adolescents in this cohort, HT prevalence differed according to the length of the measurement period and the classification method used. The NHBPEP definition of HT found 1.2% of children were hypertensive using 2 years of BP measurements, and 2.1% of children using 4 years of measurements. Averaging all measurements, 1.3% of children were classified as hypertensive using 2 years of BP measurements and 0.5% using 4 years of measurements. **Discussion:** The 2 methods found similar prevalence of HT over 2 years of observation, but over 4 years, the averaging method resulted in 4 times fewer children with HT. We speculate that the current NHBPEP approach may over-diagnose HT and that longer periods of observation may provide a more valid estimate of BP status.

Keywords: Hypertension; Obesity; Cardiovascular Disease

doi:10.3121/cmr.2012.1100.cb1-01

CB1-02:

A Comparison of Blood Pressure Measurements Derived from Primary Care Practice and Research Settings

Joann Sperl-Hillen[1]; Karen Margolis[1]; Stephen Asche[1]; Patrick O'Connor[1]; Tessa Kerby[1]; Nicole Schneider[1]; Jaime Sekenski[1]; Rachel Pritchard[1]; Anna Bergdall[1]; Michael Maciosek[1]

[1]HealthPartners

Background/Aims: Guidelines for blood pressure (BP) treatment thresholds and goals have been derived from measurements obtained in research clinics (RC), but few studies have compared BP measurements obtained in RC and routine primary care practice (PCP) settings, where decisions about BP treatment occur. Aims: To compare BP obtained from RC and PCP settings using data from Hyperlink, a randomized controlled trial of home BP telemonitoring. **Methods:** Eligible subjects included 1,138 subjects whose 2 most recent PCP BP in the last 12 months were >140/90, responded with interest to a mailed invitation, and attended a research clinic (RC) screening visit for the Hyperlink study. Of these subjects, 255 had an additional PCP BP measurement within 30 days before the RC visit and were included in this analysis. The systolic blood pressure (SBP) and diastolic blood pressure (DBP) used for RC was the mean of 3 readings obtained using an automated blood pressure device, and for PCP was the single measurement (with sphygmomanometer as usual procedure) recorded in the electronic medical record closest to the RC visit. **Results:** The SBP mean (SD) in mm Hg for PCP was 136.9 (15.8) and for RC was 133.5 (17.6), a mean within-person difference of 3.3, p=.005. DBP mean (SD) for PCP was 77.9 (11.1) and for RC was 75.9 (12.2), difference of -2.0, p=.005. Correlation coefficients between PCP and RC readings were 0.38 for SBP and 0.55 for DBP. Of 103 subjects with PCP SBP >=140, 52 (50%) had RC SBP <140, and the overestimation was greater at higher levels of PCP SBP (PCP SBP >150, +17 mm Hg; PCP SBP 140-149, +8 mm Hg; PCP SBP 130-139, +0.3 mm Hg; PCP SBP <130, -6 mm Hg). **Discussion:** BP obtained in the RC setting was significantly lower than BP obtained in the PCP setting; only half of patients with uncontrolled PCP BP were confirmed in the RC. The differences could result in poorer outcomes on PCP BP performance measures and over-treatment of BP. The results support the use of better methods to more accurately assess and manage BP in the PCP setting.

Keywords: Hypertension; Automated Blood Pressure; Cardiovascular Disease

doi:10.3121/cmr.2012.1100.cb1-02

CB1-04:

Benefits of Early Versus Later Hypertension Treatment and Control on Cardiovascular Outcomes in Those with Diabetes: Clinical and Research Implications

Patrick O'Connor[1]; Emily Parker[1]; Joseph Selby[2]; Karen Margolis[1]; Jay Desai[1]; David Magid[3]

