SAN DIEGO

EPIDEMIOLOGY RESEARCH EXCHANGE

Program Schedule and Abstracts

1 May 2015

San Diego County Operations Center
5520 Overland Drive, San Diego, CA
Chambers Hearing Room

Conference Co-Chairs: Stephanie Brodine, MD
Richard Shaffer, PhD, MPH
Gail Laughlin, PhD

Coordinator: Hope Ettore

Presentation Judges: Christina Chambers, MPH, PhD
Karen Ferran, MPH, PhD
Megan Ryan, MD, MPH
Samantha Tweeten, MPH, PhD

Sponsored by:

Abram S. Benenson Distinguished Lecture Series
San Diego State University, School of Public Health
University of California San Diego – Family Medicine and Public Health
County of San Diego Health & Human Services Agency
Naval Health Research Center
8:30  REGISTRATION & CONTINENTAL BREAKFAST

9:00  WELCOMING REMARKS: Stephanie Brodine, MD

MODERATOR: Eric McDonald, MD, MPH

9:10  KEYNOTE ADDRESS

*Ebola, Pandemic Influenza and Other Infectious Disease Threats: A Public Health Perspective*

Sonja A. Rasmussen, MD, PhD
Editor-in-Chief, *Morbidity and Mortality Weekly Report* series
Director, Division of Public Health Information and Dissemination
Center for Surveillance, Epidemiology, and Laboratory Services
Office of Public Health Scientific Services
Centers for Disease Control and Prevention (CDC)

10:10  INVITED ADDRESSES

*Infectious Disease Surveillance in the Office of Binational Border Health*

Esmeralda Iniguez-Stevens, PhD, MPH
Program Coordinator, Infectious Disease Epidemiology (IDE) Program
Office of Binational Border Health
California Department of Public Health

10:35  Tracking Disease Outbreaks and Health Disparities in Real Time Using Geo-Targeted Social Media Analytics, GIS, and Social Network Analysis

Ming Hsiang-Tsou, PhD
Professor, Geography Department, San Diego State University
Founding Director, The Center for Human Dynamics in the Mobile Age

11:00  BREAK
11:20  Ebola: A Local Health Department Perspective
    Eric McDonald, MD, MPH
    Deputy Public Health Officer
    County of San Diego Health and Human Services

11:45  Medication Use Among Pregnant Women Enrolled in the United States Medicaid Program
    Kristin Palmsten

12:00  Science Olympiad Student Awards

12:10  LUNCH

1:00  Poster Session
    Risk Factors of Multi and Extensively Drug Resistant Tuberculosis in a Multisite Study: A Case Cohort Study
    Elisea Avalos

    Alcohol Use Among Breastfeeding Women in the UCSD Breast Milk Biorepository Cohort
    Kerri Bertrand

    The Association Between Intimate Partner Violence, Social Support & Depression Among Methamphetamine-Using Men and Women in San Diego, California
    Alejandra M. Cabrera

    Aaron W. Chung

    Association between Organizational Commitment and Burnout Among Navy Corpsmen Participating in Highly Realistic Training
    Renee G. Dell’Acqua

    Risk of Gestational Hypertension and Preeclampsia in Women Who Discontinued or Continued Antidepressant Medication Use During Pregnancy
    Maria PG DeOcampo

    Physical Activity and Comorbidities Attenuate the Risk of Obesity in the After Breast Cancer Pooling Project
    Sandahl H. Nelson
Walking May Be a Viable Alternative to Recreational Physical Activity for Promoting Physical and Mental Well-Being Among Older Women
*Rosemay A. Remigio-Baker*

Leading Causes of Unintentional Injuries in Adolescence
*Charles Robertson*

The Association of Lifetime Nonmedical Use of Prescription Pain Killers and Heroin Use
*Charles Robertson*

The Positive Predictive Value of Self-Reported Varicella Zoster Virus Infection Among Immigrant Detainees in the U.S.
*Shanon Stous*

Topiramate, Lamotrigine and Gabapentin Exposure During Pregnancy
*Amy J. Wade*

International Evaluation of Screening Questions to Identify Persons with Drug-Resistant Tuberculosis
*Marthew Wong*

**MODERATOR: Andrea LaCroix, PhD**

**1:30** The Association of Depressive Symptoms with Coronary Artery Calcification: The Rancho Bernardo Study
*John Bellettiere*

**1:45** Using GIS to Map Health Impacts of an Extreme Weather Event in an Urban Pacific Island Environment
*Eileen Natuzzi*

**2:00** Impact of Palliative Care on Aggressiveness of End-of-Life Care Among Patients with Advanced Cancer
*Daniel P. Triplett*

**2:15** Kyphosis and Sleep Characteristics in Older Persons: The Rancho Bernardo Study
*Che Wankie*

**2:30** BREAK
MODERATOR: Happy Araneta, PhD, MPH

2:50 The Association of Kidney Function with Exceptional Longevity
Alyson M. Cavanaugh

3:05 Cloud Cover-Adjusted Ultraviolet B Irradiance and Pancreatic Cancer Incidence in 172 Countries
Raphael Cuomo

3:20 Association Between Dietary Sodium and Cognitive Function in Older Adults
Toni M. Rush

3:35 Occupational and Sexual Risk Correlates of Amphetamine Use Among Long-Haul Truck Drivers at Two Transnational Corridors of Mexico
Erin E. Conners

3:50 Behavior Treatment for Young Children with Mild to Moderate Concerns
Haruna Feldman

4:05 ABRAM S. “BUD” BENENSON AWARD
CLOSING REMARKS
Medication Use Among Pregnant Women Enrolled in the United States Medicaid Program

University of California San Diego, Harvard School of Public Health, Brigham & Women’s Hospital & Harvard Medical School

Background: Prescription medication use during pregnancy among low-income women and variability in utilization by age and race/ethnicity are not well characterized. Medicaid, the United States health insurance program for low income individuals, insures >40% of all deliveries in the country. The demographics of pregnant women enrolled in Medicaid differ from those in previous studies that describe medication use during pregnancy.

Methods: We identified 1,106,757 pregnant women with live births from 2000-2007 United States Medicaid Analytic eXtract (MAX) data. We used outpatient pharmacy records to identify medication dispensings. Medication prevalences were stratified by pregnancy period, maternal age, race/ethnicity, and year of birth.

Results: During pregnancy, 82.5% of the cohort had a dispensing for ≥1 prescription medication. Medications with the highest prevalence during pregnancy included nitrofurantoin (21.6%), metronidazole (19.4%), amoxicillin (18.0%), azithromycin (16.9%), and promethazine (13.5%). Younger women had the highest prevalence of several medications; e.g., compared with women ≥35 years old, the prevalence of nitrofurantoin was 55% higher, metronidazole was 73% higher, and azithromycin was 93% higher among women <20. White women had the highest prevalences with some exceptions; e.g., the prevalence of metronidazole was 107% higher among black women, miconazole was 126% higher among Hispanic women, and acetaminophen was >400% higher among Asian women. Excluding estrogens, progestins, and infertility treatments, 39.9% of women had ≥1 dispensing for a medication classified in the former Food and Drug Administration categories D or X. Codeine (13.0%) and hydrocodone (10.2%) had the highest prevalences of all D medications.

