EHR BPs can be used to track group differences after a trial ends, but with some important caveats.
Keywords: Hypertension; Team care
doi:10.3121/cmr.2014.1250.ps2-14

Child Health

PS1-39:

Health Care Utilization for Children With and Without Autism Spectrum Disorders in Five Large Health Systems

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Background/Aims: Approximately 1 in 88 children in the U.S.is diagnosed with Autism Spectrum Disorder (ASD). ASD is a complex disorder characterized by impairment in social skills, communication, and cognitive and behavioral functioning. Several studies have indicated that children with ASD use a different pattern of health services than typically developing children. However, most previous studies have included small samples, or only included one health system. The purpose of this analysis is to examine patterns of health service use in a large group of geographically- and racially/ethnically-diverse children with ASD enrolled in the Mental Health Research Network (MHRN) Autism Registry. **Methods:** Data from 2009 and 2010 from the virtual data warehouse (VDW) of 5 health plans was used to collect comprehensive information on patterns of health services for children with ASD and a comparison group of children without ASD. Comparisons of the patterns of service use in the two groups were conducted. Two part models of service use were used. In the first stage, logistic regression was used to examine the likelihood of any use of services. In the second stage, negative binomial regression was used to examine the level of use services. **Results:** The study includes 8,363 children with ASD and 83,575 comparison children, making it the largest study of patterns of ASD service use to date. Preliminary results indicate that children with ASD were significantly more likely to use most types of services including speech therapy (OR 12.2; 95% CI 10.9-13.9), mental health (OR 8.9; 95% CI 8.4-9.5), and neurology (OR 8.3; 95% CI 7.6-9.1). In contrast, they were significantly less likely to use some services including vaccinations (OR .80; 95% CI .75-.85). **Conclusions:** Children with ASD have significant physical and mental health needs related to their condition and these are reflected in increased use of services in many categories. However, in some cases children with ASD receive fewer important health care services, notably vaccinations. Better understanding of the needs of children with ASD, family beliefs and preferences, and systematic coordination of care for these children could aid in helping families to use health care services most effectively.
Keywords: Autism; Health services
doi:10.3121/cmr.2014.1250.ps1-39

PS2-20:

Obesity Mapping in Colorado: A Novel System for Monitoring and Tracking BMI

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Background/Aims: There has been a marked increase in obesity prevalence in the US and around the world over the last twenty years. The causes of the rise in obesity involve many interrelated environmental and socioeconomic factors. Because interventions to address the obesity epidemic often occur at the community level, better surveillance data are needed to monitor obesity within communities. The only available community-level BMI data are from self-reports, provided by the Behavioral Risk Factor Surveillance System (BRFSS). **Methods:** We have piloted a system for the collection of BMI data from multiple healthcare providers in Colorado (Kaiser Permanente Colorado, Denver Health, Children's Hospital Colorado and High Plains Community Health Center). BMI information, objectively measured during routine care and collected in Electronic Medical Records (EMR), is combined with geocoded residence address and other demographic variables. These data, combined in a manner to protect confidentiality, is then linked with built and social environment data from the Colorado Department of Public Health and Environment (CDPHE) and public data sources collected by the University of Colorado Denver (UCD). The surveillance system utilizes the HMORN Virtual Data Warehouse (VDW) data framework, including the VDW vitals and enrollment tables. **Results:** The BMI database will be available through a regional data sharing network, moving data from participating sites to a central data coordinating center (CDPHE) and to UCD for mapping and analysis. The network will enable users to both share data and perform queries within a single software environment. We intend to use the data model to track patients' BMI over time and by county, census tract and block group geographies, and link BMI data with built and social environment data. We also intend to generate maps of BMI by census tract and block group and overlay built and social environment data to explore correlations between BMI and environmental factors. **Conclusions:** Using the underlying framework of the VDW, we have created a multi-site regional data sharing network in Colorado for tracking individual patient-level BMI data, overlaid with built and social environment information.
Keywords: Body mass index (BMI); Monitoring
doi:10.3121/cmr.2014.1250.ps2-20

PS2-21:

Using EHR Data to Quantify Within-individual Variability of Standardized Weight Measures for Youth

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Background/Aims: There is increasing interest in the study of preventive and therapeutic interventions for childhood obesity. Without accounting for baseline variability in children's weight measures, however, it is difficult to accurately explore the true impact of interventions. We wanted to identify a) what percentage of children and adolescents have large longitudinal within-individual variability in their standardized weight measures and b) groups of individuals with differential growth trajectories over time. Our hypothesis is that a substantial fraction of children have large longitudinal within-individual variability and/or a non-constant growth trajectory. **Methods:** We used a cohort of ~100,000 relatively healthy children and adolescents (2-20 years), seen in large ambulatory care organizations between 2000-2013, who had at least 3 weight measurements recorded longitudinally. The standardized weight measures we used were the weight-for-age z-score (WAZ) and the weight-for-age percentile (WAPCT). We quantified the within-individual variability by a) the slope and b) the root-mean-square-error (RMSE) of the regression of longitudinal standardized weight measures vs. age. Clusters of growth trajectories were identified using Growth Mixture Models (GMM). The number of clusters was determined by Akaike information criterion and relative cluster size. **Results:** The mean duration of longitudinal follow-up of individuals in our cohort was 4.7 yrs (median 4.2 yrs, IQR 3.9 yrs). Approximately 19% of all children and adolescents had substantial longitudinal within-individual variability ($|slope| \geq 0.02$ and/or $RMSE \geq 0.35$). We identified two clusters within this group: 1) those with an initial relatively constant growth-trajectory (between 2-9 years) and then a slightly upward trend (between 10-20 years), 61% of the total sample and 2) those with an initial upward trend (between 2-9 years) and then downward trend (between 10-20 years) in their growth-trajectory, 39% of the total. Large within-individual variability was identified in 19.5% of children in cluster 1 and 18.7% of children in cluster 2. **Conclusions:** Relatively healthy children and adolescents have large within-individual variability in their standardized weight measures that needs to be considered in study design when weight changes are used as study endpoints. Two subgroups exhibit potentially important growth patterns that warrant investigation.
Keywords: Within-individual variability; Growth clusters
doi:10.3121/cmr.2014.1250.ps2-21