2013 Cancer Prevention and Control Posters

The following posters were submitted by residents funded through the Physician Training Award in Cancer Prevention. This grant program supports training in accredited preventive medicine residency programs that provide cancer prevention and control research and practice opportunities.

100 *Estimated Cost and Cost-Effectiveness of Simplified Hepatitis B Treatment In Sub-Saharan Africa Using Generic Medications*

Matthew Barnhart
Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: Hepatocellular carcinoma (HCC) is the leading cause of cancer death among African men and also causes significant mortality among women. The vast majority of cases are associated with hepatitis B virus (HBV). HBV treatment could reduce HCC incidence, but treatment access is low in sub-Saharan Africa (SSA). Estimating the cost of simplified treatment with generic drugs and modeling cost-effectiveness could help inform future efforts to expand access.

Methods: Two WHO-preferred agents, tenofovir disoproxil fumarate (TDF) and entecavir (ENT) were considered. Cost of generic TDF (300mg/day) was derived from the Clinton Health Access Initiative (CHAI) price list. A range for the potential cost of generic ENT (0.5mg/day) was estimated through comparison with other generic antivirals based upon the price/mg of active pharmaceutical ingredients. Service delivery costs of HBV treatment were estimated from a multi-country costing study on HIV treatment in SSA. A nomogram with simple parameters generated a 10-year risk score. Using efficacy estimates from a published meta-analysis, the cost per HCC-averted by treatment was calculated for different risk scores. A Markov model was created to compare cost-effectiveness of ENT, TDF, and no treatment.

Results: The estimated cost of treatment per patient year with generic ENT was $17 (range $12-$22) much lower than with generic TDF at $83. For an illustrative patient with a risk score of 9 (~7% 10-year risk) the estimated cost per HCC-averted was $4,301 with ENT. (Costs per DALY will also be presented stratified by risk scores)

Conclusions: Simplified treatment with generic entecavir could be inexpensive and cost-effective for prevention of HCC (and cirrhosis) among intermediate to high-risk patients.

Public Health Implications: Medication costs need not be a barrier to expanding HBV treatment. Current recommendations for resource-constrained settings to treat only patients with cirrhosis or extremely high HCC risk should perhaps be reconsidered.

Data Source Utilized: CHAI price list; REVEAL-nomogram; publicly available studies.

101 *Cancer Biomarkers*

Laura Buehning
Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: Endobiogeny is a system of clinical evaluation that studies how the endocrine system manages the terrain of the organism. The biology of functions (BofF) is a biological modeling system based on the theory of endobiogeny. This system evaluates the physiology of an individual based on seventeen serum biomarkers. From these 17 biomarkers, a series of over 100 indices are derived which reflect the functional metabolic state. The BofF is an integrated, dynamic assessment of human physiology and therefore it is well suited to describe complex, multi-factorial activities within the body, such as cancer.

Methods: A retrospective case control study was performed using the BofF analyses of 48 patients with a history of cancer and 48 age and sex matched controls. The analysis included 62 of the biology of function parameters. The data was analyzed with the Wilcoxon Signed Ranks Test using SPSS software.

Results: The data showed a statistically significant difference between all cancer patients and controls for the inflammation index (p=.022). The data also showed marginal significance for the index of the ratio of beta to alpha melanocyte stimulating hormone (p = 0.089).

Conclusions: Statistical associations were found between cancer and biomarkers of the BofF system in this small case control study. These results warrant further study of this system in cancer patients and other types of chronic disease. This assessment system could assist in the clinical evaluation and management of chronic diseases.

Public Health Implications: The BofF indices could be beneficial for early cancer detection, screening and prevention. They could also be beneficial in monitoring the effectiveness of cancer therapies. The ability to identify and evaluate cancer activity and its response to treatment using simple blood tests would be a valuable addition to the prevention and clinical management of cancer.

Data Source Utilized: The data was obtained from a solo endobiogeny private practice in San Diego.

102 *Reasons for Not Using Nicotine Replacement Therapy (NRT) That Predict Use of NRT in a Future Quit Attempt*

Maggie Cook-Shimanek
Population Health Track

Background: Nicotine replacement therapy (NRT) is a proven smoking cessation treatment. Previous research has reported low rates of NRT use among quit-attempters. This study analyzed population-level rates of non-use and reasons for not using NRT.

Methods: Descriptive analysis of NRT non-use in current smokers who intend to quit was conducted by demographic, smoking-related, and quitting related covariates. Multiple logistic regression was performed with SUDAAN to determine which reasons for not using NRT in the past predicted whether an individual intended to use NRT in a future quit attempt.

Results: Overall, nearly 80% of current smokers who intend to quit have never used NRT. "Belief that 'willpower' alone is sufficient for cessation" (21.5%), "lack of effectiveness" (15%) and "cost" (14.7%) were the most frequent reasons for NRT non-use. 'Willpower' was more commonly reported among Hispanics compared to whites (36.9% vs. 14.7%, p=0.01) and nondaily vs. daily smokers (30.5% vs. 12.4%, p=0.001). 'Cost' was a more common reason among daily smokers compared to nondaily smokers (22.3% vs. 7.1%, p=0.001). Most never-users of NRT reported they would try cold turkey (55.9%) in their next quit attempt; NRT was the next most common choice (19.1%). In multivariate analysis, smokers who identified "cost" or "willpower" had significantly lower odds of planning to use NRT in a future quit attempt.

Conclusions: The majority of smokers have never used NRT and do not plan to use it in the future. Cost and willpower are significant barriers to using NRT in future smoking cessation attempt.

Public Health Implications: Identifying cost and willpower as predictors for avoidance of NRT will direct focused, population-level, program, and provider efforts to maximize successful quit attempts, recognizing that these are true barriers to quitting.

Data Source Utilized: Data were from the 2008 adult Colorado Tobacco Attitudes and Behaviors Survey (TABS), a population-based, random-digit dialed telephone survey (n=14,156) about tobacco use.

103 *Underestimation of Lifetime Risk of Cancer Death From Computed Tomography (CT) Scan*

Maggie Cook-Shimanek
Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: Up to 2% of cancers may be attributable to radiation from computed tomography (CT) scans. CT use has increased dramatically in the past three decades. Previous research shows that many patients underestimate the lifetime risk of cancer death associated with CT. This study explored characteristics associated with underestimation of lifetime risk of dying from CT scan.

Methods: This cross-sectional study of radiology outpatients used logistic regression modeling to explore associations of patient demographics, knowledge of radiation exposure from different imaging modalities, and clinical encounter characteristics (e.g., who made final decision for CT, any risk/benefit discussion with provider) with underestimation of lifetime risk of death from one abdominal CT.

Results: Of 271 respondents, 83% underestimated the lifetime risk of dying from one abdominal CT scan. In the multivariate model, underestimation of lifetime risk was less likely among patients who participated in the decision to undergo CT (OR=0.45, 95% CI 0.22, 0.90) and more likely among patients who incorrectly rated radiation exposure from CT as less than from MRI (OR=2.26, 95% CI 1.13-4.54). No other associations with risk underestimation were identified.

Conclusions: Patients who are less knowledgeable about CT radiation exposure are more likely to underestimate the resulting lifetime risk of cancer death. Patients who share in the decision to have a CT are less likely to underestimate risk, either because greater concern about radiation risk motivates their participation in decision-making or because the process of shared decision-making improves risk understanding.

Public Health Implications: Providing basic radiation education and involving patients in the clinical decision to undergo CT may translate into better understanding of CT-related lifetime cancer death risk and facilitate more informed decision-making by patients.

Data Source Utilized: We surveyed patients seen in Denver VA Medical Center's outpatient radiology department from November-December 2011.

104 *TB Misclassifications Amongst Resettled Refugees In Buffalo, NY from 2005-2012*

Tyler B. Evans
Medical Quality

Background: As of 2007, 57.8% of all new cases of TB in the US were diagnosed in foreign-born persons. It is during this process that a dissonance has been identified in classifications of TB. During US follow-ups, class A TB has been diagnosed in 3.3%-14.0% of immigrants and refugees classified overseas as having suspected class B1 and 0.4%-3.8% of those classified as B2 TB. Moreover, no TB was diagnosed in 26.4% of immigrants and refugees who were diagnosed overseas as B1 and 36.6% of those diagnosed overseas as B2. Western NY has one of the largest refugee populations in the US. Indeed, approximately 30% of all refugee resettlement in NY state takes place in Erie county, making this sample highly important for analysis on quality of screening procedures.

Methods: The design of this study was a cross-sectional chart review. The primary research question was answered through a correlation analysis between overseas and US-based diagnoses/classification. The secondary research endpoint is a comparative analysis before (2005-2007) and after (>2007) revised CDC guidelines were implemented.

Results: Of all charts reviewed, total misclassification was found in 55.56% of resettled refugees. This was most striking amongst B1 subjects, where 81.82% were misclassified, whereas only 12.5% of B2 classes were inaccurate. Such misclassifications were found most commonly amongst Bhutanese and Burmese refugees.

Conclusions: With over half of all TB cases misclassified amongst refugees resettled in western NY, it is clear that guidelines must be revised in order to decrease the burden on the refugee health-care infrastructure.

Public Health Implications: This data should help guide the quality of screening procedures for a highly infectious disease of all American-bound refugees.

Data Source Utilized: We reviewed all Class B1 and B2 (LTBI) cases in existent records at Jericho Road refugee clinic since 2005 in order to analyze misclassification as well as the potential conversion to active TB after resettlement.

105 *Fertility Preservation in Young Adult Cancer Patients at a Tertiary Care Center in New York*

Sadie Sanchez
Medical Quality

Background: Newly diagnosed young adult cancer patients place great importance on fertility preservation. Oncology providers infrequently document fertility discussion prior to treatment. In 2006, the American Society of Clinical Oncology (ASCO) recommended oncologists "discuss the possibility of infertility during their reproductive years prior to chemotherapy". At a tertiary care center in New York, as of April 23, 2012, a chemotherapy consent form, including a fertility risk statement, was implemented to help ensure ASCO recommendation compliance.

Methods: A retrospective chart review was conducted 120 days prior to April 23, 2012 (pre group) and 120 days after April 23, 2012 (post group). This study included patients 18-45 years old with a new malignant diagnosis who received fertility altering therapy with prognosis greater than 12 months. Data collected included demographics, completion of a chemotherapy consent form, and documentation of fertility discussions by any provider before initiation of treatment.

Results: Eighty-four patients met inclusion criteria; 54 in the pre group and 30 in the post group. The age range for both groups was 21-45 while the mean (SD) for the prior group was 36.7 (6.7) and for the after group was 37.1 (6.9). In the pre group, 21 (38.9%) of the patients were counseled regarding fertility while 9 (30%) of patients in the post group were counseled. A Cochran–Mantel–Haenszel test determined that these 2 groups were not statistically different ($p = 0.259$).

Conclusions: Documented fertility counseling did not improve despite the introduction of a chemotherapy consent form.

Public Health Implications: Patients not counseled about the risk of infertility lack the opportunity to make informed decisions about their cancer treatment and fertility preservation options. Further exploration must include whether conversations occur and are not documented as well as reasons behind the lack of improved documented infertility counseling with the chemotherapy consent form.

Data Source Utilized: Patient electronic medical records from 11/24/11 to 9/20/12.

Preventive Medicine 2013 Posters

Posters 106-138 were selected based on their research in the Preventive Medicine 2013 meeting tracks, including Clinical and Preventive Lifestyle Medicine, Population Health and Technology and Informatics.

106 *Predictors Of Highly Active Antiretroviral Therapy (HAART) Initiation Among Eligible Clients Attending Secondary Level Facilities In North-Central Nigeria*

Muktar Aliyu
Population Health Track

Background: Timely initiation of HAART has beneficial effects on mortality and morbidity. We examine predictors of HAART initiation within 90 days of enrollment into HIV care and treatment at five secondary-level facilities in North-Central Nigeria.

Methods: We analyzed program-level cohort data for HIV-infected, ART-naïve clients (?15 years) enrolled between June 2009 and February 2011. We modeled the probability of HAART initiation among clients meeting national HAART eligibility criteria using logistic regression with splines.