Conclusions: Differences in medication prevalences across age and race/ethnicity groups may explain some of the prevalence differences observed in this population compared with previous reports. Sufficient evidence regarding medication risks and safety during pregnancy is lacking for many prescription medications commonly used by pregnant low-income women.

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Risk Factors of Multi and Extensively Drug Resistant Tuberculosis in a Multisite Study: A Case Cohort Study

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Background: Drug-resistant tuberculosis (DRTB) has emerged as a serious threat to global tuberculosis (TB) control. According to the World Health Organization (WHO) Global Tuberculosis Report, in 2013 roughly 9 million people developed TB and 1.5 million died from the disease. Worldwide, the proportion of new cases with multidrug-resistant TB (MDRTB) was 3.5%; 20.5% of previously treated TB cases were estimated to have had MDRTB. India, China, the Russian Federation and South Africa have almost 60% of the world’s cases of MDRTB. The purpose of this study was to analyze the clinical and epidemiologic characteristics of multi and extensively drug resistant tuberculosis (M/XDRTB) isolates from Mumbai, India; Chisinau, Moldova; and Port Elizabeth, South Africa.

Methods: A case cohort study was conducted from May 2012 to August 2013. Mycobacterium tuberculosis (Mt) strains isolated from patients were subjected to drug susceptibility testing (DST). Cases were defined as patients with M/XDRTB. Controls were patients selected from the cohort during the same period who were pan-susceptible.

Results: Among the 838 patients enrolled, the overall prevalence of MDRTB and extensively drug resistant tuberculosis (XDRTB) were 63.6% (n = 533) (61.3% of newly diagnosed patients and 64.6% of previously treated cases) and 9.5% (n = 80) (5.4% of newly diagnosed patients and 11.4% of previously treated cases), respectively. A multiple logistic regression analysis showed that those less than 25 years of age (OR 1.8, 95%CI 1.0 to 3.1), city of residence (Mumbai, India (OR 33.1, 95% CI 18.8 to 58.3) and Chisinau, Moldova (OR 13.0, 95%CI 6.8 to 24.6)), higher education (OR 2.4, 95%CI 1.4 to 4.0), ever been hospitalized (OR 1.9, 95%CI 1.2 to 2.9) and previously treated with TB (OR 1.7, 95% CI 1.1 to 2.8) were associated with developing M/XDRTB. The most noteworthy finding of this study was the interaction between city of residence and having previously been treated for TB on the risk of M/XDRTB development. In our study, the combined effects of these two variables dramatically increased one’s odds of developing M/XDRTB. Patients previously treated with TB, living in Mumbai, India were sixty-six times (OR 66.6, 95%CI 6.8 to 655.5) more likely to have M/XDRTB whereas patients previously treated with TB living in Chisinau, Moldova, were one hundred nineteen times (OR 118.9, 95%CI 11.3 to 1254.3) more likely to have M/XDRTB (compared to patients newly diagnosed with TB living in Port Elizabeth, South Africa).

Conclusions: The results of this study reflect the growing drug resistance situation in Mumbai, India; Chisinau, Moldova; and Port Elizabeth, South Africa. Thus, the timely detection of drug resistance is of great importance to optimize treatment and to direct infection control measures to prevent the transmission of M/XDRTB.

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Alcohol Use Among Breastfeeding Women in the UCSD Breast Milk Biorepository Cohort

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Background: The benefits of breast milk on cognitive development, growth, and protection against disease have been well documented; however, little is known about these mechanisms, how breast milk composition varies, or the impact of medications and lifestyle habits on breast milk. Specifically, alcohol use in breastfeeding women is not well studied. Because the brain rapidly develops during the first three years of life, alcohol use among breastfeeding women needs more research. The purpose of this study is to investigate the prevalence of alcohol use among breastfeeding women and determine if the quantity/frequency of alcohol use varied by the breastfed child’s age.

Methods: The University of California San Diego (UCSD) established a breast milk biorepository in October 2014 to support research on how breast milk influences infant/child health and development. Breastfeeding women 18 years or older were eligible for participation. Women were recruited through breastfeeding support groups, UCSD Pediatric clinics, and referrals. Participants completed an in-person interview on demographics, health history, and lifestyle habits (medications, recreational drugs, tobacco, alcohol). Each participant provided a 50mL sample of breast milk using a closed system Hygeia breast pump and sterile collection kit. Samples were aliquoted and stored in a -80 freezer. Based on number of drinks consumed in the previous seven days, women were classified as non-drinkers, low-moderate alcohol users (1-7 drinks p/week), and frequent drinkers (>7 drinks p/week). Median age of the breastfed child was compared between low-moderate and frequent drinkers.

Results: As of March, 80 participants provided breast milk samples. Of the women enrolled, 38 (47.9%) reported any alcohol use (≥1 drink) within the previous seven days. The median age of the breastfed child was 6 months (0-43). Of women who drank any alcohol, 35 (92.1%) were low-moderate alcohol users and 3 (7.9%) were frequent alcohol users. The median age of the child in low-moderate drinkers was 7 months (1-43) and 12 months (9-16) in frequent drinkers. There was no statistical difference in age between low-moderate and frequent drinkers.

Conclusions: Nearly half of participants consumed at least one drink in the previous week, and 3.8% were frequent drinkers. More research is needed to understand the long-term effects on children who are breastfed by mothers who consume alcohol.

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The Association Between Intimate Partner Violence, Social Support, & Depression Among Methamphetamine-Using Men and Women in San Diego, California

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Background: In the United States, methamphetamine (meth) use is a growing public health concern, with particularly high rates of meth use in California. Among women and men, meth use has been associated with poor mental health outcomes. Meth-using women are also at increased risk for intimate partner violence (IPV); little is known about this increased risk among men. Evidence suggests that social support is a protective factor that reduces the risk of adverse mental health outcomes for abused women and men in general. This cross-sectional study examined the relationship between lifetime physical and sexual IPV and depression and assessed how social support mediates the association between IPV and depression.

Methods: Baseline data of meth users (n=426) enrolled in the FASTLANE II Study, an HIV behavioral prevention in San Diego, CA, were used for the analysis. All participants were 18 years or older, tested negative for HIV, self-identified as heterosexual, had at least one opposite sex partner in the past 2 months, and recently used meth (i.e., snorted, smoked, or injected meth at least once in the past two months and at least once in the past 30 days). Multiple linear regression was performed in order to examine the relationship between IPV and depression, and the mediating effect of social support on the relationship, stratified by gender.

Results: Among 219 meth-using men and 207 meth-using women the average BDI-II score was 20 [SD: 13] and 25 [SD:13], respectively. About 60% of men and 88% of women reported ever experiencing physical and sexual IPV. The median social support score among men and women was 26 [interquartile range:7,28] and 24 [interquartile range:7,28], respectively. Among male meth users, on average those who have experienced lifetime IPV have a predicted depression score 4.2 units higher than men who have not experienced lifetime IPV (p< 0.05). Among female meth users, IPV was not significantly associated with depression. Social support was not found to mediate the relationship between lifetime IPV and depression among men.

