

the required security profile. **Discussion:** A single shared secure distributed querying architecture - HMORNnet - is viable using the PopMedNet software platform. We propose the implementation of HMORNnet as a solution to maintain HMORN's position as the leading example for a distributed research network.

Keywords: Distributed; Research; Health Informatics

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PS1-47:

Primary Care Residents Highly Rate Simulated Diabetes Training

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Purpose: Simulation training is prevalent in aviation and engineering industries, but acceptance by medical providers is unknown. Our objective was to design and evaluate resident physician satisfaction with simulated diabetes training. **Methods:** This web-based learning program integrated these components: (a) 18 unique diabetes learning cases, (b) an interactive care management interface, (c) a physiologic model to simulate outcomes of actions across a series of patient encounters, and (d) a library of feedback messages to critique and guide provider actions. A total of 341 consented primary care residents in 19 U.S. residency programs were randomized to receive (n=177) or not receive (n=164) the learning intervention. A satisfaction survey evaluating program features was completed by 94 (53%) of intervention subjects. Responses to open-ended questions about features considered valuable and areas needing improvement were assessed using qualitative methods. **Results:** Likert-scale responses were favorably higher than neutral for general satisfaction (93%), recommending to colleagues (91%), training adequacy (90%), navigation ease (95%), blood sugar displays (86%), drug info and help links (76%), goal progress graphs (49%), and feedback received (81%). Difficulty finding time to do cases was an issue for (51%) of responders. Open-ended responses (n=87) indicated that the most valuable learning pertained to insulin management (n=35), general management (n=23), and goal-achievement (n=10). Suggested improvements included software enhancements (n=34) and nothing bad to report (n=27). **Discussion:** Learning through case simulations in a web-based dynamic environment is rated highly for satisfaction and ease of use by resident physicians. Most would recommend it to colleagues.

Keywords: Simulation Training; Satisfaction; Health Informatics

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PS1-48:

Where to Find Inpatient Utilization Data in Clarity

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Background/Aims: Clarity is the reporting database for Epic data. Clarity was created to extract data from the Epic production server Chronicles and store it in a relational database and a dedicated reporting servers. Clarity can reside on variance platforms such as Teradata or Oracle. Most tables in Clarity are updated nightly by a feed from Chronicles. There are also weekly and monthly updates for the more static tables. Queries and reports generated from Clarity can be very comprehensive and can be challenging. This presentation is targeted to programmers on how to look for IP diagnosis, procedures, events and data flow in Clarity.

Keywords: Inpatient Diagnoses; Inpatient Procedures; Health Informatics

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PS1-49:

Methods for Integrating Patient-Reported Outcomes Into the Electronic Health Record

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Background/Aims: Patient-reported outcomes (PROs) provide valuable information to the clinician about the patient's symptoms and how the patient is responding to treatment. In some cases, electronic or phone-based PROs can reduce the need for office visits. In order to be maximally useful, PROs need to be integrated with electronic health record (EHR) data so providers can evaluate the PRO in the context of a patient's complete clinical record. In this work we identified methods for integrating PROs into the EHR. We focused primarily on PROs collected through electronic interfaces such as personal health records, email, external websites and standalone apps for smartphones and tablets. **Methods:** We compared the benefits and drawbacks of different methods for integrating PROs into Epic Systems Corporation's suite of EHR products. Available methods for automatic integration of PROs into the EHR includes the flowsheet and questionnaire extensions to Epic's MyChart product and HL7 messaging from external applications such as websites or smartphone/tablet apps. **Results:** The questionnaire and flowsheet methodologies within Epic's MyChart product provide a technically simple way to collect PROs. However, these methods are relatively inflexible in terms of how you can present information to the patient. For example, neither method allows you to present images or drawings that can help patients better express concepts such as where symptoms occur in their body. In contrast, website and smartphone/tablet applications can provide much more flexible patient interface options, but the data can be harder to integrate into the EHR system. Regardless of how PROs are collected, integrating the information into the provider's workflow remains a challenge. **Discussion:** Multiple methodologies exist for collecting and integrating PROs into the Epic EHR. Major trade-offs include the flexibility of the patient interface and the ease of integrating the data back into the EHR.

Keywords: Patient Reported Outcomes; Electronic Health Record; Health Informatics

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PS1-50:

Implementation and Evaluation of a Health Information Exchange (HIE)

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Background/Aims: HIEs are secure computer networks that allow sharing of patients' health records across health care organizations in a standard format to provide more comprehensive information to providers at the point of care. Potential HIE benefits include improved quality (better care coordination, decreased errors) and reduced costs (reduced redundant lab and radiology orders). The New Mexico Health Information Collaborative (NMHIC), the State's HIE, is implementing pilot clinical use sites in Albuquerque area Emergency Departments (EDs). Here we present the approach evaluating our pilots HIE implementation in the ED setting for its effect on the rate of redundant lab and radiology orders. **Methods:** This is an analysis of the rates of redundant lab and radiology orders before and after installation of an HIE access portal in 2 New Mexico emergency departments. Redundant tests are subsequent tests that provide no more clinically useful data that what is available from the preexisting test. Rates are measured by identifying all ED procedures P and their associated primary diagnosis D. For each first PD pair in the baseline year, count subsequent matching PD pairs as potential duplicates. Filter potential duplicates by evaluating days between pairs and excluding those within clinical guidelines (e.g., >1/month for fractures). Rates are Poisson: Sum redundant test type 'PD' / Sum initial test type 'PD' per-member-month. **Results:** For baseline period 1/2009 - 12/2009, we identified 1,464 PD pairs where the procedure was chest x-ray, of which 548 (37%) were potentially redundant, for a rate of 3.1% (2.2-4.2%) per 100,000 member months. We identified 415 PD pairs where the