Results: We enrolled 1,758 ART-naïve adults/adolescents (65% female) into care during the study period. Of these, 61.5% (n=1082) were HAART eligible, of whom 76.7% (n=830) initiated HAART within 90 days of enrollment. The median CD4 count for eligible clients was 240 cells/μL [interquartile range: 115-391], with 48% of patients having advanced disease (WHO stage 3/4). In a multivariable model adjusted for CD4, WHO stage, functional status, hemoglobin, BMI, sex, age, education, marital status, employment, clinic of attendance and month of enrollment, we found that female sex (odds ratio (OR)=1.46 [95% confidence interval (CI): 1.07-2.01]; p=0.02), advanced immunosuppression (CD4 count=200 vs. 350: OR=1.76 [95%CI: 1.09-2.85]; p< 0.01), favorable functional status (working vs. bedridden, OR=3.47 [95%CI: 1.33-9.03]; p< 0.01), clinic of attendance (clinic 2 vs. referent: OR=0.52 [95%CI: 0.33-0.84]; p< 0.001), and month of enrollment (December 2010 vs. June 2009 (referent): OR=0.47 [95%CI 0.26-0.84]; p< 0.01) were significantly associated with HAART initiation. The probability of HAART initiation within 90 days diminished over time as the program grew and eligibility criteria broadened (93% to 84%; 06/2009-02/2011).

Conclusions: Socio-demographic factors were not prominent predictors of initiation - patient health status was the key determinant of timely initiation.

Public Health Implications: Efforts should be directed to ensuring that all eligible clients initiate HAART; the sickest patients may not always be those who get treated.

Data Source Utilized: Vanderbilt Team Program for HIV Prevention & Care in Nigeria funded by CDC/PEPFAR.

107 *The Epidemiology Of Occupational Injuries And Deaths Among Us Commercial Air Tour Pilots, 2000-2011*

Sarah-Blythe Ballard
Population Health Track

Background: Aviation-related fatalities are the seventh leading cause of fatal occupational injury in the US. However, no studies have described the injury and death risk among commercial air tour pilots.

Methods: Pilot occupational injury and death rates, as well as passenger injury and death rates, were calculated using National Transportation Safety Board (NTSB) reports from 2000 through 2011. Average annual flight hours were calculated using the Federal Aviation Administration's (FAA) General Aviation and Air Taxi Activity (GAATA) Survey results from 2000 through 2010. US Bureau of Labor estimates of commercial pilot fatalities from 2006 through 2010 were used for comparison.

Results: From 2000 through 2010, commercial air tour pilots in the US flew an estimated 512,113 hours annually with an average fatality rate of 4.5 per 100,000 flight hours, compared with 1.3 pilot fatalities per 100,000 on-demand Part 135 flight hours (RR 3.3, 95% CI 2.2—5.1, P<0.001).

Conclusions: Occupational injuries among US commercial air tour pilots are high relative to other commercial aviation operations. Compared with air tour passengers, pilots were similarly likely to die, but more likely to be injured in crashes.

Public Health Implications: Risk management for commercial air tour pilots should focus on decreasing the incidence and increasing the survivability of crashes.

Data Source Utilized: NTSB database, FAA GAATA Survey, US Bureau of Labor Statistics.

108 *Why "Don't Ask, Don't Tell" (DADT) Really Meant "Don't Aid, Don't Treat": Exploring DADT's Deleterious Health Effect on LGBT Troops*

Jonathan Barry
Population Health Track

Background: Marginalized populations are restricted from receiving appropriate health care. Anecdotal evidence suggests that the DADT policy significantly marginalized lesbian, gay, bisexual and transgender (LGBT) service members. The purpose of this study was to quantify how DADT influenced members to underutilize and/or circumvent military health care.

Methods: The study population came from LGBT military organizations OutServe and Out Military, and data was anonymously collected through online surveys to LGBT service members. In the final analysis, 1055 self-identified LGBT service members participated in this study.

Results: Respondents subjectively viewed DADT as a greater social injustice versus a potential health care barrier.

Conclusions: Original survey results.

Public Health Implications: Yes.

Data Source Utilized: Yes.

109 *Factors Associated with Transmission Risk and Detectable Viral Load (VL) in HIV-infected Men Who Have Sex With Men (MSM) on Antiretroviral Therapy (ART)*

Jill Blumenthal
Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: ART has been shown to prevent the transmission of HIV infection but to be optimally effective it requires patients have suppressed VL.

Methods: HIV-infected MSM from Los Angeles and San Diego with a recent history of transmission risk behavior participated in an internet-based prevention intervention study. Baseline data of those on ART for >3 months was evaluated to assess predictors of detectable VL at >75 and >1000 c/mL and transmission risk calculated by probability risk per sexual act adjusted for presence of sexually transmitted infections (STI) and ART use. Fisher's exact test and Wilcoxon Rank Sum were employed to assess associations between baseline variables, VL and transmission risk.

Results: Of 181 enrolled in this study, 149 (82%) were on ART ?3 months. 33 (22%) had VL>75 and 16 (11%) >1000c/mL. Subjects with VL>75c/mL were more likely to be Black (59 vs 28%, p=0.002), have household income 1000c/mL were more likely to have lower CD4 cells (p75c/mL and transmission risk at baseline were more likely to have dropped out of high school (22 vs 5%, p=.02), have regular HIV-infected sex partners (72 vs 38%, p=0.009), have casual HIV-uninfected/unknown status sex partners (56 vs 24%, p=0.01), and have used methamphetamines (44 vs 10%).

Conclusions: Socioeconomic factors, high risk behavior and drug use play an important role in MSM on ARVs with poor viral control. More work is needed to reduce transmission in those in care on ART with nonsuppressed VL.

Public Health Implications: HIV treatment-as-prevention programs require ongoing behavioral support for adherence and transmission risk because suboptimal viral suppression can result in worse clinical outcomes and increased costs.

Data Source Utilized: Cohen MS et al. NEJM 2011.

110 *Descriptive Analysis of Chronic Hepatitis C Infections in North Carolina*

Kelly Corr
Population Health Track

Background: It is estimated that hepatitis C affects 1.5% of the U.S. population. Approximately 45% of those infected do not have a known exposure risk and 45%-85% are unaware that they are infected. The baby boomer birth cohort, 1945-1965, accounts for three fourths of all chronic infections prompting the CDC to recently recommend universal screening in this population. This study assesses the burden of hepatitis C in North Carolina.

Methods: From February 2008 to March 2012, the North Carolina State Health Department received partial laboratory-based reporting of chronic hepatitis C infections. Data was imported into North Carolina Electronic Disease Surveillance System and pertinent data extracted. Data analysis was performed using STATA 12 and GIS mapping.

Results: The analysis identified 26,070 persons chronically infected with hepatitis C. Of those, the baby boomer birth cohort accounted for 70% of infections, two thirds were men, three fourths of infected persons received less than 3 laboratory tests, 7% were co-infected with hepatitis B, and three counties (Cumberland, Mecklenburg and Wake) accounted for 21% of infections.

Conclusions: The greatest burden of chronic hepatitis C infections in North Carolina resides in the birth cohort 1945-1965 and among men. Counties with a large military base and metropolitan areas contain one-fifth of infections.

Public Health Implications: In North Carolina, like many other states, there is no active surveillance system for chronic hepatitis C with an unknown disease burden. However, with potential increased screening and the implementation of the Affordable Care Act, there is a higher likelihood of identifying and treating more cases. As a result of these changes, surveillance for chronic hepatitis C may be important to assess trends over time.

Data Source Utilized: Centers for Disease Control and Prevention. Recommendations for the Identification of Chronic Hepatitis C Virus Infection Among Persons Born During 1945–1965. MMWR 2012;61 (No. RR-4): 1-32.

111 *The Use of Invasive Circulating Tumor Cells (ICTC) Detection for Epithelial Ovarian Cancer Treatment*

Whitney Dessio
Technology and Informatics

Background: In spite of the increasing number of experimental and therapeutic options, Epithelial Ovarian Cancer (EOC) including epithelial ovarian, peritoneal, or fallopian tube cancer is still the leading cause of death among cases of gynecologic cancer. EOC lethality, in part, is attributed to a lack of an appropriate screening method and well-defined symptomatology of early disease, resulting in frequent detection at late stages by standard diagnostic measures. In addition, the likelihood of recurrence is poorly defined using current analytical and diagnostic measures.

Methods: We isolated invasive circulating tumor cells (iCTCs) using the functional Cell Adhesion Matrix (CAM) method, and characterized them using microscopy, flow cytometry, gene expression profiling and qRT-PCR for identification of biomarkers denoting metastatic potential. We tested whether results of an iCTC blood assay would correlate with the likelihood of metastasis in 122 preoperative patients diagnosed with current standards.

Results: Specificity of the iCTC assay is 95.8%. iCTCs were abundant in preoperative patients diagnosed with more advanced EOC tumor stages – 5/11 (45.5%) Stage I, 2/4 (50%) Stage II, 41/43 (95.3%) Stage III and 16/16 (100%) stage IV patients and 6/9 (66.7%) recurrent, but were rare in benign samples (5.1%, n=39).

Conclusions: The iCTC detection has been validated as quantifying the likelihood of metastasis or worse clinical outcomes in preoperative patients with all stages, grades and recurrence of EOC disease.

Public Health Implications: iCTCs can help identify patients at greater risk for worse outcomes who are eligible for appropriate therapy.

Data Source Utilized: Stony Brook University Medical Center.

112 *Brief Validated Distracted Driving Questionnaire*

Amelia Eastman
Population Health Track

Background: In 2010, 3,092 people were killed in crashes involving a distracted driver and an estimated additional 416,000 were injured in motor vehicle crashes involving a distracted driver. There is currently a 17 item scale that predicts the behavior of distracted driving. The purpose of this study is to model distracted driving using the least number of questions, while maintaining a high predictive value.

Methods: A cross-sectional study was performed with an anonymous on-line survey of college-attending drivers, with a 100% probability sample from students attending 18 different educational institutions across San Diego County, California. Factor analysis assisted in the creation of a scale assessing total distracted driving score, which served as the key outcome.

Results: The internal consistency correlation, using Cronbach's standardized alpha coefficient, was 0.88. Principal axis factoring was accomplished using varimax rotation. A five factor scale (eigenvalue 1.01-6.78 with 64% variance explained) was derived. Factor loadings ranged from .43 to .87. Criterion validity of the simplified distracted driving scale was examined by comparing with total distracted driving score. Twelve items were deleted based on inter-item (less than .30) and item-total (less than .55) and factor loadings (less than .45). Five factors emerged and represented behaviors relating to the frequency of talking on the phone, texting, using plug-in devices, and using non-plug-in devices while driving.

Conclusions: Data from this study suggest that a distracted driving scale with five questions can be used to asses distracted driving behaviors among college students.

Public Health Implications: An on-line distracted driving scale, such as this one, may be used to deliver immediate personalized feedback as part of an individualized prevention program or applied to a larger audience to evaluate the success of public awareness campaigns.

Data Source Utilized: On-line survey administered to university, college, or trade/occupational school in San Diego County, California.

113 *Descriptive Epidemiology of Campylobacter in Newark, New Jersey 2006-2011*

Yvonne Farnacio
Population Health Track

Background: Campylobacter is one of the top 2 most commonly reported causes of bacterial gastroenteritis in the United States. Using existing surveillance data, the objective of this study is to determine incidence and evaluate characteristics of Campylobacteriosis cases in Newark from 2006-2011 in order to target affected subpopulations for future preventive measures.

Methods: We used surveillance data* on 138 cases of Campylobacteriosis reported in Newark residents, 2006-2011, in order to calculate crude incidence rates by zip code based on Census 2010 population data. Comments on case report forms were reviewed and summarized by age, sex, race/ethnicity, and case distribution over time.

Results: Annual incidence in Newark has steadily increased from 3.6 per 100,000 in 2006 (95%CI: 1.4-5.8) to 14.1 in 2011 (95%CI 9.7-18.5). In comparison, incidence has remained essentially stable nationwide over 2006-2011 (12.7-14.3/100,000). Hispanics comprise 34% of Newark's population but represented 57% of cases. Incidence among Hispanics was consistently higher than other groups and was 21.3 per 100,000 in 2011. Three zip codes, where half of Newark's population and 79% of Newark's Hispanic population reside, had an incidence rate ratio of 4.0 (95% CI: 1.2-6.0) compared to the rest of Newark.

Conclusions: The incidence of reported Campylobacteriosis in Newark has increased since 2006, disproportionately affecting subpopulations of Hispanic ethnicity. A case control study is planned to establish reasons for this rising incidence and risk factors for Campylobacter infection in Newark.

