

24th Annual KU Research Forum Abstract Submissions

Poster or Presentation ID	Project Title	First Author Name
1	Development and Assessment of Online Public Health Training: Starting with a regional approach	Suzanne Hawley, PhD
2	Transgender Health Resident Education : Assessing Short Term knowledge and Attitude Changes	Sarah Houssayni, MD
3	Using Facilitated Discussion, Case Review and Self Study to Teach Residents Appropriate Boundaries with Medical Students	Crystal Nevins, MS
4	Differences in Practice Characteristics of Graduates of the KUSM-Wichita Family Medicine Residency Programs Practicing in Kansas	Rick Kellerman, MD
5	Differences in Practice Characteristics of Male and Female Graduates of the KUSM-Wichita Family Medicine Residency Programs	Rick Kellerman, MD
6	Strengths-Based Approach for Reducing Stress in First Year Medical Students	Jocelyn Mattoon, MS
7	Baby Talk: Pilot Testing a Community Collaborative Prenatal Education Program	Molly Brown, MPH
8	Pioneer Baby - Perceptions of Periconceptional Weight among a Low-income Rural Pregnant Population in Kansas	Lisette Jacobson, PhD
9	Maternal Perceptions regarding Interpregnancy Interval in Sedgwick County	Danielle Bradshaw, MS-4
10	Patient-Involved Structured Debriefing after Cesareans Improve Labor and Delivery Team Perceptions of Communication and Safety	Taylor Bertschy, DO
11	Administration of IV Labetalol Protocol for Treatment of Hypertensive Crises on the Labor and Delivery Unit at Wesley Medical Center	Lauren O'Brien, MD
12	Bigger Not Always Better: Small Bore Pleural Catheter Insertion For Iatrogenic Pneumothorax After Cardiac Implantable Electronic Device Placement, a Retrospective Study.	Thomas Grillot, M.D.
13	Optimizing fluid therapy for septic shock	Arash Sattarin, BS
14	Comparison of Moped and Scooter Crashes in Rural and Urban Areas in a Mostly Rural State	Michelle Nentwig, MS4
15	Folic Acid Awareness and Use in Nonpregnant Women of Childbearing Age in Sedgwick County, Kansas	Caroline Reusser, MS-4
16	Seasonal Analysis of 10 Risk-Based Pollutants in Wastewater Biosolid Samples	Amanda Prosser,
17	Correlation Between Dissolved Oxygen and Heavy Metal Concentrations in the Big Arkansas River	Jill Sanders,
18	A rapid review of measuring fluid responsiveness to guide treatment of sepsis and septic shock	Patrick Seitz, DO
19	Neuroimaging practices in the very low birth weight neonates: a retrospective study	Arjun Mahendran, MD
20	Clinically Significant Cardiopulmonary Events and the effect of documentation standardization on Apnea of Prematurity management	Matthew Powell, MD
21	Analyzing the Relationship between Chronic Disease Self-Management Programs in Worksites and the Adoption of Policies Related to Physical Activity and Access to Healthy Foods	Maggie Weixelman, CHES
22	Prevalence and outcomes of Incomplete Kawasaki disease versus complete or classic Kawasaki disease.	Grace Nehme, MD
23	Verbal fluency in parkinsonism with and without dopaminergic deficiency on [123I]-FP-CIT SPECT imaging	Kathryn Wyman-Chick, Psy.D.
24	Gas Chromatography: An Analysis of Salmon Oil	Maricar Harris, BS
25	The Health Impact of the Microbiome through the Gut-Brain Axis	David Trombold, MS
26	Biological Model Study using Electromagnetic Screening Techniques for Peripheral Artery Disease	Jerad Rogers,
27	Intra-Operative Experience using Magnetic Resonance Imaging (MRI) Based Patient Specific Cutting Guides during Total Knee Arthroplasty	Ryan Albrecht, MD
28	Intrusion Characteristics of High Viscosity Bone Cements for the Tibial Component of a Total Knee Arthroplasty using Negative Pressure Intrusion Cementing Technique	Nam Dinh, MD
29	Prenatal drug exposure is associated with poor planning and strategy formation in children and adolescents	Lindsey McDaniel, MS-4
30	Exploring patient care satisfaction in adult psychiatric units	Susanna Ciccolari Micaldi, MD
31	Comparing Sodium Content of Free Meals to Dietary Approaches to Stop Hypertension (DASH) Diet Guidelines	Claire Elisabeth Thomas, MPA
32	Google® It: Comparison of Internet Information about HPV Vaccines	Martha Riese, MD
33	Provider reported understanding of adolescent vaccinations in their practice	Serina Padilla, MD
34	Implementation of nutrition best practices in kansas worksites	Dan Clifford, MA
35	The Provision of Chronic Disease Self-Management Programs and Worksite Employee Characteristics	Sugantha Yuvaraj, MPH
36	Employers Offering Group Health Plans Should Incentivize ♂Active Commuting♂	Wesley Goodrich, BA