Conclusions: IPV was found to be associated with depressive symptoms among meth-using men. Although social support didn’t mediate the relationship between IPV and depression among men, it was found to be correlated with depression among men and women. These findings suggest the need for gender-specific interventions to reduce the adverse mental health effects of IPV among meth-using individuals. Furthermore, these programs and services may benefit from incorporating a social support component to optimize health outcomes.

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**Background:** Metabolic syndrome is composed of five main risk factors, which are also closely related to obesity and type 2 diabetes mellitus. Firefighters represent a unique population that could possibly be at a higher risk for metabolic syndrome due to job duties. This study aimed to determine correlates of metabolic syndrome in San Diego firefighters enrolled in a fire wellness program.

**Methods:** The data comes from the San Diego Sports Medicine center fire wellness program. 1069 firefighters were enrolled into the study. Data that was collected included anthropometric measures, blood measures, cardiorespiratory function, and medical history. Backwards stepwise logistic regression modeling was used to analyze the data. The population was stratified by gender due to disproportionate gender sample sizes. The final sample size included 981 males and 88 females.

**Results:** Male firefighters with ‘medium’ metabolic equivalents (METs) were more likely to have metabolic syndrome at baseline, compared to male firefighters with ‘high’ METs, after controlling for all other variables [OR=3.68 95% CI: 1.51, 8.98; p=0.004]. After controlling for all other variables in the model, male firefighters with ‘low’ METs were more likely to have metabolic syndrome at baseline, compared to male firefighters with ‘high’ METs [OR=7.64 95% CI: 2.94, 19.88; p=0.004]. Male firefighters with ‘very low’ METs were more likely to have metabolic syndrome at baseline compared to male firefighters with ‘high’ METs, after controlling for all other variables [OR=13.21 95% CI: 4.42, 39.49; p<0.001].

**Conclusions:** The results of our study suggest that San Diego firefighters are more fit than other firefighter populations in the literature. ‘Metabolic equivalents’ was also inversely related to metabolic syndrome outcome; higher levels of fitness decreased the odds of metabolic syndrome in firefighters enrolled at the fire wellness program. Age-associated declines in cardiorespiratory function can be explained by the age-related increases in metabolic syndrome. The results also add to the sparse body of literature on firefighters and metabolic syndrome. Future interventions should focus on promoting healthy behaviors that lead to a higher level of fitness in firefighters.

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Association Between Organizational Commitment and Burnout Among Navy Corpsmen Participating in Highly Realistic Training

Renée G Dell’Acqua, S Kewley, R Highfill-McRoy, Naval Health Research Center

Background: Organizational commitment and burnout have been widely investigated among medical professionals and medical students in the civilian sector. However, similar research is lacking for military medical providers, particularly those still enrolled in military medical training. The objective of this study was to investigate the association between organizational commitment and two subscales of burnout, emotional exhaustion and personal accomplishment, among Navy corpsmen participating in highly realistic training (HRT).

Methods: The sample consisted of 1,258 male enlisted corpsmen assigned to the Field Medical Training Battalion – West at Camp Pendleton, California. Participants completed pretraining and posttraining surveys. Descriptive statistics and chi-square analyses were performed.

Results: Results from chi-square analyses revealed that corpsmen with low organizational commitment experienced medium to high levels of emotional exhaustion (p < 0.05) yet low feelings of personal accomplishment (p < 0.001). Conversely, those reporting high organizational commitment experienced an elevated sense of personal accomplishment (p < 0.001).

Conclusions: These data suggest that under stressful and demanding conditions (e.g., HRT), those with low organizational commitment may experience increased levels of emotional exhaustion, while those with high organizational commitment may feel an increased sense of personal accomplishment. Additional research is needed to investigate ways in which organizational commitment can be bolstered amongst military medical providers, especially those just beginning their military careers.

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Risk of Gestational Hypertension and Preeclampsia in Women Who Discontinued or Continued Antidepressant Medication Use During Pregnancy

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Background: Previous studies are conflicting regarding the antidepressant use in pregnancy and the risk of gestational hypertension (GH) and/or preeclampsia (PE). We examined the association between timing of antidepressant use in pregnancy and the development of GH and PE, while controlling for important confounders.

Methods: Participants included pregnant women (N=3,471) who were enrolled in the Organization of Teratology Information Specialists (OTIS) Pregnancy Studies throughout the U.S. and Canada and in the MotherToBaby California cohort studies from 2004 to 2014. Maternal reports of demographics, comorbidities, behavioral factors, substance use, medication use, and birth outcomes were obtained through 2-3 telephone interviews during pregnancy and one after pregnancy. Diagnoses of GH and PE were self-reported and were validated using the woman’s medical records. Gestational timing of antidepressant use was collected from the maternal interviews conducted over the course of the woman’s pregnancy. We compared the risk of GH and PE in women who discontinued use of antidepressants <20 weeks of gestation and women who continued use of antidepressants ≥20 weeks of gestation to women who did not use antidepressants at any time in pregnancy. Polytomous logistic regression was used to estimate unadjusted and adjusted odds ratios (OR) and their 95% confidence intervals (CI).

Results: A total of 354 women in the cohort used antidepressants in pregnancy; of these, 250 women continued medication use beyond 20 weeks of gestation and 104 discontinued medication use before 20 weeks of gestation. In unadjusted analysis, women who continued use of antidepressants ≥20 weeks of gestation were 2.03 times more likely to develop GH (95% CI: 1.19, 3.44) compared to women who did not use antidepressants at any time in pregnancy. Women who continued antidepressant use ≥20 weeks gestation were 1.16 times more likely to develop PE (95% CI: 0.62, 2.19) compared to women who did not use antidepressants at all. However, after adjusting for maternal asthma status, partner change since last pregnancy, and pre-pregnancy body mass index, the odds of developing GH were attenuated (adjusted OR 1.66, 95% CI: 0.93, 2.93) and the odds of developing PE were further reduced (adjusted OR 1.07, 95% CI: 0.55, 2.08) in women who continued use of antidepressants compared to antidepressant nonusers. There was no evidence of an association between hypertensive disorders and antidepressant use that was restricted to the first half of gestation.

Conclusions: Findings in this study are somewhat consistent with previous studies that have suggested that pregnant women who continued use of antidepressants during the second half of gestation are at increased risk of GH. Further studies are needed to examine the effects of specific antidepressant medications, possible confounding by indication, and the role of asthma and partner change in the development of hypertensive disorders of pregnancy in women with depression.

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Physical Activity and Comorbidities Attenuate the Risk of Obesity in the After Breast Cancer Pooling Project

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Background: The objective of this study was to examine associations of post-diagnosis body mass index (BMI) with breast cancer-specific and all-cause mortality after adjustment for 2 major factors associated with weight and breast cancer: co-morbidities and physical activity. Data are from a large, well-characterized, diverse cohort of US breast cancer survivors comprising the After Breast Cancer Pooling Project (ABCPP). We hypothesize that the risk factors of high BMI, lack of physical activity, and comorbidities, when modeled together, will provide insight into the independent association of BMI with breast cancer outcomes.