Public Health Implications: Although the Campylobacteriosis incidence rate for Newark now approximates the national average this surveillance study has identified higher incidence subpopulations where public health interventions may be most effective in reducing incidence.

Data Source Utilized: *New Jersey Communicable Disease Reporting and Surveillance System (CDRSS) database.

114 *The Up Amigos Project: Testing the Sensitivity and Specificity of the 2007 Pediatric Expert Committee Recommendation In Latinos*

Tracy Flood
Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: Hispanics are disproportionately affected by cardiovascular disease and there is mounting evidence that Hispanics may be genetically prone to the development of cardiovascular disease (CVD) risk factors. Prevention can begin early. There were two aims of study. The first aim was to identify the prevalence of three CVD risk factors in Mexican young adults: (1) non-alcoholic fatty liver disease, (2) dyslipidemia, and (3) impaired fasting glucose. The second aim was to test the sensitivity and specificity of the Pediatric Expert Committee Recommendations (PECR) in identifying Mexicans with these three cardiovascular disease risk factors.

Methods: In this cross-sectional study, data for UP AMIGOS was collected from 9,974 participants (age 18- to 21-years-old) living in Central Mexico. Participants underwent a health screen that included: a questionnaire, anthropometric measurements (i.e. height, weight, waist circumference, blood pressure), a physician-conducted history and physical, and venipuncture for blood biomarkers. The value of the PECR was measured with sensitivity, specificity, and positive predictive value along with tests for significance.

Results: NALFD (17.1 to 45.5%) and dyslipidemia (44.8%) were fairly prevalent. In contrast, impaired fasting glucose was rare (4.0%). Each CVD risk factor increased with increasing levels of adiposity. The PECR provided a reasonable clinical screen for NALFD, but was fairly insensitive in detecting those with dyslipidemia or impaired fasting glucose.

Conclusions: The 2007 PECR was an acceptable clinical screen for NAFLD. In regards to dyslipidemia, this condition affected almost half of the population, but the PECR was unable to predict those with the condition. In turn, impaired fasting glucose was rare and the PECR was a also poor predictor.

Public Health Implications: Mexican adolescents and young adults already have a high prevalence of CVD risk factors. These risk factors will go unnoticed and may eventually convert to irreversible disease, unless a valid, predictive screening protocol is established.

Data Source Utilized: UP AMIGOS database.

115 *The Distribution and Predictors of Distracted Driving in College Students*

Linda Hill
Population Health Track

Background: Distraction is a major danger on today's roadways. The increase in injuries and deaths due to distracted driving (DD) being driven both by the massive increase in cellphone use, and an increase in DD prevalence. Hypothesizing that younger drivers are at highest risk, this study was undertaken to characterize distracted driving in college and university students in San Diego County.

Methods: A 38 question survey was developed addressing: demographic characteristics, detailed driving behaviors and attitudes, and opinions towards contingencies that could affect DD, with validity and reliability pilot testing done prior to deployment. Recruitment efforts included fliers and internet postings. The anonymous survey was hosted by SurveyMonkey.com. Participating institutions included 12 colleges and universities in San Diego County.

Results: 4964 students with cell phones participated, average age 21, 66% female, 45% white non-hispanic, and 83% undergraduate. 78% of respondents reported driving with cell phone (hands free (HF) or hands held (HH)). 47% use HF at least half the time. 88% reporting texting behavior, 50% while driving on the freeway. A distracted driving scale (DDS) was created based on 16 questions characterizing the frequency and intensity of the DD. The DDS demonstrated high internal consistency (Cronbach's alpha = .89). In a multivariate model, nine predictors explained 44 percent of the variance in DD, and was statistically significant. Significant predictors of DD included higher confidence in their 'driving while multitasking'; having 'observed others driving distracted'; and higher perception of 'safety while multitasking'. There were no differences in gender, or between undergraduates and graduates on the distracted driving scale.

Conclusions: This study highlights the high prevalence of distracted driving in college students, including texting at high speeds.

Public Health Implications: The demonstration of misplaced confidence in the safety and ability to multitask while driving may lead to opportunities for education and risk abatement.

Data Source Utilized: Anonymous Internet survey.

116 *Understanding Weight Management Preferences of Obese Patients in the Primary Care Setting*

Nader Hussein
Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: More than one-third of adults in the United States are classified as obese. Recent updates to the USPSTF recommendations emphasize the importance of obesity screening and treatment in adults, but minimal data is available regarding patient attitudes toward weight management in primary care.

Methods: Structured interviews were conducted with 10 patients over the age of 18 years who had a BMI of 30 kg/m2 or greater. Information from these interviews was used to develop a survey regarding patient perspectives on obesity counseling, which was later distributed to all adult patients visiting the family medicine practice during a 3-day period.

Results: Of the 560 adult patients who visited the practice, 103 completed the survey. They had an average age of 42.4 years and an average BMI of 26.8 kg/m2. 84% of respondents stated that a physician could not help them reach their weight goals, while only 16% stated that a physician could be of assistance in managing their weight. Respondents ranked weight loss programs as the most effective in weight management, while ranking physician help as the lowest.

Conclusions: While there are limitations to this data due to the low response rate and fact that a convenience sample was used, the results suggest that a majority of patients are unlikely to schedule multiple appointments with their physician to discuss weight management, and that they believe this option would be ineffective. Data from this survey also suggests that patients are interested in coordinating care with nutritionists, personal trainers, and weight loss programs to supplement the advice they receive from their physician.

Public Health Implications: These results should be used when discussing obesity prevention and treatment with patients in order to help patients manage weight and avoid the development of chronic disease.

Data Source Utilized: Survey using a convenience sample of adult patients at a family medicine practice.

117 *The Association Between Anxiety Disorders and Suicide: A Systematic Review and Meta-analysis*

Amrit Kanwar
Population Health Track

Background: Although anxiety has been proposed to be a potentially modifiable risk factor for suicide, research examining the relationship between anxiety and suicidal behaviors has demonstrated mixed results. Therefore, we aimed at testing the hypothesis that anxiety disorders are associated with suicidal behavior and evaluate the magnitude and quality of the supporting evidence.

Methods: A systematic literature search of multiple databases was conducted through August 2011. Two investigators independently reviewed and determined the eligibility and quality of the studies based upon a prior established inclusion criteria. The outcomes of interest were suicidal ideations, suicide attempts, completed suicides, and a composite outcome of any suicidal activities/tendencies. We pooled odds ratios from the included studies using random effects models.

Results: Forty-one observational studies were included. The studies had variable methodological quality due to inconsistent adjustment of confounders. Compared to those without anxiety, patients with anxiety were more likely to have suicidal ideations (OR=2.84, 95% CI: 2.04, 3.95), attempted suicides (OR=2.47, 95% CI: 1.96, 3.10), completed suicides (OR=3.34, 95% CI: 2.13, 5.25), or have any suicidal activities (OR=2.83, 95% CI: 2.33, 3.44). The increase in the risk of suicide was demonstrated for each subtype of anxiety except obsessive compulsive disorder (OCD). The quality of this evidence is considered low to moderate due to heterogeneity and methodological limitations.

Conclusions: This meta-analysis provides evidence that the rates of suicides are higher in patients with any type of anxiety disorder excluding OCD.

Public Health Implications: Anxiety assessment may assist in the identification of individuals with heightened vulnerability towards suicide. Anxiety disorders are under diagnosed but treatable, and efforts to better screen and treat them in the general population may represent a public health intervention.

Data Source Utilized: Search of Ovid MEDLINE, EMBASE, PsycInfo, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, and Scopus database for all studies till August 2011.

118 *The New ACGME-Mandated Clinical Requirement for General Preventive Medicine Residency Programs: An Analysis of Approaches Taken by Various Programs*

Wonha Kim
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Background: As of July 1, 2011, the Accreditation Council for Graduate Medical Education (ACGME) mandated that residents in all general preventive medicine residency (GPMR) programs in the United States complete a minimum of two months of direct patient care experience during each year of training. This new requirement sparked a debate on the meaning of direct patient care in the context of population-based preventive medicine training and posed a challenge to many programs. The study, therefore, aimed to get a sense of what various GPMR programs are doing to fulfill this new requirement and to see if best practices could be determined to help guide the direction of future clinical experiences.

Methods: A survey containing ten questions was distributed to GPMR program directors at the Residency Director's Workshop during the 2012 ACPM Conference. Responses from the survey were entered into Excel spreadsheet and analyzed using statistical functions in Excel.

Results: Twenty six programs completed the survey (coverage rate of 70.2%), and the results demonstrated a huge variety in the type of clinical sites (37 different types), medical background of the preceptors, and the format of the clinical experience. Finding time in the schedule was ranked as the most challenging among the five factors given in the survey and finding meaningful clinical experience was a close second.

Conclusions: No one best practice could be identified. In going forward, recommendations for improving the clinical experience are as follows: 1) Establish clear, competency-based objectives for the clinical experience, 2) Provide an adequate introduction to preventive medicine to preceptors who are not trained in preventive medicine so that they understand how best to maximize the residents' clinical experience, and 3) Establish a Preventive Medicine Clinic (for large GPMR programs).

Public Health Implications: The study may guide GPMR program directors in planning clinical experiences.

Data Source Utilized: All data came from the conducted survey.

119 *Association Between Counseling About Energy Drinks and Energy Drink Intake Among US Youth*

Gayathri Kumar
Population Health Track

Background: Possible adverse health consequences of excessive energy drink (ED) consumption such as cardiac arrhythmias and kidney failure have led to recommendations by the Institute of Medicine (IOM) and American Academy of Pediatrics (AAP) discouraging ED intake among youth. However, there is limited information on ED counseling by health care providers. This cross-sectional study aimed to determine prevalence of counseling about ED intake by health care providers and to examine the relationship between ED counseling and ED consumption among youth.

Methods: We used data from the YouthStyles Survey administered to youth aged 12–17 years in the summer of 2011 (n=815). The outcome variable was ED consumption (none vs. ?1 time/week), and exposure variables were counseling about ED ('does your doctor/nurse ever ask about how often you drink ED?' and 'does your doctor/nurse ever recommend that you do not drink ED?').

Results: Approximately 8.5% of youth consumed energy drinks weekly, and 12% of youth reported being asked by their doctor/nurse about the frequency ED consumption. After controlling for sociodemographic factors, multivariable logistic regression analysis revealed that the odds for drinking ED ?1 time/week was significantly higher in youth who were asked how often they drank ED by their doctor/nurse (odds ratio=2.46) compared to those who were not asked.

Conclusions: About 1 in 12 youth consume energy drinks weekly, and 1 in 9 youth reported receiving counseling about ED consumption from their doctor/nurse. Further, a greater proportion of youth who were counseled also reported ED consumption.

Public Health Implications: Greater efforts by health care providers are needed to educate youth about the potential harmful impact of consuming ED. It is unclear if pediatric providers are aware of the IOM and AAP recommendations, and further research may be needed to assess whether there is a knowledge gap.

Data Source Utilized: YouthStyles Survey.

120 *Improving TDAP Coverage in a Military Beneficiary Population*

Sherrell Lam
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Background: In 2009 alone, there were 16,858 cases and 12 deaths due to pertussis in the United States. Pertussis, a vaccine-preventable illness, has had a resurgence in the past several years. Adults with waning immunity are at risk of developing disease and transferring it to unvaccinated infants. Recent outbreaks led to new Tdap vaccine recommendations in 2010 and 2011, expanding coverage and removing time limitations. Despite these changes, vaccination rates remain low. A performance improvement (PI) project was initiated at Walter Reed National Military Medical Center to target the high risk population of women of childbearing age and other adult females to improve overall vaccination rates.

Methods: Women seen in the Gynecology Clinic had their medical record screened for Tdap during vital signs assessment. Those eligible for vaccination were directed to the Immunization Clinic. Data was collected from December 2010 to April 2011, and vaccination rates determined one month before and after the start of the PI project. Vaccination status was compared between baseline and post-intervention using chi square and Fisher's exact test.

Results: There were 1421 visits prior, and 881 following, the PI project. 13% of all patients had a documented Tdap at any timepoint. Following the intervention, vaccination rates increased from 0.38% to 6.5% and patients were 19 times (95% CI: 7%-47%).

Conclusions: The simple step of screening for Tdap during vital signs assessment in females and encouraging vaccination in those who were eligible showed a small, but statistically significant, increase in vaccination rates.