24th Annual KU Research Forum Abstract Submissions

Poster or Presentation ID	Project Title	First Author Name
37	Nutritional Food Labeling Programs in Workplaces within Kansas Food Deserts	Meriah Moore, MS-4
38	Presence of a breastfeeding policy and availability of a breastfeeding room in workplaces in Kansas	Emily Manlove, MD
39	Role of the WIC Breastfeeding Peer Counselor in Kansas	Lisette Jacobson, PhD
40	Assessing Medical Knowledge: Innovating the Curriculum in an Obstetrics and Gynecology Resident Program	Melinda Bron, MD
41	Group Evaluations of Individual Faculty Hospitalists	Matthew Kielt, MD
42	Using Standardized Patient Technology as a Tool for Promoting Residents to Indirect Supervision	Tara Richardson, MD
43	Observations from Longitudinal Residency Match Data at KU School of Medicine	K. James Kallail, PhD
44	How Long Should Family Medicine Residency Last?	Rick Kellerman, MD
45	Training Medical Student to Respond to Patients Requesting Physician-Assisted Death	Gerard Brungardt, MD
46	You too can do fancy statistics for your QI projects	Robert Badgett, MD
47	The Development of an Intracranial Pressure Sensing Technique to Eliminate Shortcomings of Current Methods	Andre Wakim,
48	A survey of safety recommendations for all-terrain vehicle dealers and track owners in Kansas	Morgan Martin, BHS
49	Measuring Stress and Presenteeism among Kansas Hospital Employees: What Stress-Reduction Interventions Might Hospitals Benefit From Offering to Employees?	Jessica Huff, MS-4
50	Multidisciplinary team meetings to focus on high-risk patients	Rex Keith, MD
51	Identifying factors associated with tobacco-free policy creation at worksites in Kansas	Christopher Stanley, MS-4
52	Disparities in Post-Hospital Disposition among Pediatric Trauma Patients based on Payer Type	Arash Sattarin, MS-4
53	Retrospective study of breast cancer patients who meet current NCCN guidelines for further genetic evaluation	Hallie Quiroz, MS-4
54	R2CHADS2 or CHA2DS2VASc - Which scoring system should be used to assess the need for anticoagulation in stroke patients with non-valvular Atrial Fibrillation and Renal failure?	Travis Haneke, MS-4
55	Outcomes in Combined Anterior and Posterior Fusion for 3 and 4-Level Degenerative Lumbar Disc Disease	Scott Haskins, MD
56	Second Generation Patient Specific Total Knees Still Demonstrate a Higher Manipulation Rate Compared with 'Off-The-Shelf' Implants	Paul Haeder, MD
57	TCAA Injury Prevention Committee - Pilot study developing a falls scene registry	Ryan Sorell, MS-3
58	Examining the Healthcare Preferences of Reproductive-aged Women in Sedgwick County, KS: A Qualitative Study	Sugantha Yuvaraj, MPH
59	A Retrospective Analysis of the Impact of Weight Loss on Renal Function	Tiffany Schwasinger-Schmidt, MD, PhD
60	High Performance Computer Analysis of Mammogram Images for Treating Breast Cancer	Abu Asaduzzaman, PhD
61	Management of Twin Gestation in a Bicornuate Uterus with a Pregnancy in Each Uterine Horn: A Case Study	Locke Uppendahl, MD
62	17-year-old girl with AKI of unknown etiology with nephrotic and nephritic features	Sanya Thomas, MD
63	Ulnar Nerve Anterior Transmuscular Transposition in the Lateral Decubitus Position: A Case Series	Lisa Frantz, MS-2

Department: Preventive Medicine and Public Health
Faculty Mentor: Elizabeth Ablah, Ph.D.
Presentation Number: 51

Category: Student
Featured Student Presentation
Location: Roberts Amphitheater

Identifying Factors Associated with Tobacco-free Policy Creation at Worksites in Kansas

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Introduction

Smoking and smokeless tobacco are known to cause chronic health conditions, including cancers and birth defects. While smoking rates are falling, the prevalence of smokeless tobacco use has risen, especially in working adults, yet little research has focused on crafting effective worksite tobacco-free policies. This study aimed to investigate what factors are associated with the implementation of these policies in Kansas worksites.

Methods

This study included interviews with representatives from Kansas worksites known to have policies against tobacco. These interviews informed a 13-item survey of worksites across Kansas to determine the prevalence of factors believed to be linked to tobacco-free policy implementation and enforcement. Analysis included crosstab, Wilcoxon-Mann-Whitney, and Kruskal-Wallis to test differences between worksites with and without tobacco-free policies.

Results

Among survey respondents, 48% of worksites (N=34) reported they had implemented and actively enforced a tobacco-free policy. Between the comparing populations, tests revealed no significant difference for variables of geography, local government ordinances, employee feedback system, or company representation on community wellness committees. The tests did show that those worksites with a formal wellness committee ($Z=2.61$) or with a tobacco coalition in their community ($\chi^2=7.72$) were significantly more likely to have implemented and enforced a tobacco policy on their campus.

