PS1-33:
Algorithm for Matched Case/Control Studies

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Conducting matched case/control studies can be difficult when matching on very large populations. We have developed an algorithm to identify a pair-wise matched case / control population for retrospective cohort studies. We have implemented this method using SAS code at two sites for the Vaccine Safety DataLink (VSD) project. This algorithm is superior as it works on certain extremely large populations such as those at certain Kaiser Permanente sites. The algorithm is thoroughly tested, robust, and effective for use on multiple sites projects to identify a pair wise matched case/control population, regardless of the dataset size each Medical Care Organization maintains.

Comparative Effectiveness

C-A2-01:
Virtual Consults in an Electronic Medical Record: Physician Use, Satisfaction, and Learnings

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Background/Aims: Shared Electronic Medical Record (EMR) systems could increase communication between primary and specialty care. Electronic (virtual) EMR consults (VC) could streamline patient care. We describe physician use of VCs within Kaiser Permanente's HealthConnect EMR, compared with traditional requests for consults (TC). **Methods:** Prospective, observational, case control study comparing VCs with TCs from Kaiser Colorado adult primary care physicians to several specialty departments. Every 2 weeks from June to November 2008, VCs were randomly selected and matched with TCs by requesting physician specialty, reason for referral, referral department, patient gender and age. Referring physicians were asked to complete an online survey on reason for consult, answers received, if answers met immediate patient care needs, likelihood of using (or actual use of) the information in subsequent patient care, the impact of the consult process on physician work flow, and their overall satisfaction with the consult. **Results:** Eighty-two of 205 unique physicians responded on 62 VCs and 49 TCs; overall return rate was 26.4% (30.0% of 207 VCs and 22.9% of 214 TCs). Etiology, screening and evaluation questions were similarly common reasons for both types of consults; requests to initiate treatment or assume care were more common in TCs. Seventy-four percent of physicians requesting VCs and 39% of those requesting TCs received information from the consultant by the time of survey completion; 91% of these physicians used at least some information from the referral in caring for the index patient. Fifteen percent had already used the information in the care of subsequent patients; 41% thought they would likely use the information in the future; 29% thought they would not likely use the information in the future. Sixty percent of physicians who received information were satisfied with the information from the referral, 24% were dissatisfied, with no difference between VCs and TCs. **Conclusions:** Referring physicians received information more quickly from VCs than TCs. Consult reasons, use of information received in the index and subsequent patients, and overall satisfaction with information were similar between VCs and TCs. Additional analysis will explore longer term educational outcomes, patient satisfaction, and economic differences between VCs and TCs.

C-A2-02:
Virtual Consult Use in an Electronic Medical Record: Descriptive Statistics at Mid-Point of Study

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Background/Aims: Secure messaging within electronic medical records (EMR) between primary and specialty providers (virtual consults) may lead to streamlined care processes. **Methods:** An observational study of the use of traditional consults (TC) and virtual consults (VC) by adult primary care physicians to specialty departments conducted from June 2008 to November 2008. We compiled data for all consult orders made within the EMR. We conducted manual chart reviews, physician and patient surveys on a random selection of consults to determine the reason for the consult, the advice returned, the number of people involved in processing the consult, and the turn -around time for the consult. We report mid-study descriptive statistics on the number of patients with consults, patient demographics, the types of consults, and to which departments. We also report on the number of patient satisfaction surveys attempted and completed. **Results:** We identified 33,390 consult orders (93.6% TC, 6.4% VC) for 27,932 patients with ages ranging from 18 to 99 (mean 53.95). Of these patients, 83.8% had one, 13.5% had two, and 2.7% had three or more consult orders. The top departments for TC were: Physical Therapy (29.2%), Orthopedics (11.9%), Cardiology (11.2%), General Surgery (8.8%), and Dermatology (8.3%). The top departments for VC were: Dermatology (18.3%), Neurosurgery (12.3%), Endocrinology (9.6%), Neurology (7.2%), and General Surgery (6.2%). The average response time for VC was 3.2 days (range 130 days) with over 50% returned within one day. We randomly selected 540 patients (equally divided between TC and VC), contacted 340 thus far, and 154 participated in the survey. Forty percent of these patients received VC and 67% of these patients eventually saw a specialist. Of all patients surveyed, 79.4% were satisfied with the specialist recommendations (not significantly different between consult types). **Conclusions:** The primary care providers use virtual consults for different purposes than traditional consults. Physician and patient surveys and chart reviews are scheduled for completion in 2009 allowing a full comparison of virtual consults to traditional consults from multiple perspectives. If effective, virtual consults may improve patient satisfaction and streamline the care delivery process.

C-A2-04:
The Geisinger Transitions of Care Initiative: Overview of an Interdisciplinary Quality Improvement Process

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Background: Care transitions between inpatient and outpatient providers are quickly becoming a surrogate marker of quality for care of the hospitalized patient. Almost one in six (17.6%) Medicare patients are readmitted within 30 days of hospital discharge. As a result the Centers for Medicare and Medicaid Services (CMS) is targeting readmissions as a probable marker for both poor quality of care and money going down the drain. The Geisinger Transitions of Care Initiative (TOCI) focuses on creating reliable, sustained change that is broad based, cross platform and applicable to all patients. **Methods:** Geisinger's approach to address transitions of care is a team-based model. It begins with nurses screening patients' readmission risk status using an electronic health record tool developed from national evidence and modified based upon GHS's local experience. Once a patient identified as high risk is admitted, nursing performs a checklist of activities for early care activation (e.g. screening for the need for post acute infusion) and care management prepares a discharge plan and completes a detailed assessment of the patient's support environment. On selected units, high risk patients are followed for a month post-discharge using an outpatient care management protocol that leverages telephonic case management and remote monitoring tools that can be customized to the patient's medical plan. The final core pilot encompasses our transition bundle. This includes automation of primary care physician follow-up appointment scheduling and discharge communication. **Results:** The pilots were implemented in May and June of 2008. Because of the low frequency of readmissions, we have yet to evaluate whether early promising results are statistically significant. We have been able to demonstrate reliable emergency