Public Health Implications: This intervention can be easily implemented in multiple settings including postpartum visits, travel clinics, during annual influenza drives and, in military health, as part of Soldier Readiness Processing. It has wide implications for decreasing infant mortality and adult morbidity.

Data Source Utilized: Electronic medical record.

121 *The Effectiveness of Food Insecurity Screening in Primary Care*

Wendy Lane
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Background: About 22% of U.S. children lived in food insecure households in 2008. These children are at increased risk for medical, developmental, behavioral and learning problems. Pediatric primary care providers are in a unique position to identify food insecurity (FI) and intervene.

Methods: A cluster randomized trial was conducted in a pediatric resident clinic. A single FI question was included in the Parent Screening Questionnaire (PSQ) used at child health supervision visits on intervention days only. Intervention residents were trained to screen for, assess, and address possible FI. A subset of parents from intervention clinic days were recruited for the evaluation. Recruited parents completed a gold-standard assessment, including the U.S. Department of Agriculture Food Security Scale initially and 6-months later. Validity, positive and negative predictive values (PPV, NPV) were calculated. Effectiveness of the screen was evaluated by comparing intervention and control screening rates and food stamp receipt between initial and 6-month follow-up.

Results: The stability of the FI screening question, using Cohen's kappa was 0.69, indicating substantial agreement. The sensitivity and specificity of the screen was 59% and 87%. The PPV of the screen was 70%; the NPV was 81%. Intervention families had a larger increase in screening rates than control families (24% vs. 4.1%).

Conclusions: A single question screen can identify many families with FI, and may help them maintain enrollment in food programs, It is not clear that screening leads to reductions in FI.

Public Health Implications: Increasing access to healthy food and decreasing FI can lead to improved health outcomes for children.

Data Source Utilized: Original data.

122 *Helicopter Versus Ground Emergency Medical Services Transport and Mortality Following Major Trauma Injuries*

Rong Lee
Population Health Track

Background: Helicopter Emergency Medical Services Transport (HEMST) has unique costs and consequences for the healthcare system. Its effectiveness compared to Ground Emergency Medical Services Transport (GEMST) continues to be a subject of debate.

Methods: A retrospective cohort study involved 12,388 trauma registry patients aged 15 years or older who suffered major trauma injuries in Palm Beach County, FL requiring HEMST or GEMST to a level I or II trauma center from January 1, 2007 to December 31, 2011. A logistic regression analysis was used to compute crude and adjusted mortality odds ratio.

Results: Overall, 257 (8.1%) patients out of 3,147 (25.4%) patients transported by helicopter compared with 424 (4.6%) patients out of 9,241(74.6%) patients transported by ground died. Crude mortality OR indicated a survival advantage for ground transportation (OR=0.54, 95% CI, 0.46-0.64). However, this outcome advantage did not persist after adjustment for the covariates: age, gender, Injury Severity Score (ISS), Glasgow Coma Scale score, systolic blood pressure, pulse, trauma type, and time of arrival (OR=1.13, 95% CI, 0.87-1.47, ARR 0.7%). A total of 432 patients who encountered multiple potentially life-threatening traumas (ISS>=30) were included in a subgroup analysis. In this subgroup, there were 233 (53.9%) patients transported by helicopter and 199 (46.1%) patients transported by ground. Mortalities were 100 (42.9%) and 107 (53.8%), respectively. HEMST was associated with an improved odds of survival compared with GEMST (OR=1.55, 95% CI 1.06-2.26, ARR 10.9%). This association remained significant and became stronger after above-mentioned covariates adjustment (OR= 1.72, 95% CI 1.03-2.87, ARR 13.4%).

Conclusions: Among patients meeting the state of Florida trauma criteria who suffered multiple potentially life-threatening traumas, helicopter transport was associated with a statistically significant survival advantage in comparison to ground transport.

Public Health Implications: Helicopter transport could be used effectively for high mortality trauma patient populations.

Data Source Utilized: Palm Beach County, FL trauma registry records.

123 *Trends in Trauma Injuries in Palm Beach County, Florida from 2007 To 2011*

Rong Lee
Population Health Track

Background: To reduce the exposure and lessen the negative impact of trauma injuries remains a challenge to public health. Examining the pattern of trauma injuries is important for developing evidence-based prevention and intervention strategies.

Methods: A retrospective cohort study was conducted using registry data from Palm Beach County Trauma Agency over the period from January 1, 2007 to December 31, 2011. Trends were examined on injury and clinical characteristics, transportation method, injury mortality, and disposition outcomes using chi-square and extended Mantel-Haenszel statistics.

Results: Of 14,467 patients, 9,641 (66.64%) were males and 4,826 (33.36%) were females. Patients aged ? 65 years old accounted for 27.88% cases. Automobile collisions (35.51%) and falls (33.47%) remained main causes of injury. Blunt injuries, penetrating, and burns resulted in 85.15%, 13.28%, and 0.57% injuries, respectively. 9,613 (67.06%) patients had Injury Severity Score (ISS) < 15. A total number of 3,881 (26.83%) patients were transported by air compare to 10,020 (69.26%) patients transported by ground. Overall, mortality was 5.23%. Home/home health, rehabilitation, hospice accounted for 64.47%, 21.24%, and 2.48% of discharge disposition, respectively. Decreasing trends were found in injury mortality, automobile collisions related, transported by air, and age group of 16 – 44 years old. There were increasing trends in female, age group of ? 65 years old, fall injuries, ISS < 15 and transported by ground.

Conclusions: Among patients meeting the state of Florida trauma criteria, there were positive trends of reduction in overall mortality, injuries in automobile collisions and injuries in age group of 16-44 years old as well as negative trends of increasing injuries from falls and in female and age group of >65 years old over a 5-year period.

Public Health Implications: Trauma prevention effort should also be used to reduce falls and injuries in female and >65 years old populations.

Data Source Utilized: Palm Beach County, FL trauma registry records.

124 *Safety Assessment of Second Dose Varivax® (Varicella Vaccine) in the US Vaccine Adverse Event Reporting System (VAERS), 2006 – 2011*

Zanie Leroy
Population Health Track

Background: In 2006, a routine second dose of varicella vaccine was recommended for US children aged 4-6 years. Previous analyses indicated the most common adverse events (AEs) after VARIVAX® were rash, fever and local reactions; 5% of all reports were classified as serious. There are no published post-licensure US studies on the safety of second dose VARIVAX®. We describe adverse events (AEs) reported to the Vaccine Adverse Event Reporting System (VAERS) after second dose VARIVAX®.

Methods: VAERS is a US passive surveillance system for AEs after vaccines. We searched VAERS for US reports among children aged 4-6 years after second dose VARIVAX® from July 1, 2006-December 31, 2011. Medical records were reviewed for all serious AE reports (i.e. death, life-threatening illness, hospitalization, and permanent disability). We also reviewed reports of pre-selected AEs with potential causal association with varicella vaccine.

Results: VAERS received 4,263 reports following second dose VARIVAX® in children aged 4-6 years; of these 160 (4%) were classified as serious and 453 (38%) occurred after VARIVAX® alone. The median interval from vaccination to AE onset was 1 day (range 0 day – 4.7 years). The most commonly reported AEs were local reactions and fever. Non-fatal serious AEs reported included 61 anaphylaxis/allergy, 40 local reactions/cellulitis, and 15 seizures; the majority of these reports (73%) had simultaneous vaccination. Meningitis/encephalitis was reported in five children who received concurrent vaccines. One remained on anti-seizure medication while the remainder recovered; none had vaccine strain virus identified. Three deaths were reported; documented causes of death were influenza B sepsis, pre-existing seizure disorder and drowning.

Conclusions: A VAERS review of the first 6 years of second dose VARIVAX® use among children aged 4-6 years did not identify new adverse events.

Public Health Implications: Post-licensure safety surveillance of vaccine AEs plays an important role in monitoring US immunization programs.

Data Source Utilized: VAERS.

125 *Tobacco Control in the Russian Federation - A Gendered Policy Analysis*

Karsten Lunze
Population Health Track

Background: The Russian Federation (Russia) has one of the highest smoking rates globally (39%). While smoking rates among males have been stable at a high level (60%), prevalence among females has more than tripled over the past 20 years to the current rate of 22%. The purpose of this policy analysis is to review tobacco control in Russia from a gender perspective.

Methods: We used a policy analysis triangle as analytic framework to examine content, context, and processes of Russian tobacco control policy.

Results: In Russia, tobacco-promoting strategies specifically target women and young girls. More than 100 brands were especially introduced to market to females. While Russia has strong technical capacity to conduct epidemiological tobacco use surveillance by gender, no brand specific consumption data exist, which would allow to hold industry accountable. Russia's recent "National Tobacco Control Concept" increasingly aligns national legislature with the WHO Framework Convention on Tobacco Control (FCTC), but like tobacco control legislature in many other countries operates against substantial resistance from the tobacco industry and has few provisions that specifically protect females.

Conclusions: Russian women and young girls are left vulnerable to the influence of transnational tobacco companies' marketing strategies. Experiences from the US suggest that tobacco control measures need to be based on robust, brand-specific tobacco consumption data in order to effectively counter transnational tobacco industry marketing efforts.

Public Health Implications: Without tobacco control efforts targeting women and youths specifically, rates among females are expected to continue to rise. Russia's "National Tobacco Control Concept" represents a formidable opportunity for policy change if its implementation is monitored and evaluated appropriately.

Data Source Utilized: This analysis was based on secondary data on supply and demand sides of the Russian tobacco epidemic, on compliance data of Russian tobacco policy with international standards and regulations, and on comparison with policy responses from other countries.

126 *The Association Between Sleep Abnormalities in Patients With Psychiatric Diagnoses and Suicide: A Systematic Review and Meta-Analysis*

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Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: Identifying a patient with increased risk of suicide is a constant challenge and concern for clinicians caring for patients with mood disorders, schizophrenia, and other psychiatric conditions. The aim of this study was to systematically assess the association between suicidal behaviors in patients with psychiatric conditions who have sleep abnormalities, a possible risk factor for suicide.

Methods: A systematic literature search of electronic databases through August 2011. Pairs of reviewers extracted descriptive data, study quality and outcomes from included studies. Odds ratios (ORs) and 95% confidence intervals (CIs) were pooled across studies by using the random-effects model. Eligible studies were longitudinal (case-control and cohort) and cross sectional studies that reported suicidal behavior in patients with psychiatric conditions and sleep abnormalities.

Results: Compared to those without sleep disorders, patients with psychiatric conditions and co-morbid sleep disturbances were significantly more likely to demonstrate suicidal activities (OR=3.78, 95% CI: 2.41, 5.94). Insomnia was significantly associated with suicidal acts (OR=3.50, 95% CI: 1.93, 6.36). The risk of suicide in patients with hypersomnia was increased but this association did not reach statistical significance (OR=1.91, 95% CI: 0.60, 6.06).

Conclusions: The current evidence and the results of this systematic review and meta-analysis suggest that in patients with psychiatric conditions, sleep abnormalities, especially insomnia, are associated with the risk of suicide.

Public Health Implications: Given that suicide is a preventable cause of death, the evaluation and treatment of sleep disturbances may help clinicians further predict and prevent death in those most in need of preventive intervention.

Data Source Utilized: A comprehensive search of databases from each database's earliest inclusive dates to August 2011, without language or population restrictions was conducted. The databases included Ovid Medline In-Process & Other Non-Indexed Citations, Ovid MEDLINE, Ovid EMBASE, Ovid PsycInfo, Ovid Cochrane Database of Systematic Reviews, Ovid Cochrane Central Register of Controlled Trials, and Scopus.

127 Pediatric Shopping Cart-Related Injuries Treated in US Emergency Departments, 1990-2011

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Background: The subject of shopping cart-related injuries has received increasing attention, leading to epidemiological studies, evaluations of morbidity, and the development of prevention programs. The objective of this study was to investigate the epidemiology of shopping cart-related injuries among children < 15 years.

Methods: A retrospective analysis was conducted of data from the National Electronic Injury Surveillance System (NEISS) of the US Consumer Product Safety Commission (CPSC) from 1990-2011 by using sample weights to estimate national numbers and rates of shopping cart-related injuries.