Methods: The three US cohorts included in the ABCPP; the Women’s Healthy Eating and Living (WHEL) Study, the Life After Cancer Epidemiology (LACE) Study, and the Nurses’ Health Study (NHS) were harmonized (n=9458). Stepwise delayed entry Cox proportional hazards models examined each lifestyle predictor (BMI, physical activity, and comorbidities) sequentially and together in multivariate models for breast cancer specific and all-cause mortality.

Results: BMI was not associated with risk of breast cancer mortality. There was a statistically significant, 40% increase in the risk of breast cancer mortality among women diagnosed with diabetes and hypertension. This risk remained essentially unchanged even when the other lifestyle factors (BMI and PA) were added to the model. PA was not associated with breast cancer mortality. Being underweight was associated with a 2.3 fold increase in all-cause mortality, while there was a more modest 10 and 37% increase in risk associated with being categorized as obese I or II (all p<0.05 in individual models). Diabetes and hypertension were both significantly associated with mortality with a 74%, 29% increase in risk, respectively. The combined diagnosis of diabetes and hypertension was associated with a 2.6 fold increase in all-cause mortality. In comparison to meeting PA guidelines, lower PA levels had a significant, 20% increase in risk of all-cause mortality. When all three risk factors are modeled together, the risk associated with being obese becomes non-significant, while the significance, strength, and direction of the association of comorbidities and physical activity with all-cause mortality remain constant.

Conclusions: These data suggest that obesity is not a risk factor for breast cancer mortality, or overall mortality, when controlled for other lifestyle risk factors such as physical activity and comorbidities. If these findings are validated, it indicates that patient recommendations and standard of care for breast cancer survivors should focus on measures to increase physical activity and treat comorbidities.

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Walking May Be A Viable Alternative To Recreational Physical Activity For Promoting Physical And Mental Wellbeing Among Older Women

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Background: Physical activity (PA) is a well-established protective behavior consistently associated with reduced risk of CVD morbidity and mortality. In older populations, moderate or vigorous activities (MVPA) are less common perhaps because of physical limitations; walking has been shown to have similar associations as MVPA with CVD outcomes. MVPA has also been associated with positive physical and mental wellbeing. Little is known, however, about how walking activities influence quality of life measures including indicators of mental wellness. We hypothesize that greater MVPA and walking will be associated with greater odds for both physical and mental wellbeing.

Methods: We evaluated the cross-sectional relationships of MVPA and walking with physical and mental wellbeing among 2,402 San Diego participants in the Women’s Health Initiative using multinomial logistic regression. MVPA was the sum of moderate and vigorous activity in hours/week, each calculated as ((number of days/week in activity) * (number of minutes [min]/day in activity)) / 60. Walking was defined as ((number of days walking > 10 min without stopping/week) * (number of min/day in activity)) / 60. Responses for the number of days/week in an activity included rarely/never, once, 2-3, 4-6 or 7+. Responses for number of min/day in an activity included <20, 20-39, 40-59 or 60+. Measures of physical and mental components of SF-36 were assessed as tertiles, and odds ratios using the lower tertile as reference were estimated. Covariates included age, ethnicity, education, smoking status, and comorbidity (presence of diabetes, arthritis, myocardial infarction, cancer or hypertension).

Results: Walking was more prevalent than MVPA in this cohort (86% vs. 57%). There was a 14% (CI=1.07, 1.21) greater likelihood of scoring in the middle vs lower tertile of physical wellbeing per hour increase in MVPA. This nearly doubled to 29% (CI=1.21, 1.36) when comparing upper to lower tertile (trend p <0.001). There was a 20% (CI=1.12, 1.27) greater likelihood of scoring in the middle vs lower tertile of physical wellbeing per hour increase in walking, an estimate which also increased when comparing upper to lower tertile (OR=1.36, CI=1.28, 1.45, trend p <0.001). Per hour increase in MVPA was also associated with 8% (CI=1.02, 1.13) greater mental wellbeing comparing middle to lower tertile. The estimate was weaker and non-significant comparing upper to lower tertile (trend p=0.122). Per hour increase in walking was also associated with 11% (CI=1.05, 1.17) greater mental wellbeing comparing middle to lower tertile. Although the estimate was weaker comparing upper to lower tertile, significance remained (trend p=0.018).

Conclusions: For an older population of women where physical limitations may preclude moderate or vigorous exercise, walking activities may provide an alternate means to improve both physical and mental wellbeing.

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Leading Causes of Unintentional Injuries in Adolescence

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Background: Unintentional injuries were the fifth leading cause of death within the United States in 2012. Furthermore, injuries are the leading cause of all deaths among people aged 1-44 years. Mortality data represents just a small fraction of the impact of injury on the population. Nonfatal injuries can have serious and lifelong ramifications. Injuries at a young age are especially likely to cause a dramatic decrease in quality-adjusted life years (QALY), and a dramatic decrease in lost productivity. The purpose of this study was to identify the most common causes of nonfatal unintentional injuries among adolescents.

Methods: Data on hospital admission and ED discharge for San Diego County residents under 14 years old was collected using Epicenter. This data was analyzed to find the most frequent causes of unintentional injury for children under 14 and the rates of each cause.

Results: In 2012, the rate of unintentional injury hospitalization was 173.3 per 100,000 and the rate of ED discharge was 6702.5 per 100,000. The top causes of both hospitalization and ED discharge due to unintentional injury varied between ages.

However, the top cause of unintentional injuries was fall across all age groups. The primary causes of injury vary more dramatically for children who were hospitalized than for children who were discharged from the ED.

Conclusions: Although there are some similarities between causes of unintentional injuries, there exist significant differences across age groups. By increasing the attention to specific age and causes of unintentional injuries, organizations can better prevent injuries.

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The Association of Lifetime Nonmedical Use of Prescription Pain Killers and Heroin Use

Charles Robertson San Diego State University

Background: Heroin and nonmedical pain reliever (NMPR) use are both major public health concerns within the United States. Although the rate of NMPR-related overdose is decreasing, the rate of heroin-related overdose is increasing. There are concerns that this increase is due to individuals progressing from NMPR to heroin.

Methods: Data was obtained through a nationwide survey on drug use. The sample was representative of the United States in regards to age, gender, and race/ethnicity. Correlations between heroin and NMPR were found using both bivariate analysis and multivariable analysis, after adjusting for previous drug use and demographic characteristics.

Results: Of the 55,160 subjects included in the analysis, 840 (1.5%) reported having used heroin at least once in their life. Out of the entire sample, 4664 (8.5%) reported previous NMPR use. The odds of heroin use were 3.5 times higher for those who had used NMPR, than those who had not used NMPR (95% CI=2.9-4.4)

Conclusions: The results indicate that the current increase of heroin may be due, at least in part due to individuals progressing from NMPR to heroin.

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The Positive Predictive Value of Self-Reported Varicella Zoster Virus Infection Among Immigrant Detainees in the United States

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2) Centers for Disease Control and Prevention, Division of Global Migration and Quarantine
3) Immigration and Customs Enforcement (ICE) Health Service Corps

Background: Varicella (chickenpox) is an infection with world-wide distribution that is routinely contracted during childhood, causing at least 140 million cases annually. Although most varicella infections are benign, 4.2 million people develop severe complications and adults can have up to 25.2 times greater odds of dying from varicella than children. Transmission readily occurs between close contacts through infection of the respiratory tract, especially in congregate living situations. Under these conditions a single varicella case can lead to cohorting and contact investigations, which consume significant human resources, as well as having a substantial financial and procedural impact on daily operations at correctional facilities.

