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Aligning Asthma Education Across the Continuum of Physician Education: Impact on Clinical Metrics

Lisa Sullivan Vedder


Deborah Simpson

Jacob L. Bidwell

John R. Brill

Theresa Frederick

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The mission of the Journal of Patient-Centered Research and Reviews (JPCRR) is to further the ongoing quest for new knowledge by providing a medium for the communication of clinical research, with the purpose of improving the quality of human health, the care of the individual patient, and the care of populations.

Data were obtained 1 year before the intervention date and at least 3 months after. Paired t-tests were used for comparisons.

Results: The study population was predominantly Caucasian (90%) and female (90%) with a mean age of 54 years (range 25–79). The mean patient body mass index (kg/m²) was 37 and ranged from 28 to 63. When comparing pre- and postintervention clinical data, several improvements in laboratory values were noted. Low-density-lipoprotein cholesterol levels decreased from an initial mean of 114 preintervention to 105 postintervention, mean high-density-lipoprotein cholesterol levels increased from 47 to 58, and mean glycohemoglobin levels decreased from 6.5 to 6.1. All improvements in clinical data were not statistically significant, but were clinically relevant.

Conclusion: Patients showed mild improvements in multiple lab values after their first meeting with a health coach. This pilot study was limited by the small number of patients who chose to have a health coaching session. A limiting factor for patient use of a health coach may be secondary to the cost of each clinic visit and follow-up lab work. Cost may have contributed to our demographic mix. To further assess the impact and benefit of a health coach in a primary care setting, a larger, more diverse patient population is needed.

Real-World Relevance of Manual Electrocardiography QT Interval Measurement

Satish Velagapudi, Zahra Nur Khaled, Bilal Omery, Firas Zahwe, Michael Anigbogu, Sarah Zukkoor, Indrajit Choudhuri

Department of Cardiology, Aurora Health Care; Department of Pharmacy, Aurora St. Luke's Medical Center; Aurora Cardiovascular Services, Aurora Health Care

Background: Electrocardiography (ECG) QT interval (QTI) prolongation independently predicts sudden death. Hospitalized patients are commonly exposed to multiple QT-prolonging drugs, and manual measurement of ECG QTI based on identifying the intersection of isoelectricity with the tangent to the terminal phase T-wave slope (QTTTT) is advocated due to inaccuracies in automated detection algorithms that may imprecisely identify QT duration.

Purpose: We evaluated the performance of QTTTT compared to a standard automated (12SL, GE Healthcare) method (QT-12SL).

Methods: Consecutively obtained ECGs of 250 hospitalized patients were reviewed. The QTI in leads II, aVR, V5 and V6 determined by QT-12SL and QTTTT were compared. ECGs in which QT-12SL and QTTTT differed by > 10 ms were further characterized.

Results: The T-wave end was not reliably identified in 6 ECGs (2.4%). Of the remaining 244 ECGs (976 leads), QTTTT differed from QT-12SL by < 10 ms in 52 ECGs (21.3%). QT-12SL differed from QTTTT by > 10 ms in lead II in 140 leads (14.3%), V5 in 149 leads (15.3%), V6 in 152 leads (15.6%) and aVR in 143 leads (14.7%). ECGs with mutually

exclusive lead combinations in which QTTTT differed from QT-12SL by > 10 ms were: 1) II, aVR, V5, V6 (39.8%); 2) V5, V6 (7.8%); 3) II, aVR (4.9%); and 4) II, V5, V6 (3.7%). The expected overestimation of QTI by QT-12SL compared to QTTTT exceeded 10 ms in 105 leads (10.8%), related to T-waves with “normal” appearance, or biphasic (negative-to-positive) morphology; U-wave; and TP segment voltage exceeding PR segment voltage. Compared to QTTTT, QT-12SL underestimated QTI in 479 leads (49.1%), in association with biphasic T-waves (positive-to-negative); atrial arrhythmias; downsloping baseline near the T-wave end resulting in TP segment voltage less than PR segment voltage; and slow return of T-wave terminus to baseline.

Conclusion: Multiple clinical and electrical phenomena impacted automated QTI determination. QT-12SL and QTTTT were comparable across all analyzed leads in only 1/5 of ECGs. Compared to QTTTT, QT-12SL QTI determinations were discordant in 3/5 of all leads, and underestimated QTI nearly half the time. Perhaps most important, for a given ECG, manual review of any of the analyzed leads identified these differences 2/3 of the time.

Aligning Asthma Education Across the Continuum of Physician Education: Impact on Clinical Metrics

Lisa Sullivan Vedder, Deborah Simpson, Jacob L. Bidwell, John R. Brill, Theresa Frederick

Departments of Family Medicine and Academic Affairs, Aurora UW Medical Group; Office of Continuing and Professional Development, Aurora Health Care

Background: All trainees entering family medicine residency training programs after June 1, 2012, must complete the same American Board of Family Medicine (ABFM) Maintenance of Certification (MOC) requirements as practicing physicians. These shared requirements provide an opportunity to align physician education initiatives across the continuum focused around a clinical care topic to improve health care system metrics.

Purpose: To assess the initial effectiveness of an ABFM Asthma Part IV approved MOC module, aligned to meet residency and medical student program accreditation requirements, on health care system metrics.