Results: An estimated 530,494 children < 15 years were treated for shopping cart-related injuries from 1990-2011, averaging 24,113 patients annually or 4.07 injuries per 10,000 children annually. The most commonly injured body region was the head (78.1%). Children aged 0-4 years sustained 84.5% of all shopping cart-related injuries, 90.7% of injuries to the head region and fall-from-cart rates of more than 25 times that of older children. Among children < 15 years, the annual fall-from-cart rate per 10,000 children increased by 39.4% from 2.27 in 1990 to 3.17 in 2011, ($m = 0.017$, $p = 0.029$) and the annual concussion/closed head injury rate per 10,000 children increased by 213.3% from 0.64 in 1990 to 2.02 in 2011 ($m = 0.053$, $p < 0.001$).

Conclusions: Shopping cart-related injuries are an important source of injury to children, particularly those aged 0-4 years.

Public Health Implications: Increased prevention efforts are needed to address the consistently high rates of these injuries. These efforts should include education targeting child caregivers, shopping cart design changes, behavioral-based interventions and a revision of the national shopping cart safety standard to more adequately address the mechanisms of injury among children.

Data Source Utilized: The CPSC maintains the NEISS to monitor injuries associated with consumer products and sports/recreational activities treated in US hospital EDs. The NEISS is a stratified probability sample of ~100 hospitals.

128 *A Challenge to Doing Less: Cervical Cancer Screening in an Urban Public Health Department Before Revised 2012 USPSTF Guidelines*

Matthew McKenna
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Background: In March 2012, the U.S. Preventive Services Task Force (USPSTF) issued revised guidelines for cervical cancer screening (CCS), recommending cytology for women aged 21–65 years every 3 years. In anticipation of these new guidelines, we evaluated existing CCS practices within Fulton County Department of Health and Wellness (FCDHW), particularly CCS among women aged <20 years.

Methods: This was a retrospective cohort study based on abstraction of clinical charts. We performed descriptive analyses regarding age at first CCS, intervals between screening, and Pap test results.

Results: Among women aged <20 years served at FCDHW clinics, 61.7% had received >1 CCS. The percentage of women aged <20 years who received CCS varied by clinic site, from 33.3% to 100.0%. Regarding intervals, after a woman of any age received CCS, she received CCS annually regardless of age or result. Pap results were negative (no abnormalities on any documented Pap test) for 86.5% of women aged <20 years, compared with 48.3% of women aged >21.

Conclusions: A majority of young women served by FCDHS clinics received CCS before age 21, and those who began screening continued to receive annual pap testing regardless of results. Therefore, for women aged <20, Pap screening can be deferred, and for women of any age with no history of abnormal cytology, the interval between CCS can be increased to >3 years.

Public Health Implications: The extensive screening occurring among young women in this urban health department setting indicates USPSTF-concordant changes in provider CCS practices will be challenging but necessary to improve care and preserve limited resources.

Data Source Utilized: In February 2012, we conducted a retrospective chart review at 4 adolescent and 3 women's FCDHW clinics. Data from 91 charts (60 from women aged <20 years, and 31 from women aged >21 years) were abstracted by using a standardized instrument.

129 *Population-Level Beliefs About Smoking Cessation, Nicotine Replacement Therapy, Nicotine Substitutes and Certain Tobacco Products*

Alice Mills
Population Health Track

Background: To meet the Healthy People 2020 goal of 12% adult smoking prevalence will require a major increase in successful cessation or widespread substitution of non-combustible nicotine among current smokers. The aim of this study was to describe smokers' beliefs about cessation and attitudes towards nicotine substitutes and certain tobacco products.

Methods: Using random-digit-dialed California Tobacco Surveys from 2005 and 2008 we examined data from adult last-year smokers (N=6,697). We report on 9 statements related to quitting, including use of aids, and 5 questions on switching. Responses were analyzed using SAS Version 9.2 with respect to age, consumption level and experience with NRT.

Results: Overall, 50.9% of smokers agreed that "I could stop smoking anytime I wanted." Over 70% of smokers agreed "Smokers can quit on their own without any pharmaceutical aids" with no significant difference by age or cigarette consumption level. Only 25.6% of smokers agreed that "Most smokers who use NRT to quit are successful". Smokers were more likely to endorse use of NRT to assist with initial withdrawal symptoms, to reduce consumption and as a substitute for smoking in smoke-free situations. Smokers were interested in reducing health risk; however only 55.2% indicated that they would switch to a nicotine substitute if it cut their health risk in half. Nearly half (48.8%) would consider switching to cigarettes advertised as low nicotine and tar.

Conclusions: Smokers in California overestimate the ease of quitting and see nicotine alternatives as helpful to avoid withdrawal symptoms in smoke-free areas and to reduce consumption. Only half would consider switching to nicotine substitutes to gain a major health benefit and half would switch cigarettes if they thought that they were safer.

Public Health Implications: Smokers' beliefs about health risks, switching products and quitting may be reducing the probability of meeting public health goals.

Data Source Utilized: 2005 and 2008 California Tobacco Surveys.

130 *An Evaluation of the Efficacy of a Comprehensive Diabetes Wellness Clinic and Predictors for Success After Attendance*

Jessica Perrone
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Background: The Northport NY Veterans Administration Diabetes Performance Team (DPT)(established 2009) organizes quarterly Diabetes Wellness Clinics (DWCs). The DWCs are intensive multidisciplinary half day sessions focused on clinical care, diabetes self management education, and psychological counseling for patients with poorly controlled diabetes. This study evaluated how effective the DWCs have been in improving diabetes control, and identified demographic or clinical factors which may predict diabetes control success or failure.

Methods: A retrospective chart review of 246 patients attending DWCs between July/2009 and June/2011 was performed. To evaluate the efficacy of the clinics, pre-clinic HgA1C levels were compared to post-clinic levels at 6 month intervals (up to 24 months) using paired t-tests. To determine which demographic and clinical factors might predict success, i.e. improved HgA1C 6 months post clinic attendance (yes vs. no), ?² analysis and logistic regression modeling were performed.

Results: There were statistically significant improvements in mean HgA1C after clinic attendance at each 6 month post clinic period evaluated. The greatest improvement was seen at 6 months post clinic attendance(-0.79, $p < 0.001$).

Conclusions: The results of this evaluation suggest that the DWC has a significant positive effect on glucose control which is not limited by any of the clinical or demographic factors evaluated.

Public Health Implications: As type 2 diabetes becomes more prevalent in our increasingly sedentary, overweight, and aging population successful programs for diabetes management become increasingly important.

Data Source Utilized: VAMC CPRS.

131 *Azithromycin and Risk of Death: A Hypothesis Confirmation by the New Southern Network on Adverse Reactions - Department of Veterans Affairs (SONARr-VA) Medical Informatics and Pharmacovigilance Project*

Gowtham Rao
Technology and Informatics

Background: A five day course of Azithromycin was reported to lead to a small absolute increase in 'unexpected deaths' compared to Amoxicillin (70 versus 36 deaths per million dispensations) (1). This hypothesis generating safety signal from Tennessee statewide Medicaid claims-data needs to be confirmed using independent datasets.

Methods: We used data from the SOuthern Network on Adverse Reactions-Veterans Administration (SONAR-VA) project and replicated the cohort-selection and methods of Ray et.al(1), with primary end-point of all-cause mortality. Survival curves were drawn for both groups: before and after high-dimensional propensity score nearest neighbor matching without replacement followed by checking for applicable assumptions using SAS 9.3(Cary,NC).

Results: We identified 545,382 azithromycin and 1,202,923 amoxicillin unique dispensations. The pre-match mortality rate in the five days following azithromycin dispensation was 240 deaths per million, versus 141 per million for amoxicillin. Post matching (1:1 match, 545,382 per-group) the 5-day mortality per million dispensations for azithromycin and amoxicillin were respectively 240 vs. 138 per million. The hazard ratio for 5-day mortality was 1.8 (95% CI: 1.3 to 2.3).

Conclusions: In this SONAR-VA project, we independently confirmed the findings of the Ray et.al finding of increased mortality among azithromycin users. The risk difference was non-significant after 5th day, explained by traditional 5-day dosing of Azithromycin.

Public Health Implications: Pre-treatment risk-stratification needs to be developed to identify high-risk patients.

Data Source Utilized: SONAR-VA is an approved novel pharmacovigilance research project and has access to longitudinal data on nationwide administrative claims, pharmacy dispensation (RxOutPat and Bar Code Medication Administration), laboratory results, vital signs and vital status mortality data on more than 14 million unique patients from 1999 to 2012. 1.Ray WA,et.al Azithromycin and the Risk of Cardiovascular Death. NEJM. 2012;366(20):1881-1890. Funded by The Richland Memorial Hospital Research and Education Foundation, Resident research grant-in-aid 2012.

132 *Tobacco Use Among Healthcare Workers and Impact of a Tobacco Policy Change at a Military Community Hospital*

Margaret Ryan
Population Health Track

Background: Tobacco use among healthcare workers is an important, yet under-studied, topic. Patients may assume healthcare workers are unlikely to use tobacco. In contrast, US military populations include some of the highest rates of national tobacco use; 37% of Marines use tobacco. A population of military healthcare workers serving Marines therefore represents a unique group with regard to tobacco use, and local policies that may influence use.

Methods: The e-records of more than 2500 healthcare workers of Naval Hospital Camp Pendleton were reviewed to describe tobacco use. An anonymous survey assessed impressions of a policy change that moved the medical command's only tobacco-permissible area to a remote location and prohibited use while in military uniform.

Results: Hospital staff included 2508 professionals; 53% military and 47% civilians; 59% male, with a mean age of 38 years. Tobacco use was significantly associated with younger age, male gender, and being a military enlisted worker. In fact, 37% of male enlisted members were tobacco users, while fewer than 10% of all other healthcare workers used tobacco. Among 232 survey respondents, 61% agreed with newer worksite policy and 33% thought the policy was effective. More than one-third of surveyed tobacco users reported decreasing use in the past year, and 41% of these respondents reported that policies restricting tobacco use motivated them to quit.

Conclusions: Among a population of healthcare workers serving the military, the prevalence of tobacco use varied markedly by demographic characteristics. Young, male, military enlisted workers used tobacco at rates that paralleled the Marines they serve. The implementation of worksite policies, focused on this population, appeared associated with decreased tobacco use.

Public Health Implications: While tobacco use among healthcare workers may be assumed low, some sub-populations have very high rates of use. Workplace policies and other efforts are critical to address this challenge.

Data Source Utilized: e-records; surveys.

133 *Illicit Substance Use Disorders in the US Armed Forces, 2000-2011*

Tammy Servies
Population Health Track

Background: The Institute of Medicine recently published a study suggesting substance use disorder (SUD) case finding, treatment, and policies in the military are out of date. The Department of Defense (DoD) has a zero-tolerance policy for illicit substance use, but the implementation of these policies varies across the services. Screening for illicit substances, including prescription drugs, is standardized across the services. Survey data indicate prescription drug misuse accounts for the largest percentage of SUD. However, in drug screens, cannabis is the most commonly found substance. The purpose of this study is to describe individuals with medical diagnoses for illicit SUD from 2000 through 2011.

Methods: Illicit SUD were ascertained from ICD-9 codes for medical encounters that included specific illicit substance use diagnoses. Time to separation was determined based on the time from the incident diagnosis to the end of military service. Results were adjusted for age, military rank, gender, and branch of service.

Results: From 2000-2011, 70,104 active component service members met the case definition for incident diagnosis of illicit SUD; the overall incidence rate was 414 per 100,000 person years (p-yr). Incidence rates declined with increasing age, time in service, rank, and number of combat deployments. Army had the highest incidence rate (838/100,000 p-yr) and Air Force was the lowest (89/100,000 p-yr). Air Force had the highest percentage remaining in service at 2 years (29%) and the Marine Corps the fewest (16%). Cannabis was the most common drug associated with a diagnosis. An upward trend of opioid diagnoses was noted.

Conclusions: SUD diagnoses remain a medical burden for the US military. Survey data and our findings of coding data conflict in that prescription drugs are more common by survey, but cannabis is more common by diagnosis.

Public Health Implications: The DoD has already taken steps in case-finding to combat non-medical use of prescription drugs.

Data Source Utilized: Defense Medical Surveillance System and Theater Medical Data Store.

134 *Improving the Delivery of Smoking Cessation Interventions in Primary Care Across Ten Community Health Centers*

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Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: The New York City health department piloted a pay for improvement program, Health eQuits, to increase the delivery of cessation interventions to patients who smoke. Community health centers (CHCs) received monetary incentives for increasing cessation interventions.