Discussion

This study suggests that successful implementation and enforcement of tobacco-free policy in worksites is linked to the existence of community tobacco coalitions and worksite wellness committees that work toward tobacco policy reform. Future research needs to explore how these influential variables may be established in communities where they are currently absent.

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Category: Student
Featured Student Presentation
Location: Roberts Amphitheater

Disparities in Post-hospital Disposition among Pediatric Trauma Patients based on Payer Type

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Introduction

Methodological differences in the categorization of insurance may account for differences in trauma outcomes. The purpose of this study was to determine if there were disparities in health outcomes based on literature derived definitions of payer types in a pediatric trauma population.

Methods

Retrospective trauma registry study of pediatric trauma patients (aged ≤ 17 years) admitted to a Midwestern Level II pediatric trauma facility between 2005-2014. Payer type was categorized into two definitions: Definition 1: commercially insured, Medicaid, and uninsured; Definition 2: insured and uninsured. Trauma outcomes were assessed via univariate analysis. Outcome variables with differential significance in preliminary univariate analyses were included in multivariate analyses.

Results

Of the 2650 pediatric patients, 63.2% (n=1675) were insured, 30.8% (n=815) were insured by Medicaid, and 6.0% (n=160) were uninsured. Concerning ICU LOS and medical consult, payer type was not significant in either definition. In regards to hospital disposition, payer type was significant in Definition 1 (uninsured were 91% less likely than commercially insured to be discharged to continued care) and in Definition 2 (uninsured were 90% less likely than insured to be discharged to continued care).

Discussion

This study demonstrated that payer type was not associated with in-hospital outcomes (ICU LOS or medical consults), but was associated with discharge disposition (post-hospital care). These findings warrant future examinations on discharge disposition to gain a greater understanding of disparities related to payer type in the pediatric trauma population.

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Category: Student
Featured Student Presentation
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Retrospective Study of Breast Cancer Patients who Meet Current NCCN Guidelines for Further Genetic Evaluation

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Introduction

Breast cancer is the most common cause of cancer in females and studies show that up to 10% of these cancers have a genetic predisposition. NCCN guidelines for years have guided physicians to test patients with suspected heritable etiologies; however with the discovery of other genetic mutations the NCCN criteria for genetic evaluations have broadened and many patients may meet updated criteria for genetic evaluation.

Methods

A retrospective review was conducted of new onset breast cancer patients in the community practice of a breast surgeon. Patients were stratified using personal and family history to determine whether they met NCCN criteria upon initial breast cancer diagnosis and whether they meet the most current NCCN criteria for further genetic evaluation.

Results

Four hundred and thirty-seven female breast cancer patients were included. Of those patients, 34.8% (n=152) met NCCN criteria upon initial diagnosis; 78.3% (n=119) tested negative for the BRCA1/2 mutations and 21.7% (n=33) were not tested for the BRCA1/2 mutations. Additionally, 65.2% (n=285) of patients did not meet NCCN criteria upon initial diagnosis, with 6.3% (n=18) now meeting the most current NCCN criteria for genetic evaluation. The overall percentage of patients that meet current NCCN criteria for further genetic evaluation was 38.9% (n=170).

Discussion

Continued surveillance of breast cancer survivors with respect to genetic evaluation should be considered, as information about genetic etiologies of breast cancer and other cancers are continuing to be discovered and updated management guidelines for patients with known genetic mutations are available.

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Presentation Number: 54

Category: Student
Featured Student Presentation
Location: Roberts Amphitheater

R2CHADS2 or CHA2DS2VASc - Which Scoring System Should be Used to Assess the Need for Anticoagulation in Stroke Patients with Non-Valvular Atrial Fibrillation and Renal Failure?

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Introduction

Atrial fibrillation (AF) is the most common rhythm disorder in hospitalized patients. CHA2DS2VASc and R2CHADS2 are stroke risk assessment tools for patients with AF. Although renal failure is independently associated with stroke, it is not included in the CHA2DS2VASc risk stratification system, which is used for anticoagulation recommendation in nonvalvular AF patients as endorsed by ACC/AHA. Our study retrospectively compared R2CHADS2 to CHA2DS2VASc scores in stroke patients with a past medical history of nonvalvular AF and chronic kidney disease.

Methods

One hundred and seventy-one patients admitted over two years from one hospital with a diagnosis of atrial fibrillation and stroke were reviewed. Data variables included: age, sex, race, renal function and any previously documented CHA2DS2VASc scores. CHA2DS2VASc and R2CHADS2 scores were calculated based on collected information. Renal function (GFR) was calculated using the Chronic Kidney Disease Epidemiology Collaboration formula.