Methods: An ABFM Asthma Part IV MOC module was implemented for family medicine physicians and residents in April 2014 with open, rolling enrollment for all providers. The module focused on a 20% asthma control test (ACT) improvement as ACT is a potential driver for appropriate use of asthma controller medications (ACM) in persistent asthma and completion of the asthma action plan (AAP). Students rotating on a required primary care clerkship received a 1-hour orientation to quality improvement principles and their role in assuring that an ACT had been completed on their patients. Care quality measures at baseline (January 2014) and 12 months later (December 2014) were compared: ACT use, AAP completion, and percentage of patients on

ACM for two targeted family medicine residency teaching clinics.

Results: Through February 2015, 29 providers systemwide completed the module with 212 in progress. Data from targeted clinics demonstrated system level increases in all metrics over project period, with average increases of 21% in ACT completion, 34% in use of AAP and 7% in ACM use. Participants' evaluations are strong: 80% of module completers rate MOC training as yielding a high return on their time investment; 100% of M3 students report completing an ACT test and an associated impact on their patient's care. Participant comments include: "... since completing this project I will strive to screen all my asthma patients at every visit ... [and] adjust their medications based on it. [It's] an extremely useful clinical tool"; and "I plan on trying to use [the] ACT with more appointments as a way to check up on asthma quickly. Score increased to 44% with minimal intervention."

Conclusion: Aligning physician education opportunities across the continuum with health care system metrics meets board (re)certification requirements, residency and medical student accreditation requirements and improves care for patients.

Incidence of Breast, Colorectal and Lung Cancers and Mortality Among Women Within Midwestern States

Ruth M. Perez, Matthew Rappelt, Kathryn Kossow, Maharaj Singh

Aurora Research Institute, Aurora Health Care

Background: Breast, colorectal and lung cancers have been shown to be the most common cancers as well as the leading causes of cancer death among women. Previous studies suggest that the Northeast had significantly higher rates in incidence and mortality than the Midwest, South and Western regions. However, new data indicates that the Midwest now harbors the highest mortality rates. In Wisconsin, the sixth largest state in the Midwest, cancer is the leading cause of death. Differences in incidence and mortality of breast, colorectal and lung cancers have been observed between Wisconsin, other Midwestern states and national data, warranting further investigation.

Purpose: To examine the incidence and mortality of Wisconsin females across breast, colorectal and lung cancers compared to that of the national average along with the individual states that comprise the Midwest (ND, SD, NE, KS, MN, IA, MO, IL, IN, OH and MI).

Methods: Female incidence and mortality rates were retrieved from the Centers for Disease Control and Prevention (CDC) National Program of Cancer registries for the 2011 year, while census data was retrieved from the U.S. Census Bureau for the nation, region and individual states. Data was analyzed using two-sample z-test for proportions with significance set at $P < 0.05$.

Results: Compared to the national incidence of breast cancer

(122 per 100,000), Wisconsin women had a significantly higher incidence ($P < 0.05$). Within the Midwest, Wisconsin had a higher incidence than Indiana ($P < 0.0005$) as well as higher mortality than Nebraska ($P < 0.05$). However, Wisconsin had lower incidence of breast cancer than Minnesota and Ohio ($P < 0.01$) and lower mortality than Ohio ($P < 0.05$). Wisconsin had both lower incidence and mortality for colorectal cancer. For lung cancer, Wisconsin had a higher incidence and mortality than Minnesota and Nebraska ($P < 0.005$) and lower incidence than Indiana, Michigan and Missouri ($P < 0.05$). No significant differences were noted between Wisconsin and other Midwestern states.

Conclusion: Though variations exist between Wisconsin and other Midwestern states in incidence and mortality, there are no consistent trends between these states and the three most common cancers. As a whole, however, the Midwest had statistically higher incidence and mortality rates than the nation. Further investigations into the regional differences between Wisconsin, the Midwest, and other states with similar demographic composition will be explored.

Fair Weight Loss After Gastric Rebanding for Slippage

Ahmed Dalmar, Maharaj Singh, Sara K. Roloff, Thomas Y. Chua

Aurora Research Institute, Aurora Health Care; Wisconsin Bariatrics

Background: Laparoscopic adjustable gastric banding (LAGB) is one of the most common bariatric surgery procedures performed in the United States. LAGB results in safe and satisfactory weight loss, but it is often complicated with slippage, a complication requiring rebanding (reoperation). There is a paucity of studies and no uniform consensus regarding weight loss after rebanding.

Purpose: This study assessed the effect of rebanding for slippage after LAGB on weight loss up to five years.

Methods: This is a historical cohort study of 865 patients who underwent LAGB from 2001 to 2011. Rebanding was performed in 103 (11.9%) patients. Primary outcome of interest was percent excess weight loss (% EWL), which was categorized as fair (>25 – 50%) and failure ($<25\%$ EWL) after rebanding. Of the 103 patients diagnosed with slippage, 23 were excluded from further analysis because either the band was removed ($n=15$), or they were rebanded twice due to recurrent slippage ($n=2$) or lack of enough data ($n=6$). Of the remaining 80, 76 patients were matched with 76 controls without slippage using propensity matching. Paired t-test was used to compare weights (initial, at reoperation, and 1, 2, 3, 4 and 5 years before and after rebanding). Chi-square test was used to compare EWL rate between groups. Multivariate logistic regression was performed to determine predictive probability for propensity matching of slippage.

Results: The majority of patients were female (82.9%). Mean age was 44.32 ± 11.3 years, mean preoperative body