Methods: Descriptive statistics were generated from aggregate data and chi-square tests were used to assess significance between patient characteristics. Three types of cessation interventions were included in this study: only prescription of nicotine replacement therapy, only counseling to quit by primary care provider, or both.

Results: Of the 334,768 records collected, 126,725 patients were 18 years or older with a smoking status. Thirty percent were identified as current smokers, 11% as former smokers and, 59% as non-smokers" Of the 36,779 current smokers, 65.6% did not receive any interventions. Those who received cessation interventions were older (ages 35 – 64), of black ethnicity, and with Medicaid insurance. Counseling only was the most common treatment mode (57.4%), followed by both counseling and medication (23.6%), and medication only (19.0%). Quit rates by treatment were highest for medication only (5.8%), followed by both medication and counseling (4.7%) and counseling (2.8%). Quit rate for smokers with no intervention was 4.7%. Differences were not statistically significant.

Conclusions: Cessation interventions increased from 28% to 57%. Only one-third of patients had a documented smoking status, despite an emphasis on documentation. Though New York State Medicaid covers six months of medications, counseling was the most dominant intervention. Smoking status documentation should increase as more providers pursue Meaningful Use incentives as thresholds of 50% smoking status recorded is required.

Public Health Implications: Additional outreach and education with providers is needed to improve documentation and interventions with smokers, especially if medications are more effective for quitting.

Data Source Utilized: Patient data from the electronic health records (EHR) from participating CHCs from October 2009 through March 2012.

135 *Differences in Awareness and Adoption of Clinical Support Staff Task Sharing Among Primary Care Providers in a Mixed Patient Centered Medical Home/Usual Care Environment*

Andrew Suchocki
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Background: The Patient Centered Medical Home (PCMH) has become the national standard for improving delivery of primary care and preventive services. While benefits are clear, transformation can be a difficult process. Johns Hopkins Community Physicians (JHCP) is a large diverse network of 35 clinics in Maryland and Washington, DC. JHCP has existing standing orders empowering support staff to increase patient preventive services. In addition, five clinics are formally designated level III PCMH sites. All JHCP providers were surveyed on both opinion and experience with support staff utilization in chronic and preventive care and which task sharing policies they had adopted.

Methods: From provider responses, variables of interest were dichotomized, including provider type, leadership role, and practicing in a PCMH. Outcomes included both awareness and adoption of policies empowering support staff to order preventive services.

Results: Over 80% (174) of practitioners, MDs and advanced practice nurses (ARNP), completed the anonymous survey. PCMH providers were significantly more aware of the existence of such preventive service task sharing. Provider training level did not predict increased awareness or adoption of such policies. PCMH designation and leadership role (independent of PCMH designation) predicted adoption of task sharing roles.

Conclusions: Achieving uptake in preventive service task sharing can be aided by PCMH re-design, regardless of the practitioner type. Large practice groups, an increasing trend, prove a challenge in ensuring universal adoption of task-sharing preventive services. The PCMH model does predict an increase in awareness and adoption of task sharing. Large practice groups like JHCP must ensure leadership conveys and encourages policy changes, regardless of PCMH designation.

Public Health Implications: Transition to a more collaborative (PCMH) model has shown it can change provider behavior. Large practice groups should be mindful of how much provider autonomy they allow in this realm.

Data Source Utilized: JHCP physician survey, September 2011.

136 *Patient and Physician Perspectives on the Harms of Preventive Screening: A Qualitative Study*

Anne Sutkowi
Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: Three quarters of United States Preventive Services Task Force recommendations address services that lead to marginal benefit or net harm (C, D, I services). However, little is known about how patients and physicians conceptualize the harms of screening or what factors they consider when making screening decisions.

Methods: We conducted semi-structured interviews with eight physicians and 50 of their patients at four primary care practices. Interviews assessed views about screening tests with marginal benefit or net harm, including screening tests for prostate cancer (men ages 50-69), colon cancer (individuals ages 76-85), osteoporosis (low-risk women ages 50-65), and coronary heart disease (low-risk individuals ages 50-85). We purposively sampled patients to ensure a mix of previously screened and unscreened individuals and physicians to ensure a mix of senior and junior practitioners. Two reviewers coded verbatim transcripts and arbitrated differences, using ATLAS.ti 6.2 to facilitate analysis.

Results: A majority of patients consider screening a necessity for good health and do not weigh the benefits and harms when making screening decisions. Few patients were able to name harms of screening without probing. The most common factors influencing screening decisions include physician recommendation, age, family history of disease, and insurance coverage. Most patients indicated that physician recommendations most influence their screening decisions. Physicians consider screening "just what you do" and use many of the same factors as patients when deciding whether to recommend screening tests. However, they placed high importance on the patient's desire to get screened and reported rarely discussing harms.

Conclusions: Patients and physicians largely ignore harms in decision making about screening and rely heavily on each other's views to guide the screening decision.

Public Health Implications: Patients and physicians may need help to recognize when (and which) harms should be taken into account when making screening decisions.

Data Source Utilized: Analyses used semi-structured interview transcripts.

137 *Elevation, Urbanization, and Ambient Temperature Are Associated With Obesity Prevalence in the United States*

Jameson Voss
Population Health Track

Background: The macrogeographic distribution of obesity in the United States, including the association between elevation and body mass index (BMI), is largely unexplained. This study examines the relationship between obesity and elevation, ambient temperature, and urbanization.

Methods: A cross-sectional study of a nationally representative sample of 422,603 US adults containing BMI, behavioral (diet, physical activity, smoking), and demographic (age, sex, race/ethnicity, education, employment, income) variables from the 2011 Behavioral Risk Factor Surveillance System (BRFSS) were merged with elevation and temperature data from WorldClim and with urbanization data from the US Department of Agriculture.

Results: There was an approximately parabolic relationship between mean annual temperature and obesity. The prevalence of obesity decreased with increasing urbanization: 30.9% in rural/non-metro counties; 29.2% in metro counties with 1 million.

Conclusions: Obesity prevalence in the US is inversely associated with elevation and urbanization, after adjusting for temperature, lifestyle, and demographics.

Public Health Implications: While multiple studies have demonstrated hypoxia causes short term anorexia and weight loss, our study suggests hypoxia may also play a role in long term weight homeostasis. The interpretation, however, is subject to the cross-sectional design, and future interventional trials should evaluate causation.

Data Source Utilized: BRFSS, WorldClim, USDA.

138 *The Contribution of Non-Valvular Atrial Fibrillation to Other High-Burden, Chronic Conditions Among the Medicare Population*

David Walker
Clinical Preventive Medicine and Lifestyle Medicine Practice

Background: Non-valvular atrial fibrillation (NVAF) is a common condition among the elderly population and is often comorbid with high-burden chronic illnesses. This study assessed the extent to which NVAF overlapped with other high-burden, chronic illnesses and its contribution to disease burden.

Methods: A large retrospective cohort study of prevalence and outcomes of patients with NVAF was performed within the general Medicare population and target populations of interest: coronary artery disease (CAD), congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), diabetes, and hypertension. The outcomes analyzed included annual CMS reimbursed amount and healthcare resource utilization by setting.

Results: Among 34 million Medicare beneficiaries identified in 2009, patients with CAD, CHF, COPD, diabetes, and hypertension tended to have a higher prevalence of NVAF compared to the general Medicare population (15.6%, 26.1%, 12.9%, 9.7% and 9.7% versus 8.3%, respectively). Median annual costs for patients with NVAF were higher (ranging from $13,623 to $19,954) compared to patients with high-burden chronic illnesses alone (ranging from $4,888 to $13,095). Hospitalization length of stay, number of hospitalizations, outpatient/office visits and ER visits were also greater in patients with NVAF compared to patients with high-burden chronic illnesses alone.

Conclusions: Medicare patients afflicted with high-burden chronic illnesses had a higher prevalence of NVAF than the general Medicare population. Additionally, these patients tended to utilize more health resources.

Public Health Implications: Reducing the burden of common, high-burden chronic illnesses involves recognizing the contribution of other, commonly-associated comorbid conditions such as NVAF.

Data Source Utilized: This study was based on 2009 CMS FFS Medicare longitudinal administrative claims data which includes 100% of the adjudicated medical claims for all inpatient and outpatient institutional providers and a 5% sample of adjudicated patient claims from the physician office setting.

Medical Quality 2013 Posters

Posters 139-154 were selected based on their research in the Medical Quality track for the Medical Quality meeting.

139 *What Patients Are Telling Us About Hospital Care Quality: A Multilevel Analysis of Patient Ratings of Care Among Hospital Departments and Units*

Hanan Aboumatar
Medical Quality

Background: The Hospital Consumer Assessment of Health Providers and Systems Survey (HCAHPS) is a patient experience survey that was developed to inform consumer choice of hospitals. It is important to understand how patient experiences of care vary not only between hospitals but within hospitals, as that has important implications for consumer choice and improvement strategies.

Methods: We conducted a multilevel analysis of HCAHPS results from 42 hospital units within 5 hospitals to assess within hospital variations in patient experiences, and identify the survey items and domains showing the most variation. We discussed implications for performance measurement, consumer choice, and improvement strategies.

Results: A total of 11,299 survey responses were analyzed. Within hospital experiences in care showed wide variations. Unit scores were highest and showed the least variation for doctors and nurses showing respect to patients, and were the lowest with remarkable variation for providing help as soon as patients wanted and for room quietness at night. All the survey domains showed higher intraclass correlations of scores at the local levels (i.e. service and unit level) than at the hospital level. Residual variation was high across all domains.

Conclusions: Patient experiences of hospital care are highly variable, more so within the same hospital than between hospitals. Interventions to improve the patient experience should aim to reduce within hospital variation. Public reporting should include measures of variation. Research is needed to explore influences that contribute to high within unit variability in patient experiences and to develop methods to measure those influences.

Public Health Implications: Assessing patients' perspectives on healthcare quality is increasingly emphasized within the healthcare improvement field as essential to creating patient-centered systems. Such systems hold promise for improving patient outcomes and reducing healthcare costs. This analysis demonstrates the need for increased focus on standardizing care within hospitals and informs quality reporting approaches.

Data Source Utilized: HCAHPS.

140 *Good Catch Safety Event Reporting: Integrating Proactive Safety and Quality Reporting with the Internal Medical Residency Training Program at Christiana Care Health System*

Marylou Dryer
Medical Quality

Background: Reporting an event which was prevented from reaching a patient – a Good Catch – affords the potential to reduce medical errors by proactively implementing system changes. Yet, physicians comprise only 1% of voluntary reports despite Internal Medicine residency program competency requirements in practice-based learning and systems-based practice. This study aims to understand barriers between cognition and behavior specific to our institution.

Methods: Five-point Likert scale anonymous survey was utilized to measure influencing factors and perceived value of reporting; response rate was 24% (21 of 85 residents and 27 of 120 faculty).

Results: A Good Catch, Near Miss, and Harm were demonstrated by clinical vignettes; the proportion of respondents who agreed or strongly agreed there was value in reporting was 100%, 98%, and 88% respectively. Similarly, 67% of residents and 96% of faculty felt stronger than neutral that, "Reporting a Good Catch is equally as important as reporting adverse outcomes." The strongest motivators influencing reporting were legislated protection of reports from discoverability (62% residents and 81% faculty) and the potential to improve quality of patient care (76% residents and 96% faculty). Conversely, barriers to reporting included fear of blame (48% residents and 30% faculty) and doubting influence (only 19% residents and 30% faculty felt reports impacted system changes).

Conclusions: Department of Medicine providers at CCHS recognize the value of reporting; outcome severity bias does not account for the lack of event reporting by physicians. Non-punitive and de-identified feedback linking reports to system changes which improve patient care could foster a Just Culture and remove some barriers to safety event reporting by physicians.

Public Health Implications: Provider education on local legislation, encouragement of involvement, and feedback regarding the impact of reports should be areas of focus to spur a change in safety culture and to motivate physician participation in safety event reporting programs.

Data Source Utilized: Anonymous survey.

141 *Use of Electronic "Daily Events Report" Significantly Improves Residents' Sign Out Quality*

Abbas Emaminia
Medical Quality

Background: Hospital clinicians arriving to begin patient care should be aware of important overnight changes in their patients' clinical status. To ensure that this is the case within our internal medicine residency program, we modified our handoff software to forward overnight handoff updates to relevant providers each morning. This, we hypothesized, would improve handoff efficiency and perceptions of handoff quality.