[1]HealthPartners; [2]PCORI; [3]Kaiser Permanente Colorado

Background/Aims: The benefits of early hypertension (HT) control in patients with diabetes (DM) may vary by degree of BP control achieved in the year after HT onset. **Methods:** Retrospective cohort study, of 13,480 DM who met study criteria for new onset HT based on blood pressure (BP) measurements, ICD-9 HT diagnose, and pharmacy data. Multivariate logistic and proportional hazard regression models were used to model the impact of BP control in first year and baseline comorbidity on subsequent occurrence of stroke or acute myocardial infarction, with adjustment for demographic factors, comorbidities, and diabetes severity. **Results:** During a mean of 37 months of follow-up time the rate of major CV events in those whose mean BP in the 12 months after HT onset was < 130/80 mm Hg, 130-139/80-89 mm Hg, and > 140/90 mm Hg was 4.9, 5.1, and 7.8 major CV events per 1000 person years respectively. CV events rates did not differ significantly for those above or below 130/80 mm Hg, but were significantly lower in those <140/90 mm Hg compared to those who >= 140/90 mm Hg at the end of the first year after HT onset (p=.0002). In multivariate models, BP control was a significant predictor of stroke, but not of myocardial infarction. **Discussion:** Prompt control of HT within one year of onset significantly reduced likelihood of subsequent stroke. Benefits of BP control were not significantly modified by baseline comorbidities or severity of diabetes.

Keywords: Hypertension; Diabetes; Cardiovascular Disease

doi:10.3121/cmr.2012.1100.cb1-04

CB1-05:

Development of Reusable Logic for Calculating Statin Exposure-Time from Electronic Medical Record Notes and Orders

Aaron Miller[1]; Catherine McCarty[2]; Evangelos Hytopoulos[3]; Mike Beggs[3] Deanna Cross[1]

[1]Marshfield Clinic; [2]Essentia Health; [3]Aviir Inc.

Background/Aims: HMG-CoA inhibitor (statin) use is a common treatment for elevated cholesterol. Statins are effective in reducing hepatic cholesterol synthesis in prospective studies. Examination of EHR data for estimating statin exposure-time is difficult because prescriptions are in unstructured notes and clinicians prescribe combinations of 'pill splitting', while frequently adjusting dosage to keep cholesterol levels under control. Here, we present logic for estimating statin exposure-time based on EHR data. **Methods:** The EHR of individuals studied in the Electronic Medical Records and Genomics (eMERGE) study were interrogated for evidence of exposure to statin medications. Exposure was identified via natural language processing (used between 1998-2007) and extraction from the medications orders system (beginning in 2004). Pill-splitting was identified in text notes: ('1/2', '0.5', 'one-half', 'half of', '1 1/2' , '1.5' , 'one and one half' , 'bid', 'two qd', '2 q.d.', 'twice daily', '1/4', '0.25', 'one quarter'). Where conflicts occurred between NLP and medication orders, order data took precedence, both for dosage and drug identification. Manual validation of electronic charts was performed to determine gold- standard dosage and exposure dates. Because statin data are frequently difficult to interpret, even in medical charts, the study team used source documents though they may contradict notes. **Results:** The subset of the eMERGE population (N=4,427) were identified with an indication of statin exposure (51%, 2,540/4,427). Average age 65 at the first exposure. Both exposed and non-exposed populations had lengthy follow-up periods: (Avg 27 vs. 28 yr, Std. Dev 6.1 vs. 6.9 yr, Min 1 vs. 3yr, Max 33 vs. 33 yr).Where statin exposure was detected, the average patient received 2.1 (max=7) different statins, over 8 years (Avg 8.1 yr, Std. Dev 4.9 yr, Min .002 yr, Max 16.8 yr). Statin-exposed population was slightly more comorbid based on the Charlson comorbidity index (scores: 0.72 vs. 0.55). Vitals and lab results were comparable between the two groups as well: BMI (30 vs. 29), LDL (113 vs. 114), Triglycerides (80 vs. 79). **Discussion:** Combining the medications data obtained via NLP with the medications orders resulted in a substantial improvement in estimation of statin exposure-time, when compared to the raw EHR source data.

Keywords: Statins; Cardiovascular Disease

doi:10.3121/cmr.2012.1100.cb1-05