Results

Median CHA2DS2VASc score was 6 (range 2-9) and median R2CHADS2 score was 4 (range 2-8). Average GFR was 69.77 (range 6-108). A weak, but significant, correlation was found between renal function and CHA2DS2VASc score ($r = -0.263$; $p = 0.0005$) while a stronger and more significant correlation was revealed between the R2CHADS2 and GFR ($r = -0.70$; $p < 0.00001$). CHA2DS2VASc and R2CHADS2 scores were also significantly correlated ($r = 0.627$; $p < 0.00001$).

Discussion

Although CHA2DS2VASc and R2CHADS2 are significantly correlated to each other, using R2CHADS2 would be beneficial in recommending anticoagulation in stroke patients with decreased renal function and nonvalvular atrial fibrillation.

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Department: Public Health Sciences
Session: Morning
Poster Number: 1

Category: Faculty
Type: Poster
Location: Dean's Entrance

Development and Assessment of Online Public Health Training: Starting with a Regional Approach

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Introduction

Currently, there is a national public health workforce shortage and capacity for public health professionals in the nation and locally. This project describes the Midwestern Public Health Training Center (MPHTC). MPHTC is one of 10 HRSA regional public health training centers (PHTC) devoted to ensure the current and future public health workforce has the knowledge, skills and abilities to meet the ongoing public health challenges of the 21st century.

Methods

Some of the MPHTC's work includes assessing the training needs of the public health workforce and developing education and training programs to meet identified needs. This project accessed the National TRAIN Learning Management Systems (LSM) to determine national usage of TRAIN as well as within Region 7 MPHTC (e.g. Kansas, Missouri, Nebraska, Iowa). Professional discipline was also assessed.

Results

In addition to the national TRAIN LMS, there are 28 TRAIN affiliates (25 are states). However, the data indicated that all 50 states including US territories are currently using TRAIN, even if TRAIN affiliates do not exist in many of those states. For Region 7, Kansas is the largest TRAIN user (75,479 public health related professionals) and ranked 5th in the nation.

Discussion

How PHTCs can work more collaboratively with existing and potential TRAIN users will be important for sustainability in workforce development. Review of online LMS courses should focus on the TRAIN infrastructure in developing a unified process to support course development, assessment, and evaluation in public health training. Implications and limitations to this regional and national agenda are discussed.

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Department: Family and Community Medicine
Session: Morning
Poster Number: 2

Category: Faculty
Type: Poster
Location: Dean's Entrance

Transgender Health Resident Education: Assessing Short Term Knowledge and Attitude Changes

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Matthew Macaluso, D.O.

University of Kansas School of Medicine-Wichita

Introduction

Previous studies report biases in medical care for transgender patients, correlating with poor health outcomes and patient avoidance in seeking medical care. Our aim is to conduct transgender health education sessions for physicians and assess short-term changes in attitudes, knowledge and perceived ability to care for such patients.

Methods

Providers from two departments participated in hour-long educational sessions about transgender health that included a dialogue with a transgendered individual. A 19 item, pre-post survey was conducted to assess physician change. Sign tests were used to compare pre- and post-responses.

Results

Participants included sixty-five residents and faculty. Statistically significant increases were observed for 1) understanding issues, 2) comfort level in treating, 3) knowledge of treatment options. No significant improvements were shown for risk of feminizing hormone therapy or knowledge of puberty-delaying therapy.

Discussion

While long-term trends remain unknown, implementing educational sessions significantly reduced treatment biases by improving understanding, comfort and knowledge of transgender patients.

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Department: Human Resources
Session: Morning
Poster Number: 3

Category: Faculty
Type: Poster
Location: Dean's Entrance

Using Facilitated Discussion, Case Review and Self Study to Teach Residents
Appropriate Boundaries with Medical Students

Crystal Nevins, M.S., Matthew Macaluso, D.O., Cheryl Wehler, M.D.

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Introduction

The ACGME Milestones in psychiatry evaluate residents as teachers of students, patients, and families. Further, the Milestones capture data on professionalism, including maintaining appropriate professional boundaries. To introduce residents to the idea of professional boundaries in teacher-student relationships, we developed a three-hour seminar involving facilitated discussion, case review, and self-study. This topic is important because the LCME is concerned with issues of personal and professional boundaries between students and residents, and the ACGME is responsible for ensuring residents are trained on ethics and professionalism. Despite these responsibilities, there is scant literature on best practices for teaching residents professional boundaries with medical students and no such literature exists regarding psychiatry residency programs.

Methods

The seminar on boundaries occurred in two parts over consecutive weeks, totaling three hours as follows: 1. Facilitated discussion: two faculty members and a campus expert on boundaries (CN) met with residents in groups of 5 to discuss teacher-student boundary considerations. The session used ambiguous cases (i.e. there was no single right answer). 2. Homework: residents read an article by Plaut and Baker, which outlines the ethical and professional considerations of teacher-student boundaries. 3. Case review: after completing #1 and #2, each resident developed a hypothetical case on boundaries and led a group discussion on the same.

