

ACEI and ARB based on the level of these covariates was identified, so the treatment effect of ARB relative to ACEI is considered to be truly confounded. We therefore adopted the doubly robust semiparametric efficient estimator of Robins et al. (1994) in a causal analysis of the treatment effect of ARB vs. ACEI on F/U Hgb. The method produces an estimate of the treatment effect by simultaneously incorporating the propensity of a subject to receive ACEI or ARB, given their levels of covariates, and the effects of the covariates upon the response of interest, F/U Hb. It is doubly robust in the sense that it produces an unbiased estimate of the treatment effect if either the outcome or propensity model is correct. A complete-case ANCOVA was conducted to estimate the treatment effect. **Results:** We found the estimated F/U Hb and bootstrap bias-corrected accelerated (BCa) 95% confidence interval (CI) of ACEI and ARB to be 14.31 (14.21, 14.42) gm/dL and 14.48 (14.33, 14.62) gm/dL, respectively. The causal effect of ARB relative to ACEI and associated BCa CI is estimated to be 0.17 (0.00, 0.31) gm/dL ( $p = 0.0310$ ). **Discussion:** The use of doubly robust estimation documented a significant difference between the effects of ACEI and ARB on F/U Hb, despite the association of several of the baseline covariates with the differential ordering of these drugs.

**Keywords:** Observational Methods; Statistics; Comparative Effectiveness Research

doi:10.3121/cmr.2012.1100.cc4-04

CC4-05:

### Patient Views of KRAS Testing for Treatment of Metastatic Colorectal Cancer

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**Background/Aims:** ASCO provisional clinical guidelines (2009) recommend that patients with metastatic colon cancer (mCRC) be tested for mutations in the *Kirsten ras* (KRAS) oncogene, and that those with a mutated KRAS gene (KRAS+) not be offered anti-epidermal growth factor receptor (EGFR) therapy as they are unlikely to benefit from the therapy. For patients without the mutation (KRAS-), anti-EGFR therapy may extend life but it is often associated with severe side-effects. The objectives of this study were to explore mCRC patients' understanding of KRAS testing vis-à-vis their treatment decision making, including their preferences for aggressive chemotherapy or palliative care. **Methods:** We conducted 21 semi-structured, in-person or telephone, interviews with mCRC patients (40-70 min duration). We developed a codebook through a reflexive, iterative process, and used the AtlasTi software for coding and data analysis. **Results:** We identified 115 patients with mCRC who had a KRAS test conducted 6/1/10-4/11/11. Of these, we selected a diverse sample with respect to KRAS status, clinical factors, and demographics. Participants were 63 years old on average, mostly white (57%), and KRAS+ (52%). KRAS+ patients more often recalled having had the test than did KRAS- patients (50% vs. 11%). Most participants felt the test was potentially useful in directing their treatment, because it is "scientific," although several would question its accuracy if anti-EGFR drugs were contraindicated. A few KRAS+ patients were disappointed in the results. Patients frequently described their physician as "the expert," and used the internet mainly to validate current treatment. They underscored the importance of their physician's "fighting" for them. Most patients desired aggressive treatment and had not considered declining chemotherapy. **Discussion:** Most respondents did not recall having the KRAS test, and most appeared to view the test as inconsequential to their treatment considerations. Confidence in their physician's optimism and recommendations were of greater consequence. Imaging scans, conducted repeatedly to measure progression of illness, seemed to carry more salience in their treatment experience than did the KRAS test.

**Keywords:** Metastatic Colorectal Cancer; KRAS Testing; Comparative Effectiveness Research

doi:10.3121/cmr.2012.1100.cc4-05

## Diabetes

PS1-35:

### Impact of an ADA-Accredited Diabetes Education on Healthcare Utilization

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**Background/Aims:** Diabetes self-management education delivered by certified diabetes educators (CDE) can improve persons' self-management skills, self-efficacy for managing their diabetes, and clinical outcomes among patients with Type II diabetes. In addition, these education programs have the potential to reduce healthcare utilization, costs, and disabilities associated with the disease. **Objective:** The purpose of this study was to measure the impact of Type 2 Diabetes BASICS education program (obtained from the International Diabetes Center in Minneapolis) on healthcare utilization among Scott & White SeniorCare members. The Diabetes Education site at Scott & White is nationally certified by the American Diabetes Association (ADA). **Methods:** This was a retrospective cohort study of participants who attended the education program at a single program delivery site. Subjects were program participants who attended four BASICS class sessions over a six months period between January 2005 and July 2010 and were also enrolled in a Medicare Cost Contract product. About 349 subjects were included in the analysis. The key outcome variables were number of outpatient visits, number of inpatient hospitalization and length of inpatient stay. Differences in average number of outpatient visits, number of inpatient hospitalization, and length of inpatient stay were compared for the 12-months before participants began the education program and the 12-months after the completion. The unadjusted mean differences were calculated using paired t-test. Adjusted mean difference in outpatient utilization was estimated from a linear regression and inpatient utilization by negative binomial regression adjusting for patient's age and gender. **Results:** On average, the number of outpatient visits decreased from 8.38 in the year before participants began the program to 7.70 ( $p=0.04$ ) in the year after they finished the program. In addition, the unadjusted mean number of inpatient admissions per year was significantly reduced from 0.34 to 0.20 ( $p=0.02$ ). The adjusted mean difference in outpatient visits decreased by 0.72 ( $p<0.001$ ), however, no significant difference was observed for adjusted inpatient utilization. **Discussion:** Health plan members who participated in the ADA-certified diabetes education class showed significant reductions in both outpatient and inpatient health service utilization in the year following class participation compared to the year before their participation.

**Keywords:** Diabetes Education; Self-management; Diabetes

doi:10.3121/cmr.2012.1100.ps1-35

PS1-36:

### Season, Daylight, and A1C Levels

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**Background/Aims:** Season has been associated with serum cholesterol, A1c, and affective disorders. The mechanisms acting behind these endpoints have been hypothesized to be latitude, temperature, and holiday overeating. We observed similar seasonal patterns and amplitude variation by latitude, and correlate these measures with mean daylight hours and temperatures to elucidate underlying relationships. **Methods:** We used data from The Journey for Control of Diabetes: The IDEA Study (described elsewhere). The study included adults with type 2 diabetes 1 year or greater duration and suboptimal glycemic control (A1c  $\geq 7\%$ ). Subjects were recruited from health care systems in Minneapolis (MIN), and Albuquerque (ABQ), after being identified using claims data; unenrolled subjects were included from ABQ. Data on hours of daylight and average temperatures were from the National Weather Service. We produced LOESS plots for A1c trends at both sites. **Results:** We observed no statistically significant differences in the distribution of total test result counts by season. All 4 seasons and study site were significant predictors for A1c in full regression models; subsequent models