record Based Phenotyping Algorithms	W. Thompson*; L. Rasmussen; J. Pacheco; A. Roberts; A. Muthalagu; A. Kho	Abstract Body: Electronic Health Record (EHR) based phenotyping algorithms typically involve a complex process of extracting and transforming data from multiple sources. This complexity is exacerbated by the need to combine structured data with information extracted from unstructured clinical text. We describe a set of open-source tools that aid the creation of portable executable workflows for extracting, transforming, and classifying data, allowing us to easily integrate the processing of both structured and unstructured data elements.\n
5-Nov-12	5:00 PM	AMIA-0436-A2012. Community mapping project: Using informatics tools to further community research	B. OGUNSEITAN*; A. Garcia; C. Ferrans; S. Newman; K. Venkataraman; K. Peters	Abstract Body: The University of Illinois-Chicago Center for Clinical and Translational Sciences Biomedical Informatics Core and the Community Engagement Core has collaborated to develop a repository of information on community partnered research by weaving together a series of processes. The result is a user-friendly and dynamic interface which allows the user to query a community research database in a more comprehensive manner.\n
5-Nov-12	5:00 PM	AMIA-0895-A2012.R1. A Geographic Exploration of Colon Polyps	A. Roberts*; A. Muthalagu; J. Pacheco; W. Thompson; A. Gawron; A. Kho	Abstract Body: Colon polyps represent a common pathway for most colon cancers. As part of our effort to develop a portable colon polyp phenotype for the eMERGE (Electronic Medical Records and Genomics) consortium, we set out to identify, extract, and map the locations of polyps from pathology reports corresponding to colonoscopies. Preliminary findings show the highest percentages of all identified polyps located in the sigmoid and ascending sections of the colon, but no significant differences based on race or gender.\n

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5-Nov-12	5:00 PM	AMIA-0017-A2012. Envisioning Public Health Informatics: A Current Ontological Profile	A. Ramaprasad*	Abstract Body: We present a current ontological profile of Public Health Informatics (PHI) based on a systematic mapping of the population of 84 article abstracts with PHI in the title, abstract, or the source in the Web of Science and Google Scholar databases into an ontological framework derived from the analysis of the Centers for Disease Controlâ€™s (CDC) external website. The profile (Figure 1) reveals significant gaps in PHIâ€™s coverage of public health as espoused by CDC.\n
6-Nov-12	10:30 AM	AMIA-0429-A2012.R1. The Chicago Health Atlas: A Public Resource to Visualize Health Conditions and Resources in Chicago	A. Kho*; J. Cashy; B. Hota; S. Sims; B. Malin; D. Meltzer; E. Kaleba; W. Galanter	Abstract Body: We are creating a shared data resource to provide policy makers, researchers, community advocates and public health leaders insight into the health of the Chicago community and identify opportunities to improve care. We specifically focused on developing tools which balanced the need for anonymity of patients and providers, while preserving uniqueness of patients. A stand-alone Java application was created to perform standardized data cleaning and pre-processing, hashing of patient identifiers to remove all PHI using the HIPAA compliant SHA-512 algorithm, and measure effective match rate. Initial analysis indicates a 92-99% match rate using this approach as compared with an operational master patient index. We have IRB approvals and data extractions underway at six large healthcare institutions and parallel development of the data visualization platform. We are extracting several variables for all patients seen at participating institutions for linking with publicly available citywide data. In this demonstration we will review the design and privacy considerations and demonstrate use cases of clinical data aggregated across multiple institutions in Chicago and visualized across the Chicago metropolitan area.\n