Results

Ten residents completed a 5-question evaluation of the ethics seminar, with an overall average score of 4.5 on the Likert scale.

Discussion

Feedback from residents indicated the experience was a good use of time, taught new concepts, and would result in behavioral changes.

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Department: Family and Community Medicine
Session: Morning
Poster Number: 4

Category: Faculty
Type: Poster
Location: Dean's Entrance

Differences in Practice Characteristics of Graduates of the KUSM-Wichita Family Medicine Residency Programs Practicing in Kansas

Rick Kellerman, M.D., Terry Ast, B.A., Trisha Melhado, MPH

University of Kansas School of Medicine-Wichita

Introduction

We compared the practice characteristics of KUSM-Wichita Family Medicine residency graduates in Kansas.

Methods

This a retrospective analysis of Kansas family medicine physicians from 2010, 2012 and 2014. Data were analyzed to understand the demographics (age, income) and practice characteristics (procedures performed, practice arrangements, use of hospitalists and physician extenders) of the physicians based on urban, rural and midsize practice locations. Chi square and ANOVA were used to assess differences among practice locations by demographics and practice characteristics for categorical and continuous variables, respectively.

Results

Three hundred and thirteen physicians participated in the survey, 46% in rural, 17% in midsize and 37% in urban communities. Average age was 47 years old for rural and 51 years old for both midsize and urban. Rural physicians had the lowest income (\$219,179 vs \$244,960, \$257,647, $p=.015$) and performed significantly more procedures (20 vs 14 vs 15, $p<.001$), than midsize and urban. Hospital-owned and physician-owned practices were the most common types of practice arrangements across urban, midsize and rural locations. Urban physicians used hospitalists significantly more than midsize or rural physicians, (75% vs 38%, 13%, $p<.001$) and used physician extenders less than midsize or rural (50% vs 83%, 80%, $p=.05$).

Discussion

There are differences in physician demographics and the way physicians practice medicine in rural, midsize and urban communities. This is useful information for residency program directors in planning curriculum and has workforce implications.

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Department: Family and Community Medicine
Session: Morning
Poster Number: 5

Category: Faculty
Type: Poster
Location: Dean's Entrance

Differences in Practice Characteristics of Male and Female Graduates of the KUSM- Wichita Family Medicine Residency Programs

Rick Kellerman, M.D., Terry Ast, B.A., Trisha Melhado, MPH

University of Kansas School of Medicine-Wichita

Introduction

The primary care workforce has changed over the years. This study compares the practice characteristics of male and female family physicians in Kansas and helps us understand if there are gender differences in the family physician workforce.

Methods

This a retrospective analysis of family physicians in office practice in 2012 and 2014. Data were analyzed to understand the practice characteristics of male and female family physicians including the number of patients seen, income, hours worked and patient characteristics. Chi square and ANOVA were used to assess differences among gender and practice characteristics for categorical and continuous variables, respectively.

Results

There were a total of 431 physician respondents, 70% male and 30% female. Ninety-six percent of male physicians practiced full-time compared to 80% of female physicians ($p<.001$). Among full-time physicians, women averaged fewer patients seen per day (21 vs 27, $p<.001$) and received an average income of \$70,000 less per year than men ($p<.001$). There was a significant difference in hours worked among part-time male and female physicians (31 vs 22, $p=.025$). Women physicians have a higher percentage of female patients (68% vs 53%, $p<.001$) but treat fewer geriatric patients than men (32% vs 38%, $p=.005$).

Discussion

A larger percentage of women family physicians practice part-time compared to male physicians. Women also see fewer patients per day and more female patients. All of these factors could have workforce implications for the projected primary care physician shortage.

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Faculty mentor: Stephen Charles, Ph.D.
Session: Morning
Poster Number: 6

Category: Student
Type: Poster
Location: Dean's Entrance

Strengths-Based Approach for Reducing Stress in First Year Medical Students

Jocelyn Mattoon, M.S., Stephen Charles, Ph.D.

University of Kansas School of Medicine-Wichita

Introduction

The prevalence of depression in medical students is three times higher than in the public. High stress levels and burnout have been tied to depression. We sought to measure changes in first-year medical students' perceptions of academic, personal, social, and overall stress levels after participation in a strengths-based activity. The strengths-based approach (SBA) identifies innate talents and provides a framework for personal development, stress reduction, and problem solving.

Methods

Thirteen first-year medical students volunteered for this sequential explanatory mixed-methods study. Intervention (n=6) and control groups (n=7) completed the Gallup StrengthsFinder assessment and learned their Top 5 Talents. The intervention group participated in a StrengthsCoach-facilitated two-hour session. Students provided pre- and post-intervention feedback via content-validated survey. Qualitative data was gathered post-intervention in a semi-structured focus group with four participants. The researcher and faculty mentor performed narrative analysis on focus group transcripts. Interrater reliability between researchers required Cohen's Kappa ≥ 0.80 .