Methods: From May 1st to July 31st, 2012, eighteen residents participated in the study. Between 5pm and 7am, cross-covering residents electronically entered patient care and safety concerns within the software reporting module. Accumulated updates were automatically emailed to primary providers at 7am. At 7:30 sign-out, if a resident was already aware of an issue being signed out, he/she indicated this so that sign-out could quickly proceed to the next patient. Study sign-out duration was recorded; residents were surveyed at study close.

Results: Morning sign-out duration decreased from 25.5 minutes to 22.7 minutes (P = 0.03). Twelve residents on service when the study closed were eligible for the survey; 12/12 (100%) responded. All respondents agreed strongly (10/12) or somewhat (2/12) that daily morning events reports prevented "loss of key information between shifts." All agreed strongly (8/12) or somewhat (4/12) that the daily report improved the quality of handoff information. All believed that patient safety was enhanced greatly (9/12) or moderately (3/12).

Conclusions: Collection of key clinical handoff-information and its automatic forwarding to incoming providers reduced morning sign-out duration and enhanced perceptions regarding patient safety and quality of handoff information.

Public Health Implications: Use of daily event report module and automatic emailing of events to primary care providers increases sign out efficiency, decreases loss of information and enhances continuity of care.

Data Source Utilized: Survey from enrolled residents.

142 *Patients with Non-Valvular Atrial Fibrillation Treated with Warfarin Incur Greater Healthcare Resource Utilization Than Patients Treated with Dabigatran*

Kevin Francis
Medical Quality

Background: In patients with non-valvular atrial-fibrillation (NVAF), dabigatran is superior to warfarin in reducing the risk of stroke and systemic embolism without the need for anticoagulation monitoring. The extent to which treatment with dabigatran etexilate (dabigatran) impacts healthcare resource use and associated costs in clinical practice relative to warfarin has not been determined.

Methods: NVAF was identified using ICD-9 diagnosis codes. Patients were observed for a minimum of 12months prior to the index date to determine comorbidities and if newly-diagnosed, naïve-to-treatment. Using propensity-score matching (1:1), patients with at least 3-months of continuous data were matched based on demographics, stroke (CHADS2), bleeding (HEMORR2AGES), and mortality (Charlson Comorbidity Index) risk scores. Patients were observed for 3, 6, 9, and 12 months following first prescription of dabigatran or warfarin. Outcomes assessed included mean number of hospitalizations, outpatient visits and associated medical costs (excluding pharmacy costs) calculated on a per-patient basis.

Results: Among patients with at least 12months of data, dabigatran-treated patients (n=668), compared to warfarin-treated patients (n=710), respectively, were hospitalized at significantly lower 12-month rates (0.629 vs. 0.896, p<.0001).

Conclusions: When compared to a similar cohort of dabigatran-treated patients, warfarin patients incurred greater healthcare resource utilization and associated medical costs.

Public Health Implications: Reducing the frequency of inpatient stays and ER visits would decrease the overburdening cost on healthcare system.

Data Source Utilized: Administrative claims data from the United States Department of Defense (DoD) data was used. For eligible Medicare beneficiaries, the DoD acts a secondary payer. As a result, the medical costs captured in this study represent DoD paid amounts.

143 *Readmission Rates and Total Medical Cost Differences Between Medicare Beneficiaries with Atrial Fibrillation or Other Conditions Vary by Initial Admission Type*

Sloane Frost
Medical Quality

Background: Improving post-hospitalization quality of care via successful care transitions depends on many factors, including the reason for hospitalization. This study examined differences in risk-adjusted 30-day hospital readmission rates and total medical costs in the 12 months after discharge, by reasons for the initial admission, for Medicare beneficiaries with atrial fibrillation (AF) and those without AF but with other chronic conditions (CAD, COPD, heart failure [HF], and diabetes).

Methods: We calculated risk-adjusted beneficiary-level 30-day readmission rates and post-discharge 12-month medical costs, controlling for demographic characteristics, comorbidities, and previous health care use. We constructed these outcomes for five types of high-cost (initial) admissions: acute myocardial infarction (AMI), HF, stroke, coronary artery bypass graft (CABG) and percutaneous coronary intervention (PCI). The study population included 42,888 patients (16,769 with AF and 26,119 without AF) ranging from 11,022 admitted for PCI to 5,558 for CABG.

Results: For all initial admission types, readmission rates were always higher for the AF group. Differences between the AF and non-AF groups were largest for those with an initial admission for AMI (33% higher), CABG (20% higher), or PCI (30% higher). Total medical costs in the 12 months after discharge were also always higher for those with AF. The largest difference (18%) was after admission for AMI ($28,890 with AF versus $24,500 without AF). All other differences in total medical costs were less than 10% between the groups.

Conclusions: Readmission rates and medical costs after discharge were higher for beneficiaries with AF compared with other chronically ill beneficiaries regardless of their initial admission type.

Public Health Implications: A better understanding of the relationship of initial admission type to subsequent readmissions might help to identify areas of focus for improved transitions of care in the atrial fibrillation population.

Data Source Utilized: 2006-2009 Medicare (Parts A and B) claims and enrollment data.

144 *Association Between Outpatient Visits Following Hospital Discharge and Readmissions Among Medicare Beneficiaries With Atrial Fibrillation*

Sloane Frost
Medical Quality

Background: Beginning in 2013, CMS will penalize hospitals for certain excessive 30-day readmission rates. While studies examine the relationship between outpatient follow-up and readmission rates for persons with coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), heart failure (HF), and diabetes, beneficiaries with atrial fibrillation (AF), of which there were an estimated 2.66 million in 2010, are widely overlooked.

Methods: We analyzed Medicare fee-for-service claims and enrollment data for beneficiaries with AF and those with other non-AF chronic conditions (CAD, COPD, HF, and diabetes). The association between an outpatient visit within 14 days of hospital discharge and 30-day all-cause, beneficiary-level readmission rates was evaluated using logistic regression.

Results: The study population included 283,580 AF beneficiaries and 375,655 beneficiaries without AF but with other chronic conditions. The 30-day patient-level readmission rate for AF beneficiaries was 10.9% compared to slightly lower rates of 9.3% for those with non-AF chronic conditions. Among those with a hospitalization, 51.4% of AF beneficiaries and 47.0% of other beneficiaries had an outpatient visit within 14 days of discharge. The rate of readmission was about 24% lower for AF and non-AF beneficiaries with an outpatient visit compared to those without a visit (9.5% vs. 12.4% for AF and 8.0% vs. 10.5% for non-AF).

Conclusions: Medicare beneficiaries with AF had higher readmission rates than their peers with other common chronic conditions. Having an outpatient visit within 14 days of discharge was associated with a lower likelihood of 30-day readmission and may suggest that improved care coordination might lower hospitals' risks of being penalized for readmissions.

Public Health Implications: A better understanding of the relationship of outpatient follow-up to subsequent readmissions might help to identify areas of focus for improved transitions of care.

Data Source Utilized: 2006-2009 Medicare (Parts A and B) claims and enrollment data.

145 *Investment In Advanced Quality Training: One Institution'S Experience*

Angelo Giardino
Medical Quality

Background: In 2009 the Quality and Safety Department at Texas Children's Hospital initiated the Advanced Quality Improvement & Patient Safety Program (AQI Program). Selected staff are enrolled in a six month longitudinal experience planned around six day long didactic sessions, team work on a quality improvement project and ongoing individualized and team-oriented coaching. The goals of the AQI Program are: 1. Develop clinical quality improvement leaders 2. Improve care delivery through quality improvement and patient safety activities. 3. Change the culture through education and clinical tools.

Methods: A pre-assessment is completed prior to the start of the program. A post-assessment is completed at 6 months and 12 months post-course which examines use of the educational tools provided and the continuation of the projects. Additionally, each day long session is evaluated along with a final course evaluations.

Results: Over 200 faculty and employees at TCH have graduated from the AQI Program. Overall feedback shows that 92% of participants felt the course met the overall goals and imparted useful knowledge. In comparing preassesments with post-course evaluations, there were increases in: 1)the use of evidence in planning stages of one's quality improvement project (+25%), 2) understanding patient safety implications (+20%), and 3) recognizing the value of multi-disciplinary teams in completing quality projects (+17%). Current institutional investment stands at 650,000 dollars with over $1 million dollars in increased revenue and efficiencies expected in the form of soft cost reductions.

Conclusions: The Advanced QI Program is viewed as successful in that it focuses the organization on quality and patient safety, creates culture change, and reduces costs through process changes designed by the people working in the system.

Public Health Implications: Reimbursement and performance measurement are increasingly linked in the nation's value based purchasing model. Health care organizations are wise to invest in quality improvement training.

Data Source Utilized: Pre and Post Course assessments/evaluations.

146 *Accounting for Community Care: Creating A Collaborative Suburban Model to Reduce Childhood Obesity*

Martine Hackett
Medical Quality

Background: Nassau County, Long Island, a suburb of New York City, is one of the richest counties by median household income in the United States, but it is also home to pockets of underserved communities where residents suffer from high rates of mortality and lifestyle-related morbidity. As Nassau County's safety net health care provider, NuHealth Systems has an obligation to the region's most vulnerable populations, such as the community of Roosevelt, NY to enhance access to and quality of care. Adolescent overweight and obesity in the Roosevelt middle school is ~50% greater than expected. Over the past two years, NuHealth Systems has established a community-based model to address the issue of pediatric obesity.

Methods: Anthropometric measurements of 6th graders were taken by the investigators using standardized equipment and methodology. A standardized questionnaire was administered to 189 6th graders in 2012 to determine their dietary, exercise and weight loss behaviors as well as self perception of weight status. A descriptive case study of the process of creating community collaboration to reduce adolescent obesity was undertaken.

Results: BMI and waist circumference data showed overweight and obesity prevalence to be 23 and 25% respectively vs. national prevalence of 17 and 15% and NYC prevalence of 21 and 22% in this age group. Desire to lose weight and poor diet and exercise behaviors were more prevalent in the obese and overweight than the normal weight groups and were statistically significant. Insights were gained on how to engage partners in an underserved suburban community.

Conclusions: Overweight and obesity are more prevalent in this population. Creating a community collaboration to address pediatric obesity in underserved suburban populations has many challenges.

Public Health Implications: Engaging community stakeholders to address adolescent obesity is needed to improve population health quality and accountability.

Data Source Utilized: Anthropometric, survey, and case study data.

147 *Using Insurance and Medicaid Benefit Design to Encourage Evidence-Based Care*

Cat Livingston
Medical Quality

Background: Health care reform has created national interest in shifting health care towards more evidence-based interventions to improve quality and cut costs. As part of Oregon's health care reform process, the Oregon legislature directed the Health Evidence Review Commission (HERC) to develop a process by which evidence can be translated into coverage guidance, to be applied rapidly and uniformly across public and private settings to reduce unnecessary care, encourage appropriate care, and drive down costs.

Methods: A list of trusted evidence sources was developed in discussion with the Center for Evidence-based Policy at Oregon Health & Science University. These sources were vetted through the Governor-appointed body (HERC) that manages the Prioritized List of Health Services which determines Medicaid coverage in Oregon. A framework was developed to approach topics based on the sufficiency of evidence, and taking into account issues such as risk and cost. Through a public process, HERC reviewed the evidence and made coverage policy recommendations.

Results: HERC developed a Guidance Development Framework that enables a standardized approach to translating various levels of evidence into policy decisions. Fifteen coverage guidances have been completed to date. These coverage guidances have been applied to Medicaid, and are being made available to other public and private payers. Example topics include: low back pain interventions, elective induction of labor, and screening for cervical cancer.

Conclusions: Oregon has created a process of translating evidence into coverage guidance policies for use by both public and private payers.

Public Health Implications: New clinical knowledge and guidelines often take years to disseminate into clinical practice. Through using the tool of a payer perspective, Oregon's process is an example of a financially motivating strategy that could be adopted by other states or payers to incentivize rapid adoption of appropriate and effective health care.

Data Source Utilized: High quality evidence-based guidelines and health technology assessments.