Methods: Self-reported oral history of infection was compared to IgG test results in 606 adult ICE detainees. The positive predictive value (PPV) of oral history from 400 participants residing in a single detention facility who volunteered for a prospective surveillance project was compared to the PPV of 206 detainees who were exposed to an incident case at 4 separate detention facilities throughout the United States. The data for post-exposure detainees was retrospectively abstracted from infection control and medical records.

Results: The PPV of prospective survey (PS) participants was 95% (92, 98) which was not significantly different than the varicella exposure participants’ (EP) PPV of 93% (88, 99). The negative predictive values (NPV) of 21% (14, 27) and 18% (11, 25) likewise were not significantly different. Detainees who reported a prior history of infection had 75 times greater odds of being correct than those who denied previous varicella infection (p<0.0001). The overall seroprevalence of varicella in the detainee sample was 87.5%.

Conclusions: The varicella herd immunity among the detainees we studied is sufficiently low enough to support outbreaks at these detention facilities. The high PPV could allow for historical report of prior varicella to obviate serologic testing and cohorting for those individuals. We would recommend continuing to test those who report an unsure or negative history given the low NPV. Utilizing a positive history to assist with testing and cohorting decisions could save resources as well as expedite legal proceedings for those individuals in many cases.

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Topiramate, Lamotrigine, and Gabapentin Exposure During Pregnancy

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Background: Although the link between antiepileptic drug (AED) use during pregnancy and the risk of fetal malformations has been well established over the past 40 years, AEDs are taken during one out of every 250 pregnancies. Topiramate, lamotrigine, and gabapentin are newer generation antiepileptic drugs approved for distribution in the mid-1990s. Primarily prescribed for seizure control, their usage has expanded to include indications such as migraines and bipolar disorders. Previous studies have associated topiramate use with low birth weight and oral clefts. These AEDs must continue to be studied to more completely assess their risks.

Methods: Between March 1998 and October 2014, through MotherToBaby California, 44 women with prenatal exposure to topiramate, 67 with prenatal exposure to lamotrigine, and 53 with prenatal exposure to gabapentin, for any length of time at any dose and for any indication, were prospectively enrolled and pregnancy outcomes were collected. Outcomes were compared to 361 pregnancies of women unexposed to any anticonvulsant, enrolled during the same years, and who did not have the underlying conditions of the exposed cohort. Due to small numbers, pregnancies exposed to any of the three anticonvulsants were grouped for the primary analyses. Logistic regression was used to evaluate the following outcomes: preterm birth (<37 weeks of gestation); low birth weight (≤2,500 g); small for gestational age on at least two of the three growth measurements of weight, length or head circumference at birth (≤10th centile for sex and gestational age at delivery), and postnatal growth impairment (≤10th centile for sex and adjusted chronological age for any one or more of the three growth measurements obtained between three days and 24 months of age). Covariates were included in the multivariate analyses if they changed the odds ratio of the main exposure of interest by ≥10%.

Results: There were 467 (91.03%) live births with complete information. After controlling for confounders, exposure to topiramate, lamotrigine, and/or gabapentin was not significantly associated with small for gestational age infants (adjusted odds ratio [aOR] 2.026, 95% Confidence Interval [CI] 0.682, 6.014, p=0.2036); low birth weight (aOR 1.862, 95% CI 0.563, 6.153, p=0.3081); preterm delivery (aOR 1.214, 95% CI 0.501, 2.946, p=0.6675); or growth restricted infants before two years of age (aOR 2.363, 95% CI 0.927, 6.024, p=0.0718) compared to those who were unexposed. Although numbers were small, topiramate exposure alone was associated with a borderline increased risk for low birth weight (aOR 5.061, 95% CI 0.957, 26.761, p=0.0563).

Conclusions: The lack of significant findings in the combined topiramate, lamotrigine, and gabapentin dataset for the selected outcomes could be due to the small sample size. Reduced birth weight has been previously reported with topiramate exposure during pregnancy (Hernández-Díaz et al., 2014).

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International Evaluation of Screening Questions to Identify Persons with Drug-Resistant Tuberculosis

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Background: Although drug-resistant forms of M. tuberculosis exert heavy disease burden worldwide, especially in developing countries, drug resistant tuberculosis (DR-TB) makes up a minority of all TB cases. To efficiently develop rapid, low-cost drug susceptibility tests, selecting patients at increased risk for DR-TB reduces the cost by testing fewer drug-susceptible TB patients. Therefore, simple screening tools are needed to identify TB cases most likely to be drug-resistant.

Methods: TB patients presenting at collaborating clinics and hospitals in India, Moldova & South Africa who were suspected, but not diagnosed with DR-TB were prospectively screened and enrolled into a study comparing four assays for detecting extensively DR-TB (XDR-TB). Prior to enrollment, patients were administered a five-question screener. Patients were eligible if they had TB for a second time after completing treatment, close contact with known drug-resistant case, been diagnosed with multi-drug resistant TB (MDR-TB), or failed standard or MDR-TB treatment. Demographic, clinical and lifestyle data were gathered through patient interview and chart review. Drug resistance was ascertained by standardized liquid-culture methods. Chi-square and logistic regression were used to assess the ability of the screening questions in detecting DR-TB. Area-under-the-curve analysis was used to inform which combinations of questions worked well in each country.

Results: Of 878 TB patients included in the analysis, 52.9%, 25.4% and 21.7% came from India, Moldova and South Africa, respectively. Median age was 33 years (range: 8-79); 64.0% were male. Overall, 41.6%, 49.7%, and 8.7% had pan-susceptible/mono-resistant TB, MDR-TB, and XDR-TB, respectively. History of TB treatment (OR 1.46, CI 1.05-2.02), diagnosis with MDR-TB (OR 4.13, CI 2.76-6.16), failure of standard treatment (OR 5.47, CI 3.95-7.58) and failure of MDR-TB treatment (OR 3.27, CI 2.16-4.95) were individually associated with DR-TB. The number of affirmative answers was also associated with DR-TB. For each additional affirmative answer, the odds of DR-TB increased by a factor of 1.26 (CI 1.06-1.49). The ability of some questions in identifying DR-TB was modified by country site (contact, failure of standard treatment and diagnosis with MDR-TB). A different set of screening questions was recommended for each country.

Conclusions: Screenings questions on history of TB treatment, diagnosis with MDR-TB, failure of standard treatment and failure of MDR-TB treatment served well in identifying TB patients with drug resistance, albeit not uniformly among countries. The choice of screening questions to employ should be altered in each country and be further tested for clinical applicability.

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The Association of Depressive Symptoms with Coronary Artery Calcification: The Rancho Bernardo Study

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Background: Studies linking depressive symptoms and coronary artery calcification (CAC), a measure of subclinical atherosclerosis, have yielded mixed results, but no longitudinal studies included men aged 60 and older. The purpose of this study was to examine the association of depressive symptoms with CAC and CAC progression in older community-dwelling men and women.