Results

Quantitative data analysis used a 2x2 analyses of variables with repeated measures. No significant differences were found within or between groups over time in the four areas of stress. We identified 22 themes overall (k=0.955), with five themes each in personal, academic, and interpersonal stress and seven themes in overall stress.

Discussion

Limitations of the quantitative results include changes in academic workload, lack of exposure to the SBA, and small sample size. Qualitative analysis suggested students felt the program positively impacted stress levels and recommended future implementation. More research will elucidate the possible utility of the SBA in medical education.

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Department: Pediatrics
Session: Afternoon
Poster Number: 7

Category: Faculty
Type: Poster
Location: Dean's Entrance

Baby Talk: Pilot Testing a Community Collaborative Prenatal Education Program

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Introduction

A collaborative was established following a one-day infant mortality summit in Sedgwick County, Kansas to enhance the community's capacity to promote healthy birth outcomes. It was determined that prenatal education coordinated with clinical care at locations serving women at high-risk for adverse fetal/infant outcomes could impact the infant mortality rate (7.2/1,000). The collaborative included two competing hospital systems, an FQHC, the regional medical school and local programs. We aim to reduce infant mortality rates in Sedgwick County through collective impact.

Methods

The program, Baby Talk, piloted one cycle (six 2-hour sessions) at four locations, with participants from five clinics. Women attending ≥ 4 sessions received infant safety incentives.

Results

Thirty-four women were enrolled during the first cycle. Of women who attended the first session, 79% completed all six sessions during the pilot. One woman delivered prior to completing, but returned for her final class (postpartum health) to complete the program. Of those enrolling after the first session, 96% indicated intentions to complete the series. A convenience sample of 23 women was surveyed at the conclusion of the pilot. Participants identified the most important elements of the program were quality of information and incentives provided. All agreed they learned something during the sessions and the information presented was easily understood. Visual aids were helpful. Nearly all (96%) would recommend the class to others.

Discussion

Prenatal education integrated with clinical care provides comprehensive prenatal services to women at high-risk for adverse birth outcomes. Further outcomes for this project are forthcoming.

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Department: Preventive Medicine and Public Health
Session: Afternoon
Poster Number: 8

Category: Faculty
Type: Poster
Location: Dean's Entrance

Pioneer Baby - Perceptions of Periconceptional Weight among a Low-income Rural Pregnant Population in Kansas

Lisette Jacobson, Ph.D.¹, Jennifer Duong, MPH¹, David Grainger, M.D.¹, Darren Farley, M.D.¹, Michael Wolfe, M.D.², Frank Dong, Ph.D.¹

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Introduction

More than half of women enter pregnancy above normal weight and about 70% exceed the Institute of Medicine's recommendations for gestational weight gain. Pioneer Baby is a health collaborative to optimize pregnancy and birth outcomes in an extremely frontier, rural region in Kansas. The purpose of this study was to examine rural pregnant women's perception of their body mass index (BMI) group identification (underweight, normal, overweight, or obese) three months prior to pregnancy.

Methods

Two critical access hospitals and one federally qualified health clinic participated in a health assessment. A survey was administered that measured anthropometrics, prenatal education, diet, exercise, medical history, and demographic characteristics. Women were asked to report their weight and height prior to pregnancy, their perception of BMI group identification prior to pregnancy, and current height and weight. BMI was calculated based on reported weight and height.

Results

Sample size included 177 rural women. Most respondents were Hispanic (50.3%), 18-25 years old (48.6%), some high school (20.5%) or high school graduate (30.7%), WIC enrolled (51.7%), and earned < \$50,000/year (79.5%). Prior to pregnancy, 59.7% of women perceived their BMI as normal versus 41.5% calculated BMI. Additionally, 31.3% and 3.4% of women perceived their BMI as overweight or obese, respectively, whereas 28.1% and 26.2% were overweight or obese based on calculated BMI.

Discussion

This group of rural pregnant women largely underestimated their BMI category, indicating a gap between perceived versus calculated BMI. Interventions to address periconceptional weight among reproductive age rural women are needed and are the focus of follow-up studies.

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Session: Afternoon
Poster Number: 9

Category: Student
Type: Poster
Location: Dean's Entrance

Maternal Perceptions Regarding Interpregnancy Interval in Sedgwick County

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Introduction

Public literature on interpregnancy intervals (IPIs) and their impact on neonatal morbidity is limited and largely aimed at facilitating provider education. Data from these studies demonstrates increased morbidity for infants born to mothers following a short IPI defined as a duration of less than 18 months. The aim of this study was to evaluate maternal knowledge and practices regarding IPI.

Methods

A survey instrument was developed by members of the research team. Participants were surveyed at three sites: Wesley neonatal intensive care unit (NICU), KU Pediatrics/Wesley Women's Care Clinic, and HealthCore Clinic. Survey data were summarized and analyzed by site of service and demographics.