148 *Should We Still Use Insulin Sliding Scale for Diabetic Older Adults in Skilled Nursing Facilities (SNF)?*

Santiago Lopez
Medical Quality

Background: The updated AGS 2012 Beers Criteria now include insulin sliding scale (SSIs) as a "potentially inappropriate medication" (PIM) in elderly diabetics. We compared adverse drug events (ADEs) in SNF diabetics with and without SSIs.

Methods: A one year retrospective randomized chart review of SNF patients with type 2 DM. Demographics, functionality, co-morbidities, laboratory data, diabetic therapies and hypoglycemic events were analyzed. Comparisons between SSIs and non-SSIs patients were performed (Chi-squared test or Fisher's exact test, as appropriate) and Poisson regression with adjustment for overdispersion was used to model glycemic events.

Results: In the 100 patients analyzed, average age was 81 years (range: 65-95), with 56% female and 88% Caucasian. Average body weight was 162 lbs (range: 76-256 lbs) with BMI of 27 (range: 15.9-52.7). Average co-morbidity index was 5, with moderately impaired function. Median length of hospital and SNF stays were 6 and 18.5 days, respectively. Over half (n=57) of the patients received SSIs. Of the 57, 28% were also receiving sulfonylureas, 17.5% basal insulin, and 17.5% basal and preprandial insulin. There were 38 episodes of hypoglycemia (glucose < 60 mg/dl) in 18 patients, usually between 4-8am. Thirteen were on SSIs, five on conservative and eight on aggressive regimens; 70% had GFR under 50mL/min, and 80% had HgbA1C<0.05).

Conclusions: The traditional approach to diabetic management using SSIs is likely to produce hypoglycemic events in elderly diabetics. Increased awareness of the updated AGS 2012 Beers Criteria is critical to improve the quality of medical care for older diabetics.

Public Health Implications: Redefine the role of sliding scale insulin in the management of elderly diabetics, in view of the AGS 2012 Beers Criteria.

Data Source Utilized: SNF patient chart data.

149 *Bringing a Safety Incident Reporting System from Phone to Remote Entry: Improving the Efficiency of Quality Work*

Timothy Morgenthaler
Medical Quality

Background: In our culture, all staff are responsible for reporting adverse patient incidents. Prior reporting utilized a designated pager-carrying RN and a verbal report system plus support staff to transcribe data into our database. The aim of this project was to replace this system with an online Remote Data Entry (RDE) system that eliminated the wastes of the human receiver and transcription into our MIDAS+ data repository. We hypothesized that with proper design and deployment, we would not adversly affect the rates or composition of reports.

Methods: Using a DMAIC framework, we first obtained baseline measures. Important process data resources (time and personnel) required inputting an event, while outcomes data included type and frequency of event reporting and types of personnel reporting events. We used PDSA cycles to design and test user interfaces via the Mayo Usability Laboratory and pilot tests of the web-based input tool prior to deployment. Stakeholder analysis and strategic communications plans were utilized to ensure smooth transition to full deployment of the RDE system.

Results: The new system fully employed does not require the trained RN or transcription time, allowing repurposing of nurse and support FTE. Events reported per day averaged 32 (range 13-52) and did not change significantly across the transition to RDE ($P>0.05$). There was a slight decline in reports of "delays in therapy," while the medication event reports increased.

Conclusions: We have successfully transitioned to a RDE system, reducing resources needed for data entry, one of the most costly parts of quality improvement work, whilst maintaining event-reporting frequency. Because of ongoing quality improvement efforts, changes in specific event types reported are difficult to interpret, but conceptually more complex events may take longer to enter and thus there may be a system bias.

Public Health Implications: These methods can help reduce the costs of quality improvement work.

Data Source Utilized: Administrative data.

150 *Driving Needed Change: A 'Driver Diagram' for Timely and Appropriate Antibiotic Use in the Acute Care Setting*

Loria Pollack
Medical Quality

Background: Healthcare-associated infections, bacterial resistance to antibiotics, and adverse drug events such as Clostridium difficile infections can be addressed by appropriate use of antibiotics in hospitals. To focus on this challenge, the Centers for Disease Control and Prevention (CDC) partnered with the Institute for Healthcare Improvement (IHI) to develop and pilot a conceptual framework (driver diagram) of key factors needed to improve antibiotic use in the acute care setting.

Methods: An expert group developed a framework of four evidence-based primary drivers of timely and appropriate antibiotic utilization in the acute care setting. Next, specific activities for change (secondary drivers) were identified and tested at eight pilot hospitals to determine their feasibility and refine the driver diagram.

Results: We identified four primary drivers to improving antibiotic use in the acute care setting: 1) timely and appropriate initiation of antibiotics; 2) appropriate administration and de-escalation; 3) data monitoring, transparency, and infrastructure; and 4) availability of expertise at the point of care. In addition, leadership of a respected clinical provider coupled with administrative support are seen as overarching drivers. Examples of secondary drivers are obtaining cultures prior to starting antibiotics; stopping or de-escalating therapy based on culture and sensitivity results; and monitoring and giving feedback on antibiotic utilization. A key opportunity exists to understand how these interventions can be incorporated into the process of care.

Conclusions: Specific activities can be done in the acute care settings to achieve actions known to improve timely and appropriate use of antibiotics. The Driver Diagram presents an organized visualization for hospitals to address the overuse and misuse of antibiotics.

Public Health Implications: Direct action based on this antimicrobial stewardship driver diagram has the potential to support appropriate antibiotic use in order to decrease adverse effects, including pathogen resistance, healthcare-associated Clostridium difficile, and unnecessary pharmacy costs.

Data Source Utilized: Experts in field, including acute care physicians.

151 *Teaching Root Cause Analysis and PDSA Cycles to Pre-Health Professional Students in a IHI Open School Conference*

Fantley Smither
Medical Quality

Background: Since the publication of "To Err is Human" in 1999, there have been many efforts to improve patient safety. One suggestion is to include quality improvement in health professional education. However, in 2009, Leape et al. wrote, "In typical medical school curriculum little or no instruction is provided in ... systems thinking, ... improvement science, ... or teamwork." Our aim was to provide a conference to teach pre-health professionals important quality improvement tools.

Methods: Using IHI Open School resources we held a one-day conference focused on 2 tools of quality improvement: Root Cause Analysis and PDSA Cycles. We brought in experts in quality improvement from several fields: family medicine, surgery, emergency medicine, and industry. The format of the conference involved lectures followed by hands-on workshops to reinforce the tools and teach principles of teamwork. The effectiveness of the conference was measured using pre and post-conference Likert scale surveys.

Results: There were 24 pre-health professional students in attendance. In 7 out of the 8 questions on the surveys, there were statistically significant increases in their knowledge about the tools, confidence using the tools, and belief that they will use the tools during their careers.

Conclusions: The survey results show that the quality and teaching style of the conference were well received. During the conference, students actively participated in the workshops and demonstrated increased competency in using the two tools.

Public Health Implications: This conference can be used as a template for implementing quality improvement in health professional curricula. The interactive workshops stressed the importance of teamwork when analyzing an adverse event or improving a system. By improving quality education, the public will benefit through a safer healthcare system.

Data Source Utilized: Leape L, Berwick D, Clancy C, Conway J, Gluck P, Guest J, et al. Transforming healthcare: a safety imperative. Qual Saf Health Care. 2009;18:424–8.

152 *New Mexico Department of Health Phase 2 Central Line-Associated Bloodstream Infection Data Validation Project*

Deborah Thompson
Medical Quality

Background: In New Mexico, voluntary submission of central line-associated bloodstream infection (CLABSI) surveillance data began in July 2008 via the National Healthcare Safety Network (NHSN). Validation of CLABSI data is necessary to ensure quality, accuracy, and reliability of surveillance efforts.

Methods: We conducted retrospective reviews on medical records of 115 individuals with positive blood cultures who were admitted to 12 New Mexico hospital adult intensive care units during May – July 2011. Blinded reviews were conducted independently by single reviewers using standardized data collection instruments. Findings were compared with NHSN data. Discordant cases were reviewed and reconciled with hospital infection preventionists.

Results: Initially, the medical records of 109 individuals were identified for review based on line-lists submitted by participating facilities. Among these, seven intensive care unit CLABSI events were identified by reviewers. Data submitted to NHSN revealed six additional intensive care unit CLABSI events. These six additional CLABSI events had not been identified for medical record review due to missing data on line-lists provided by hospitals. Final case determinations for all 115 individuals as compared to NHSN data resulted in a sensitivity of 60.0%, specificity of 100%, positive predictive value of 100%, and negative predictive value of 96.3% for adult intensive care unit CLABSI surveillance.

Conclusions: There is need for ongoing quality improvement and validation processes to ensure accurate CLABSI data in NHSN.

Public Health Implications: Valid data is critical for making appropriate public health policy decisions regarding targets and resource allocation for healthcare-associated infection (HAI) surveillance and prevention efforts. HAI data from NHSN is also being publically reported by CDC and public health departments. This information may influence healthcare decisions among the population.

Data Source Utilized: Data sources for this project included the National Healthcare Safety Network and laboratory and admission line-lists and medical records from participating hospitals.

153 *What Happens to Patients When They Leave Our Office? Coordinating Care in a Safety-Net Health System*

Martin Wegman
Medical Quality

Background: In January 2012, the Equal Access Clinic (EAC) implemented a care-coordination pilot to determine feasibility of routine patient follow-up and support using volunteer staffing within a free clinic system. In addition to examining key process measures, our secondary aims provided information on adherence and barriers to treatment.

Methods: Trained team members approached all patients during their visits and obtained verbal consent. Pertinent medical information and related referrals, medications and laboratory orders were recorded. Two weeks following each visit, telephone follow-up was attempted during which the patient was asked about health condition changes and status for the specific "tasks"(prescriptions to be filled, laboratory tests to be completed, referrals, etc). Barriers and possible solutions were identified.

Results: Over the 3-month pilot period, 295 patients were seen of which 86% were enrolled. 182 (71%) were successfully contacted during follow-up. Reported completion rates were 79% for prescriptions, 49% for laboratory orders and less than 20% for referrals. Of all barriers identified, more than 50% were related to patients "planning to go" while 15% could not afford the prescription cost and 7% noted transportation issues.

Conclusions: This pilot demonstrated that follow-up during care-coordination provides a good opportunity for tracking of patient adherence to treatment. High enrollment and contact rates demonstrate that a volunteer-staffed program may be feasible in a free safety-net clinic. Unsolicited patient feedback was remarkably positive, even when few solutions could be offered to address identified barriers. Planned research focuses on gaining more robust data on care-coordination effects to patient satisfaction and outcomes.

Public Health Implications: A minimal cost follow-up program can serve a triple purpose: increase patient satisfaction, coordinate care for patients (improving proximal outcomes)and provide a systematic way to track patient adherence to treatment and recommended care.

Data Source Utilized: Primary data collection was performed.

154 *Get On The Bus: The Use of Mobile Mammography to Improve Mammogram Screening Uptake Among Women with Serious Mental Illness*

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Background: Ensuring completion of cancer screening among patients with serious mental illness can be a formidable challenge for primary care clinicians. In general, life expectancy of this vulnerable group of patients is up to twenty-five years less than the general population; often the cause of mortality is preventable. Little is known about the factors that deter and promote cancer screening among this group. The current method of transporting patients off campus for mammographic screening can be both costly and traumatic for patients.

Methods: A local bus-based mobile mammogram service was selected for the provision of screening mammography on the campus of a Western New York psychiatriccenter. Inpatients and outpatients were invited to participate in mammogram screenign on the bus, as opposed to going off-site to a local hospital for this service. Patricipants were interviewed pre- and post- mammogram.

Results: Forty women agreed to participate in the facility's first mobile mammogram screening day. The mass screening provided patients with personal support in an emotionally neutral, easily accessible, and convenient. These factors, along with others, helped to promote completion of screening in this group. Additionally, a substantial monetary savings was noted due to abolition of transporation and attendant costs normally incurred.

Conclusions: Local mobile mammography is a practical alternative for women with serious mental illness who otherwise may forgo mammographic screening. Mobile mammography encourages mammogram uptake by providing a neutral setting, group support, and a convenient location, all while lowering monetary cost of providing mammographic screening to patients.

Public Health Implications: This work helps clarify the barriers of breast cancer screenign among women with serious mental illness, and supplies viable recommendations to promote mammographic uptake in ths group of vulnerable patients.

Data Source Utilized: Patient records, both electronic and paper Patient interviews, both pre- and post- mammogram Facility financial data.