6-Nov-12	1:45 PM	AMIA-0721-A2012.R1. A Multi-perspective Analysis of Lessons Learned from Building an Integrated Care Coordination Information System (ICCIS)	J. Dale*; N. Behkami; D. Dorr; G. Olsen	Abstract Body: Care coordination is at the forefront of current health reform efforts, yet most electronic health records (EHRs) lack the functionality needed to facilitate and document care coordination activities. The Integrated Care Coordination Information System (ICCIS) was iteratively developed with user input to meet their needs. Following 16 months of system use, ICCIS users and developers were interviewed about their experiences. These interviews, along with quantitative information about system use, were analyzed using a combination of Linstoneâ€™s Multiple Perspective approach and the ABC framework to determine lessons learned about novel system creation. Overall, clinicians saw value in specialized health information technology (HIT) tools for care coordination as long as development focuses on providing user-requested functionality that integrates closely with existing HIT systems and workflows. Close integration between novel HIT and EHRs may increase use by relieving the cited fatigues of duplicative data entry, multiple system logins, and potential data inconsistencies.\n
6-Nov-12	3:30 PM	AMIA-0260-A2012.R1. Rethinking the "Honest Broker" in the Changing Face of Security and Privacy	L. Rasmussen*; B. Athey; A. Boyd; B. Malin; S. Murphy	Abstract Body: The use of an "honest broker" as an impartial mediator between the clinical and research domains is a commonplace practice when working to secure patient data. Honest brokers not only guard the link between clinical and research identifiers, but oftentimes act as a reviewer to ensure potentially identifiable information is not being released. As more sophisticated demonstrations of the re-identification of patients appear in the literature, the question of the honest brokerâ€™s role in the realm of data security comes into question. This panel will define and identify real-world implementations of honest broker systems, describe interactions with institutional staff such as the Privacy Officer and the Institutional Review Board (IRB), explore institutional and policy challenges during the planning and implementation, assess potential weaknesses within honest broker offerings, and provide insight on how the future of the honest broker must be coupled with institutional trust and policy.\n
6-Nov-12	3:30 PM	AMIA-0590-A2012. Using PheWAS to Assess Pleiotropy of Genetic Risk Scores for Rheumatoid Arthritis and Coronary Artery Disease in the eMERGE Network	R. Carroll*; K. Liao; A. Eyler; L. Bastarache; D. Crawford; P. Peissig; J. Pathak; D. Carrell; A. Kho; R. Li; D. Masys; G. Jarvik; C. Chute; R. Chisholm; E. Larson; C. McCarty; I. Kullo; J. Haines; D. Roden; R. Plenge; J. Denny	Abstract Body: Genetic risk scores (GRS) are aggregates of single nucleotide polymorphisms (SNPs) used to estimate disease risk. We performed phenome-wide association studies (PheWAS) in a population of 13,859 individuals from the Electronic Medical Records and Genomics (eMERGE) network using GRS for coronary artery disease (CAD) and rheumatoid arthritis (RA). We then estimated the phenome-wide associations for their component SNPs. The results show the expected strong associations between each phenotype and its GRS, but much of the pleiotropy seen with individual SNPs was not seen in aggregate.\n
6-Nov-12	3:30 PM	AMIA-0319-A2012. Electronic Quality Measurement Predicts Outcomes in Community Acquired Pneumonia	S. Sims*; J. Dale; T. Johnson; K. Christensen; E. Ward	Abstract Body: Using electronic medical data, we calculated emergency department physician performance and subsequent outcomes on a measure used in the Centers for Medicare & Medicaid Servicesâ€™ Physician Quality Reporting System. The measure assesses use of guideline recommended antibiotics for community acquired pneumonia. Physicians met measure criteria in 70.6% of cases at one institution. Among patients admitted to the hospital, measure compliant cases had a significantly shorter length of stay, lower costs and lower intensive care utilization than measure failures. For measure failures admitted to the hospital, antibiotic treatment was adjusted to be measure compliant within 48 hours in 57.1% of cases. Use of electronic performance measurement for antibiotic treatment of community acquired pneumonia identified variations in physician performance. Measure compliance correlated with significantly improved patient outcomes and lower costs.\n
6-Nov-12	5:00 PM	AMIA-0176-A2012. A Scalable Service that Integrates Patient-Reported Outcomes (PROs) with Electronic Health Records (EHR)	M. Bass*	Abstract Body: Integration of patient-reported outcome (PRO) measures in clinical care has proven challenging due to measurement and technological barriers. Our pilot integration of Assessment Center, a web-based platform for capturing sophisticated PROs, with an EHR addresses these barriers. The integration process uses a software paradigm similar to the approach used for biological/lab results.\n