Results

Of 128 collected surveys, 10 were incomplete and excluded. Univariate analysis of the remaining 118 surveys demonstrated that less than 30% of participants had received prior information on IPI. More NICU mothers (55%) than clinic mothers (37%) believed IPI < 18 months was ideal ($p = 0.042$). The majority of participants (68% and 61% respectively) incorrectly predicted an increased likelihood of postpartum depression and preeclampsia in association with short IPI. Of those surveyed, the majority indicated a face-to-face discussion with a medical professional (OB, PCP or Pediatrician) shortly after birth as their preference of IPI education.

Discussion

The majority of mothers predicted exaggerated risk of maternal morbidity in association with short IPI, but many mothers lacked knowledge in regard to appropriate IPI length. Increased provider-patient education regarding IPI may improve maternal knowledge and decrease infant morbidity as it relates to IPI.

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Category: Resident
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Patient-Involved Structured Debriefing after Cesareans Improve Labor and Delivery Team Perceptions of Communication and Safety

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Introduction

Communication breakdown among healthcare providers is one of the major causes of medical errors and patient harm. This study examined hospital staff perception of patient safety before and after implementation of patient-involved structured debriefings after cesarean deliveries.

Methods

Labor and delivery staff at a Midwestern teaching hospital completed pre and post surveys to evaluate team effectiveness, communication, and patient safety. Resident physician-led structured debriefings were conducted after all attending faculty-supervised cesareans between August 1, 2014 and October 31, 2014. Patients and staff members were given the opportunity to opt-out of participating in structured debriefings.

Results

There were 461 cesareans performed during the debriefing period, and 396 (85.9%) were eligible for a structured debriefing. A debriefing was documented in 83 (18.0%) cases. Paired surveys were collected from 33 labor and delivery staff members. After implementing structured debriefings, there was a significant decrease in providers who believed there were patient safety problems on the labor and delivery unit ($p < 0.049$). More staff felt non-punitive feedback was provided about adverse events after the debriefing period ($p < 0.012$). There was a significant decrease in the number of providers who felt staffing was adequate to handle the workload ($p < 0.003$). The majority of patients (72.3%, $n=60$) participated in the structured debriefings after delivery.

Discussion

Patient-involved structured debriefings improve provider perceptions of patient safety and feedback regarding adverse events. Patients welcome being part of the healthcare team, and debriefings involving patients promote open lines of communication and identify deficiencies in care.

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Administration of IV Labetalol Protocol for Treatment of Hypertensive Crises on the Labor and Delivery Unit at Wesley Medical Center

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Introduction

Preeclampsia with severe hypertension, which occurs in 5-8% of pregnancies, is a leading cause of maternal and perinatal morbidity and mortality in the United States. Early recognition and treatment of hypertensive crises has shown to significantly reduce poor outcomes. Based on the American College of Obstetricians Committee Opinion No. 623, a protocol to ensure prompt treatment with antihypertensives has been implemented at Wesley Medical Center. Our objective is determine adherence to this protocol on the Labor and Delivery unit.

Methods

A retrospective chart review was performed using the MediTECH electronic medical record system for patients seen admitted to the Labor and Delivery unit between April and June 2015. Patients were reviewed if they were diagnosed with any of the following: chronic hypertension, gestational hypertension, superimposed preeclampsia, preeclampsia with severe features, eclampsia, and stroke in pregnancy. Only patients with confirmed severe blood pressures, in which the protocol would be initiated, were included in the final analysis.

Results

Of 178 cases initially reviewed, 58 (32.6%) had confirmed severe blood pressures on initial evaluation. The majority of patients (n=46, 79.3%) were diagnosed with preeclampsia with severe features, and the majority delivered via cesarean (n=38, 65.5%). None of the cases were compliant with the entirety of the labetalol protocol. Of 58 cases, two (3.5) cases adequately repeated a confirmation blood pressure within five minutes, and 34 (59.6%) adequately treated with IV labetalol per protocol requirements.

Discussion

In the majority of cases labetalol was appropriately initiated, however adherence to the protocol could be significantly improved.

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Bigger not Always Better: Small Bore Pleural Catheter Insertion for Iatrogenic Pneumothorax after Cardiac Implantable Electronic Device Placement, a Retrospective Study.

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Introduction

Iatrogenic pneumothorax is an uncommon complication after placement of a Cardiac Implantable Electronic Device (CIED), and management literature is limited. Large bore catheters are traditionally used at our institution, despite association with worse outcomes. We present four years of data for use of small bore catheters as an alternative.

Methods

Retrospective study of small-bore pleural catheters placed by radiology for post-CIED pneumothorax from 2009 to 2014. Duration of chest tube placement, length of hospital stay, periprocedural complications, and need for further procedure were evaluated.

