PS2-09:

Combining Clinical Databases With the EHR to Identify a Study Population: An Example Using Acute Myocardial Infarction

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Background/Aims: Study populations are commonly identified using a single data source. However, the inclusion criteria may result in an unacceptable level of false positives/negatives. The utilization of multiple sources may allow for more complex inclusion criteria, therefore improving the accuracy of identification of cases and controls for use in research. For this study, Geisinger's electronic health record (EHR) was combined with clinical databases to identify a population of patients with suspected Acute Myocardial Infarction (AMI). **Methods:** The Geisinger Acute Myocardial Infarction Cohort (GAMIC) database was created to conduct research on AMI. Geisinger databases were queried to identify all patients who had elevated cardiac enzymes during an inpatient hospital admission at Geisinger Medical Center from Jan. 1, 2001 to Dec. 31, 2006. Data from the resulting patients were gathered and extensively reviewed for validity and coherence. When possible, overlapping data were collected from different sources to check for internal consistency. Discrepancies between sources were reviewed and resolved. The medical charts of patients who did not go to catheterization were manually reviewed to determine the reason for not going. Similarly, charts of patients with elevated cardiac enzymes who also had invasive surgery on the same visit were reviewed to determine the timing of the enzyme elevation. After applying all criteria, a cohort of AMI cases was derived and retained in the final GAMIC database. **Results:** There were 3,625 patients who had elevated cardiac enzymes during an inpatient encounter; 58% went for catheterization. Of the 3,625 suspected AMI cases, the most common reasons for exclusion were elevated enzymes occurring post open-heart surgery (n=275) and admissions with elevated enzymes but with a recent catheterization (n=61). Only 3,265 (90%) fulfilled all criteria applied from the diverse set of data sources. Interestingly, of the 360 that were excluded and the 3,265 AMI cases, 40% and 90% had an AMI discharge diagnosis for the inpatient admission, respectively. **Conclusions:** A more careful approach to identifying a study population and validating the data for internal consistency results in greater accuracy. In addition, more resources utilized in the beginning of the study to better capture the population of interest can lead to a reduction in resources needed later in the study if issues or questions arise from a poorly identified cohort.

PS2-16:

Excessive Gestational Weight Gain is Predictive of Postpartum Weight Retention Among Obese Women

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Background: The prevalence of obesity among reproductive age women has increased significantly. The goal of this analysis was to determine whether gestational weight gain above the Institute of Medicine recommendation for obese women (at least 15 pounds [lbs] for term pregnancy) is predictive of postpartum weight retention at one-year. **Methods:** We conducted a retrospective cohort study of 25,789 pregnancies beginning and ending between January 2000 and December 2005 in a large health maintenance organization (Kaiser Permanente, Northwest) and resulting in live birth. Obesity was defined as BMI >30 kg/m². Total gestational weight gain (last available pre-delivery weight at pregnancy onset [-180 to +90 days]) was categorized as <0, 0–15, and >15 lbs. Postpartum weight retention (postpartum weight at one year [lowest weight measured within 243–547 days post delivery] weight at pregnancy onset) was defined as <0, 0–10, and >10 lbs, and by mean change. Descriptive, linear regression and multivariate logistic regression analyses were performed. **Results:** There were 1,656 obese women who met eligibility criteria and had weights available at each key time

point. Compared to women who lost weight or who gained 0–15 lbs during pregnancy, women who gained >15 lbs were younger, had lower first trimester weights and BMI, had fewer live births, and were less likely to have diabetes or depression. Mean change in weight at one-year postpartum was higher for women who gained >15 lbs during pregnancy, resulting in a net gain (7.2 lbs ± 18.6), compared to a net loss among women who either gained 0–15 lbs or who lost weight during pregnancy (net loss -1.7 lbs ± 6.2 and -2.3 lbs ± 16.3, respectively) ($P < 0.001$). Total gestational weight gain was a significant predictor of weight gain at one-year postpartum ($\beta = 0.39$, $R^2 = 0.11$, $P < 0.001$). Women who gained >15 lbs during pregnancy were more likely to retain >10 lbs (39.7%) at one year postpartum than women who gained 0–15 lbs (15.6%) and who lost weight (24.1%, $P < 0.001$). There was a 3.6 fold increased odds (Odds Ratio 3.65, 95% CI 2.69–4.95) of weighing over 10 lbs more at one-year postpartum than at pregnancy onset if pregnancy weight gain was >15 lbs compared to 0–15 lbs. **Conclusion:** Weight gain above 15 lbs during pregnancy is associated with significant risk of postpartum weight retention at one year among obese women. Nutritional counseling should be provided to help prevent excessive weight gain.

PS2-18:

The Maccabi Healthcare Services Cardiovascular Information System: Integration of Patient Care Data, Registries, and GUI

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Abstract Background: The present study describes a registry of cardiovascular disease (CVD) patients in a large health maintenance organization in Israel aimed to be used by health professionals to identify CVD patients and follow the courses of their illnesses and risk factors. **Methods:** In 1998, the registry was initiated using advanced information technology that integrated personal computerized community and hospital records, data from laboratory tests, dispensed medications, physiological signals, radiological images, and reports from investigations and procedures. **Results:** Between 1998 and 2007, the number of patients included in the registry has increased from 34,144 to 80,339. During this period, the age-adjusted prevalence rates of known disease have risen from 3.7% to 5.1% and from 1.9% to 2.6%, among men and women, respectively. The percentage of ischemic heart disease patients who reached target LDL was doubled, from 21% in 2000 to 50% in 2006. During the study period, the average stay in hospital declined from 11.7 days to 8.6 days. Primary myocardial infarction rates declined 33% and 54% in men aged 54–65 and women aged 65–74 years, respectively. **Discussion:** The present study provides, for the first time in Israel, data on selected quality of care and clinical outcomes using a large, population-based registry of cardiovascular disease patients. It demonstrates a significant improvement in the adherence with LDL tests and achieving target LDL levels and a subsequent decline in incidence of myocardial infarction within ten years since its establishment. The methods described can be used in establishing similar registries in similar organizations.

PS2-23:

Cardiovascular Disease Surveillance to Optimize Care: Pros and Cons of a Managed Care Research Network System

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Background: With the goal of identifying where care process improvement could mitigate the impact of heart disease, we have developed a heart disease analysis model, The Perfect Care Model. Accounting for all individuals, all deaths, and all cardiac events in a population, this model estimates the number of deaths that might be prevented or postponed (DPP) with improved care. With data that are usually available in the electronic medical record or health assessment of a managed care organization (MCO), the model can calculate the potential impact of changing any risk factor level, risk factor intervention, or any evidence-based therapy. **Methods:** To assess the feasibility and benefits of basing a CVD surveillance system like the one advocated by the National Forum for Heart Disease & Stroke Prevention in