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6-Nov-12	5:00 PM	AMIA-0212-A2012. Integrating Research Recruitment into a Clinical Patient Portal	L. Rasmussen*; D. Were; J. Lunt; S. Lee; C. Christensen; W. Kibbe; J. Starren	Abstract Body: Many groups have highlighted barriers for patient participation in clinical and observational research. By allowing patient enrollment in research registries from within a clinical patient portal, these barriers can be reduced. We demonstrate how to achieve a tight integration between a research subject registry and the Epic MyChart patient portal, providing a consistent, integrated care and research experience for patients.\n
6-Nov-12	5:00 PM	AMIA-0544-A2012. Good Documentation Practices for Research Replicability, Re-use and Archiving	L. Kok*; M. Browning; R. Perrin; K. Stroupe; K. de Groot; D. Hynes	Abstract Body: The VA Information Resource Center (VIReC) has developed new educational products for researchers to promote good research data practices and development of documentation that supports both replication of research findings and re-use for secondary analysis. Good science has always required data replicability to validate study results; data re-use and archiving are now standard for science supported by the National Institutes of Health (NIH) and others. Documentation must integrate both objectives in the data life cycle.\n
7-Nov-12	8:30 AM	AMIA-0439-A2012. PAINRelieveIt: Just-in-Time Decision Support and Tailored Patient Education for Cancer Pain Control	Diana Wilkie*; Robert Molokie; Kay Judge; Marie Suarez; Young Ok Kim	ABSTRACT BODY: The study aim was to compare usual outpatient cancer care and PAINRelieveIt for effects on pain intensity. We randomly assigned outpatients with cancer to an attention control usual care or a PAINRelieveIt experimental group. In a 4-week pretest and repeated measures posttest design, patients completed weekly Pain Intensity Number Scales. Controlling for demographic variables, the PAINRelieveIt group had a statistically significant decrease in pain intensity compared to the usual care group (p=0.008). Use of computer technologies offers a low-cost method to improve cancer pain management.
7-Nov-12	8:30 AM	AMIA-0440-A2012.R1. Computer-Based Pain Detection from Facial Expressions	R. Ansari*; Z. Chen; D. Wilkie	Abstract Body: Automated detection of pain from facial expressions of ill, non-communicative patients, and people with dementia, can benefit patient care efficiency and provide practical pain monitoring in a variety of clinical settings. We address current technology challenges to creating a practical automated system by developing advanced video analysis technology to detect pain. We describe an automated method based on detecting pain-related facial action units defined in the Facial Action Coding System (FACS) and test it on video sequences in a unique and large collection of videos captured in homes of lung cancer patients. The automated test results reveal good agreement with the results obtained by three trained FACS coders who independently reviewed and scored the action units.\n
7-Nov-12	10:30 AM	AMIA-0568-A2012. Towards Mechanism Classifiers: Expression-anchored Gene Ontology Signature Predicts Clinical Outcome in Lung Adenocarcinoma Patients	Y. Lussier*; X. Yang; H. Li; K. Regan; J. Li; Y. Huang; R. Xing	Abstract Body: We aim to provide clinically applicable, reproducible, mechanistic interpretations of gene expression changes that lack in gene overlap among predictive gene-signatures. Using a method we recently developed, Functional Analysis of Individual Microarray Expression (FAIME), we provide evidence that Gene Ontology-anchored (GO) signatures show reliable prognosis in lung cancer. For each patient in the two lung adenocarcinoma studies, personalized FAIME-profiles of GO biological processes are generated from genome-wide expression profiles. For both training studies, GO-signatures significantly associated to patient mortality were identified (PAM; three-fold cross-validation). These two GO-signatures could effectively stratify patients from an independent validation cohort into sub-groups that show significant differences in disease-free survival (log-rank test P=0.019; P=0.001). Importantly, significant mechanism overlaps assessed by information-theory similarity were detected between the two GO-signatures (FET p=0.001). Hence, together with machine learning technologies, FAIME is feasible to develop an ontology-driven and expression-anchored prognostic signature that is personalized for an individual patient.\n