Methods: Participants were 417 men and women (mean age=67±7) with no history of heart disease who attended a 1997-99 research clinic visit when depressive symptoms were assessed using the Beck Depression Inventory (BDI). CAC was assessed by electron beam computed tomography in 2000-02 and again in 2005-2007.

Results. Median BDI was 3, range=0-37; in 2000-02, 33% of adults had minimal CAC, 21% mild, 22% moderate and 24% severe. Analyses were conducted for men and women separately after interaction tests suggested effect modification. Ordinal logistic regression models examining the odds of greater compared to less CAC severity by BDI quartiles showed there was a sex-specific nonlinear, U-shaped association; men in the first and fourth BDI quartiles had 2.6 and 4.7 times higher odds of greater CAC severity than persons in the second quartile (95%CI:1.2-5.5 and 95%CI:1.8-12.1, respectively) after adjusting for CHD risk factors. Women in the first BDI quartile had similar odds of increasing CAC severity (OR=2.4, 95%CI:1.1-5.4) compared to those in the second BDI quartile, but no significant differences among women in the second and fourth BDI quartiles were observed (OR=0.99, 95%CI: 0.4-2.4). Multivariable logistic regression models did not identify increased odds of CAC progression among older men or women with higher BDI scores.

Conclusions: Results suggest that depressive symptoms have a gender-specific, non-linear relation with CAC severity; men with the lowest and highest depressive symptoms have the most severe CAC while women with the lowest depressive symptoms have the most severe CAC. Further investigations using larger cohorts of elderly men and women are warranted.

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Using GIS to Map the Health Impacts of an Extreme Weather Event in an Urban Pacific Island Environment

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Background: Extreme weather events are common and increasing in intensity in the Southwestern Pacific Region. Over the past 5 years the region has experienced over 24 cyclones and 30 tropical depressions. The health impacts these storms have upon the nearly 2 million people living in the Southwestern Pacific Region include acute injuries as well as exacerbations of endemic infectious diseases, shortages of food along with post disaster unsanitary conditions. Defining vulnerabilities of the health system, the people and how they live in an urban Pacific Island environment can help policymakers adapt development in order to reduce morbidity and mortality in the future.

Methods: ArcGIS 10.3 was used to create baseline vulnerability maps using Solomon Islands Census Data from 2009, the Ministry of Lands and Maps data, as well as direct GPS data collection. Data on the acute and sub-acute health impacts that occurred during and after the April 2014 floods in Honiara was obtained from WHO, the National Referral Hospital, the Ministry of Health and Medical services and the National Disaster Management Office. These data were used both temporally as well as spatially to map the deaths, acute injuries, and infectious disease outbreaks that followed the floods.

Results: Almost half (48%) the health facilities (clinics as well as hospitals) in Honiara and 58% of all health facilities on Guadalcanal Island are located within 400 meters of a river or the coastline. Over 40% of the population on Guadalcanal lives within 500 meters of coastline and rivers. All acute deaths during the April 2014 floods occurred in squatters villages located along the main river, the Mataniko River. 90% of fatalities were in children less than 8 years of age and women. 75% of homes adjacent to the river were of poor quality construction, had a mix of open defecation, pit latrines and toilet sanitation. Water source was predominantly common spigot water. Of the infectious disease outbreaks tracked by WHO EWAN, only diarrhea was found to be significantly elevated over pre-flood data.

Conclusions:
Honiara in the Solomon Islands is a highly vulnerable urban Pacific Island environment. Using GIS tools, evaluation of mortality and morbidity data from the April 2014 flood disaster provides an understanding of how the floods impact the health system and the most vulnerable populations in the city. Climate mediated extreme weather events are common in the southwestern Pacific Region and they are predicted to increase in intensity over the next 20 years. Adaptation development must take into account the vulnerabilities of health infrastructure and populations in urban Pacific Island environment in order to decrease disaster related impacts on morbidity and mortality as well as commerce and economic development.

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Impact of Palliative Care on Aggressiveness of End-of-Life Care Among Patients with Advanced Cancer

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Background: Palliative care's role in end-of-life cancer treatment has expanded, but its impact on the aggressiveness of care near death has not been characterized at a population-based level in the United States.

Methods: This study examined the effects of consultation with a palliative care provider on the aggressiveness of care at the end of life using a matched retrospective cohort of 6,112 patients with metastatic prostate, breast, lung, or colorectal cancer from the Surveillance, Epidemiology, and End Results (SEER)-Medicare linked database. We compared healthcare utilization in the 30 days before exposure to palliative care and again after exposure among patients who had received palliative care and those who had not.

Results: The risk of receiving at least one indicator of aggressive care in the 30 days before palliative care consultation was 1.47 times higher (95% CI 1.41–1.52) among the patients who would receive palliative care relative to those who would not. After exposure to palliative care, the risk of any aggressive care marker among exposed patients was 0.63 times (95% CI 0.59–0.68) compared to the unexposed.

Conclusions: Palliative care is associated with significantly less aggressive end-of-life care in elderly patients with advanced cancer. Referral to palliative care should happen more often and earlier in the course of disease to better comply with current treatment guidelines.

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Kyphosis and Sleep Characteristics in Older Persons: The Rancho Bernardo Study

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Background: Hyperkyphosis is a forward curvature of the thoracic spine that is associated with multiple adverse health problems. This cross-sectional study examined the association between hyperkyphosis and sleep characteristics.

Methods: Participants were 468 white, community-dwelling individuals (women=255; men=213) from the Rancho Bernardo cohort who had kyphosis assessed at a 2007-09 follow-up research clinic and sleep quality assessed by mailed survey in 2010. Kyphosis was assessed by using a flexicurve ruler. Sleep measures were obtained using the Pittsburgh Sleep Quality Index (PSQI), scored 0 – 18, with >5 defined as poor sleep quality.

Results: Women were a mean age of 73.3±8.8 years; men 74.2±8.1 years. Mean flexicurve measures were 12.6±3.2 cm for women and 12.1±2.6 cm for men. Participants with poor sleep quality, tended to be female (p<0.01), shorter (p=0.02), married (p=0.02), with lower self-reported very good or excellent health (p<0.01), higher calcium supplement use (p=0.02), less exercise (p=0.04), and more arthritis and depression (p<0.01). After adjusting for age, no significant associations were seen between kyphosis and sleep quality, whether defined as PSQI >5 or as a continuous measure. Multivariate logistic regression indicated that in women only, with each unit increase in flexicurve kyphosis, the odds of sleeping ≤7 hours increased by 11% in the age-adjusted model (95% CI=1.02, 1.26) and by 13% (95% CI = 1.03, 1.23) in the multivariate adjusted model.

Conclusions: In women only, those with worse flexicurve kyphosis slept fewer hours (< 7 hours) than those with less kyphosis, but we found no indication of overall worse sleep quality after adjustment for age. Findings from this study should not be considered definitive but developmental.

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The Association of Kidney Function with Exceptional Longevity

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Background: This longitudinal study examines the association of kidney function with healthy aging versus survival with disability or death before age 85.

Methods: Data came from 7,187 women enrolled in the Women’s Health Initiative study between October 1993 through December 1998 who had the potential to reach age 85 before September 2013. The Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation was used to calculate estimated glomerular filtration rate (eGFR) from serum creatinine samples assessed at initial visit. Outcome was survival to 85 without disability, survival to 85 with physical disability, or death before 85. Physical disability was determined by survey within one year of the 85th birthday and included limited mobility and/or limitations in activities of daily living.

Results: At baseline, average age was 71.7±3.2; eGFR was >90 ml/min/1.73m² in 22.7%, 60-89 ml/min/1.73m² in 66.5%, 45-59 ml/min/1.73m² in 8.7% and <45 ml/min/1.73m² in 2.0%. Overall, 2225 participants died before 85; among 4,953 survivors, 3,155 reported no physical disability at age 85. Mean follow-up was 15 years. Compared to women with the poorest kidney function (eGFR <45 ml/min/1.73m²), women with eGFR ≥60 ml/min/1.73m² had 3.38 times (95% CI 2.09 - 5.46), and women with eGFR 45-59 ml/min/1.73m² had 2.55 times (95% CI 2.15 - 3.03) higher probability of healthy aging without disability relative to death. Better kidney function was similarly associated with survival to age 85 with disability relative to those who died before 85, although the odds ratios were weaker.

Conclusions: Better kidney function is associated with healthy survival to age 85 without physical disability, as compared to death before age 85.
Cloud Cover-Adjusted Ultraviolet B Irradiance and Pancreatic Cancer Incidence in 172 Countries

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Background: Controversy exists regarding whether vitamin D deficiency could influence etiology of pancreatic cancer. Several cohort studies have found that high serum 25-hydroxyvitamin D [25(OH)D] concentrations are associated with low risk of pancreatic cancer, while others have not. Our hypothesis is that low ultraviolet B irradiance is associated with high incidence of pancreatic cancer.

Methods: Country-level age-standardized pancreatic cancer incidence rates were obtained for males and females from the International Agency for Research on Cancer's 2008 GLOBCAN database. The association between cloud-adjusted UVB irradiance and age-standardized incidence rates of pancreatic cancer was analyzed using linear regression. These analyses controlled for several country-level covariates: animal protein consumption, diabetes prevalence, obesity prevalence, per capita alcohol consumption, sex-specific smoking prevalence, and per capita health expenditures.

Results: Overall, the lower the cloud-adjusted UVB irradiance, the higher the incidence rate of pancreatic cancer. Residents of countries with low UVB irradiance had approximately 6 times the incidence rates as those in countries with high UVB irradiance (p < 0.0001 for males and p < 0.0001 for females). This association persisted after adjustment for multiple risk factors of pancreatic cancer (p = 0.0182 for males and p = 0.0029 for females).

Conclusions: There was an inverse association of cloud-adjusted UVB irradiance with incidence of pancreatic cancer that persisted after adjustment. This result is consistent with an inverse association of overall vitamin D deficiency in countries with lower UVB irradiance with risk of pancreatic cancer. Further research on the role of 25(OH)D in reduction of pancreatic cancer in individuals would be desirable to expand the limited avenues available for prevention of this highly fatal disease.

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Association Between Dietary Sodium and Cognitive Function in Older Adults

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Background: Dietary sodium intake has been linked to cardiovascular health, but its association with cognitive function is poorly understood. This cross-sectional study examines the association of dietary sodium intake with cognitive function in community-dwelling older adults.

Methods: Participants were 373 men and 552 women, aged 50-95 years (mean 74.1±9.2) from the Rancho Bernardo Cohort, who attended a research visit in 1992-96. Daily sodium intake was assessed using the Willett Food Frequency Questionnaire and adjusted for overall caloric intake. Cognitive function was assessed with Trails B, Mini-Mental State Exam (MMSE), and Verbal Fluency Test (VFT). Medical, clinical and demographic measures were also obtained.

Results: Sodium intake did not differ by age or sex. Higher sodium intake was associated with better performance on Trails B (p=0.04) and MMSE (p=0.005) after controlling for age, sex, and education. Associations did not differ by sex, but there was a significant interaction by age for the Trails B: older (≥80 years) but not younger adults showed worse performance with lower sodium intake (p=.02). Associations remained significant after additional adjustment for smoking, alcohol intake, exercise, body weight, cardiovascular risk factors, kidney function and diuretic medication use. Increased daily sodium intake decreased odds of cognitive impairment on the MMSE (score < 26; OR 0.86, 95% CI 0.76, 0.97).

Conclusions: Lower sodium intake was associated with worse cognitive function in older adults. Although numerous potential confounders were assessed, residual confounding cannot be ruled out. Further research is needed to determine whether low dietary sodium intake adversely affects cognitive function in older adults.

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Occupational and Sexual Risk Correlates of Amphetamine Use Among Long-Haul Truck Drivers at Two Transnational Corridors of Mexico

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Background: Along transport route in North and Central America there is growing evidence that high risk sexual and drug using behaviors are prevalent among truck drivers. Truck drivers’ high mobility, coupled with their interaction with high-risk subgroups such as men who have sex with men (MSM) and sex workers (SW) can create a bridge between the concentrated HIV epidemic in these countries and the wider population. Amphetamine use is high in truckers generally, however studies have conflicting findings on how it may impact their sexual risk behaviors. This analysis aims to identify correlates of amphetamine use among long-haul truck drivers at the U.S./Mexico and Mexico/Guatemala borders. We hypothesized that recent amphetamine use would be associated with longer routes and higher-risk sexual behaviors.

Methods: Two hundred male truck drivers in Nuevo Laredo (Mexico/U.S. border; n=100) and Ciudad Hidalgo (Mexico/Guatemala border; n=100) were recruited through modified venue-based sampling (08/09 – 01/10). Interviewer-administered questionnaires assessed demographics, drug/sex risk behaviors, health service use, HIV knowledge, and working conditions. Bivariate and multivariable models were fit using log-binomial regression.

Results: The median age was 35 (IQR:29-41), the median number of years as a truck driver was 12 (IQR:7-18) and the median number of hours spent driving was 15/day (IQR:12-20) 58% lived in Mexico and 48% reported crossing international borders for work. 42% reported using amphetamines (past six months) and 27% were frequent (weekly) users. Those using amphetamines on a weekly basis were significantly (at p<0.05) more likely to live in Mexico (prevalence ratio: [PR]=19.9), practice unsafe sex (unprotected sex with casual partners) (PR=1.9), have had sex with a male SW in the past 6 months (PR=2.2), drive longer hours (PR=1.05 per hour), but less likely to cross an international border for work (PR=0.4). In the multivariable model, frequent amphetamine use was correlated with unsafe sex (APR=1.6; 95% CI:1.04-2.5), driving larger trucks (APR=5.2; 95% CI:1.3-20.2) and living in Mexico vs. Central America (APR=16.8; 95% CI:2.4-117.4).

Conclusions: Mexican and Central American truckers in this study were found to have substantial rates of amphetamine use that was associated with unsafe sexual practices. More research is needed to understand the motivations for and the consequences of amphetamine use among truck drivers so that context-appropriate recommendations can be made.

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Behavior Treatment for Young Children with Mild to Moderate Concerns

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Background:
An estimated 13-20 percent of children living in the United States experience a mental disorder in a given year. Emotional difficulties that emerge early in life can become more serious disorders over time if young children are not provided appropriate help. Childhood mental disorders can be treated and managed, but services are not routinely covered to identify and treat young children with mild to moderate behavioral concerns. The purpose of this evaluation was to examine the assessment results based on an innovative behavioral treatment for young children (birth through five years of age) who demonstrated mild to moderate behavioral concerns.

Methods:
The First 5 Commission of San Diego’s Healthy Developmental Service initiative helps screen, assess, identify, and treat young children with mild to moderate developmental and/or behavioral concerns. Behavioral health level 3 services are for families with young children that have behavioral concerns and that would benefit from individual or group clinical therapy performed by a licensed-eligible, master’s level therapist. We analyzed data from the 2013-2014 fiscal year from parents/caregivers who completed the pre-treatment and post-treatment Child Behavior Checklist (CBCL) and Parent Stress Index-4 Short Form (PSI). Paired t-tests were conducted to see the mean differences in the pre-treatment and post-treatment domains: CBCL: internalizing problems, externalizing problems, and total problems; PSI: parental distress, parent-child dysfunctional interaction, difficult child, and total stress.

Results:
Of the 164 children whose parents/caregiver completed the pre-treatment and post-treatment CBCL assessment, 16 were classified as having borderline and 54 were classified as having clinical total problems scores before treatment. At post-treatment, of the 16 classified at borderline, 15 were in the normal range and 1 remained borderline. Of the 54 in the clinical range at pre-treatment, 29 were in the normal range, 6 were in the borderline range, and 20 remained clinical at post-treatment. In the CBCL, there was a paired sample mean difference of 6.0 in internalizing problems (t-statistic 7.0, p<0.01), 7.4 in externalizing problems (t-statistic 9.3, p<0.01), and 6.5 in total problems (t-statistic 8.1, p<0.01). Of the 166 children whose parent/caregiver completed the pre-treatment and post-treatment PSI assessments, 14 were categorized as having a total stress score that was high and 22 were categorized as clinically significant at pre-treatment. Of those 36 children, at post-treatment, five remained clinically significant and the remainder were in the normal range. In the PSI, there was a paired sample mean difference of 5.1 in parental distress (t-statistic 6.3, p<0.01), 4.1 in parent-child dysfunctional interaction (t-statistic 4.6, p<0.01), 5.4 in difficult child (t-statistic 6.3, p<0.01), and 8.2 in total stress (t-statistic 5.5, p<0.01).

Conclusions:
Based on the CBCL and PSI pre-treatment and post-treatment assessments, parent/caregivers are reporting improvements in their child’s behavior and reduced parent/caregiver stress after receiving behavioral health level three services. The data was obtained from a service delivery model and limitations include lack of a control group and sample bias (these analyses only included children who completed behavioral health level three services and whose parents/caregivers completed the pre-treatment and post-treatment assessments). Future efforts include examining differences in outcomes based on treatment models and/or family characteristics.

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Science Olympiad Disease Detectives Event

In an effort to promote interest in the growing field of epidemiology, the high school winners of the Disease Detectives event of the Science Olympiad from Southern California will be honored at this year’s Epidemiology Research Exchange Conference.

Science Olympiad competitions are like academic track meets, consisting of a series of 23 team events in each division (Division B is middle school; Division C is high school). Each year, a portion of the events are rotated to reflect the ever-changing nature of genetics, earth science, chemistry, anatomy, physics, geology, mechanical engineering and technology. By combining events from all disciplines, Science Olympiad encourages a wide cross-section of students to get involved. Emphasis is placed on active, hands-on group participation. Through Science Olympiad, students, teachers, parents, principals and business leaders bond together and work toward a shared goal.

Disease Detectives provides students an opportunity to hone their skills as science sleuths by learning the scientific method employed by epidemiologists—or disease detectives. This event requires students to apply principles of epidemiology to a published report of a real-life health situation or problem. The event is intended for teams of up to two people. Approximate time to completion is 50 minutes.

The competition requires students to use a systematic, scientific approach to investigating epidemics (e.g., finding and counting cases, comparative reasoning, hypothesis generation, hypothesis testing). Related task and knowledge areas of epidemiology and other biomedical sciences include:

- basic definitions of epidemiological terms (e.g., epidemiology, epidemic, outbreak, incidence, rates, public health surveillance);
- categories of disease-causing agents (e.g., bacteria, toxins, mechanical forces, behavior);
- modes of disease spread (e.g., person-to-person, food borne, airborne, vector borne);
- the triads of elements of analysis of epidemiological data collected to investigate outbreaks and other problems (e.g., time/place/person, and agent/host/environment); and
- the basis for taking action to control and prevent the spread of disease.

For more information about Science Olympiad and the Disease Detectives event, please visit http://soinc.org.
Abram S. Benenson, MD
1914-2003
The Benenson Distinguished Lecture series honors Abram Salmon Benenson, MD. Bud, as he was known since childhood, spent his life dedicated to two passions - his family and his medical career.

After graduating from Cornell Medical School in 1937 and completion of an internship, Bud worked in various settings fighting such disparate communicable diseases as smallpox, cholera, and AIDS. From 1970 to 1995, Bud was the editor of six editions of Control of Communicable Diseases in Man (CCDM), his "little handbook" that has been published by the American Public Health Association since 1915. He was most proud of the pirated editions of the book that found their way back to him - written in Chinese or Arabic; they showed him that the world valued his contribution and desperately needed the information he worked so diligently to provide.

In 1982, Dr. Benenson joined the faculty of the San Diego State University Graduate School of Public Health as Head, Division of Epidemiology and Biostatistics, a position he held until 1992, at which time he became Professor Emeritus and maintained a full schedule, including advising students with their theses. He also played a critical role in establishing the Public Health doctoral program with concentration in Epidemiology, offered jointly by San Diego State University and the University of California, San Diego.

Dr. Benenson received many awards in his lifetime, including the Legion of Merit; the Meritorious Civilian Award; the John Snow Award and the Award for Excellence, both from the American Public Health Association; and the K.F. Meyer Gold-Headed Cane Award from the American Veterinary Epidemiology Society. Bud was pleased with the awards he received; they validated his hard work and allowed his friends and family to share his honors.

He was the author or co-author of over 140 scholarly papers in the fields of preventive medicine, epidemiology, and communicable diseases. His early work focused on the diarrheal diseases and smallpox, while his later research dealt more with AIDS. Four children and seven grandchildren, and a great-grandchild survive Bud and his wife, Regina van Aalten Benenson: twins Mike and Tom, James, and Sonia, and their children.

The first Benenson lecture was delivered in 2007 in conjunction with the 25th anniversary of the SDSU GSPH. Subsequent lectures have been connected to the San Diego Epi Exchange. The Benenson Distinguished Lecture series highlights those areas most important to Bud - preventive medicine, military medicine, and "shoe-leather" epidemiology.