Results

Thirteen patients developed post-CIED pneumothorax and were managed via small-bore catheter placed by the radiologist. Patient age ranged from 65 to 92 years, and 11 of 13 were female. All catheters were 8 French connected to a Heimlich valve, placed under fluoroscopic guidance by anterior approach without complication. Most patients experienced immediate pneumothorax improvement or resolution. Time to chest tube removal averaged 2.85 days, ranging 1-10. One patient had a stable pneumothorax for ten days, subsequently removed without further treatment needs. Three patients had small pleural effusions, yet demonstrated pneumothorax resolution in 1-3 days.

Discussion

All post-CIED pneumothoraces undergo large bore catheter placement by general surgery at our institution, despite risks outweighing unnecessary benefits. Alternatively, small bore catheters present little risk, and offer an improved means of treating post-CIED pneumothorax.

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Category: Student
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Optimizing Fluid Therapy for Septic Shock

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Introduction

Septic shock has been the focus of national initiatives and soon the quality of care by hospitals will be publicly reported.

Methods

By consensus of the stakeholders, we focused on the quality of fluid replacement therapy. We manually reviewed the patients' charts in a local hospital from over a four-month span that had septic shock ICD10 code, met Center for Medicare and Medicaid Services (CMS) criteria for septic shock (lactate >4 or hypotension after fluid resuscitation) and were managed in the emergency department. The data then was compared against the best ideal practices based on control groups of the three latest trials. In addition, we created statistical process control charts (SPC) of baseline monthly mortality data as provided by the hospital.

Results

The SPC chart indicated five consecutive months of decreasing mortality. Of 29 charts coded with septic shock, 18 were excluded because they did not meet the CMS inclusion. Of the remaining 11, fluid in the first 3 and 6 hours was 1.3L and 1.7L. In the recent trials, more fluids were given: 2.3L and 1.9L in usual care group and 2.2L and 2.2L in Early Goal Directed therapy. Average lactate on admission at the hospital was 4.9 versus 6.2 in the trials.

Discussion

Hospital mortality due to sepsis is decreasing prior to our proposal. Based on ideal practice from trials, we may further decrease mortality by increasing volume of fluid therapy within the first 3 and 6 hours.

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Comparison of Moped and Scooter Crashes in Rural and Urban Areas in a Mostly Rural State

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Introduction

As sales of mopeds and scooters increase, so have the incidence of crashes. Not much is known regarding the outcomes of rural moped and scooter crashes. This study seeks to compare rural and urban moped and scooter crashes in Kansas.

Methods

This was a retrospective chart review of all trauma patients involved in a moped or scooter crash admitted to a Level I trauma center conducted from January 1, 2004 to December 31, 2013. Variables included demographics, injury and crash details, use of protective equipment, patient physiology, hospital course, and outcomes.

Results

Of the 17 rural riders, 71% wore no helmet and 71% tested positive for alcohol. Of the 89 urban riders, 62% wore no helmet and 52% tested positive for alcohol. With a total of 122 injuries, head injuries were most common. Of documented helmet use in patients who suffered a head injury, 89% were not wearing a helmet and for those tested for alcohol, 48% tested positive.

Discussion

Comparing rural versus urban crash outcomes was challenging due to the sample size obtained, most likely because not all rural crashes get transferred to a Level 1 trauma center. With most riders not wearing helmets, and the high number of head injuries, it is suggested that wearing a helmet, even at lower speeds, can help prevent head injury. The frequency of alcohol use possibly correlates with Kansas law that allows those suspended for a DUI to drive a moped or scooter.

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Poster Number: 15

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Folic Acid Awareness and Use in Non-pregnant Women of Childbearing Age in Sedgwick County, Kansas

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Introduction

Daily folic acid supplementation during pregnancy has been shown to decrease neural tube defects in infants. With an estimated 50% of pregnancies being unplanned, daily folic acid supplementation in non-pregnant women is also recommended. This pilot study surveyed non-pregnant women from Sedgwick County on knowledge and use of folic acid.

Methods

A cross-sectional survey was administered in Sedgwick County to non-pregnant women of childbearing age. Knowledge, beliefs, and practices regarding folic acid were assessed through surveys. March of Dimes provided funding.

Results

Twenty-one women were surveyed. Six were excluded due to being outside of the study age range of 18 to 45. Forty percent of respondents were White and 33% were African American. Most (83%) reported knowing that folic acid helps build healthy hair, skin, and nails and 93% knew the recommended daily dose (400 micrograms). Fewer women (60%) affirmed that taking folic acid before getting pregnant can help prevent infant spinal cord problems with 53% reporting that folic acid was only important for pregnant women. On a scale of 1 - 10 with 10 indicating strong agreement, respondents believed that pregnant women should take folic acid (median=8) with more neutral beliefs (median=6) reported for the importance of non-pregnant women, or themselves, taking folic acid daily ($p=0.009$). Sixty-six percent of participants were not taking folic acid.

Discussion

Women are aware that folic acid use is important during pregnancy but are less aware of the importance of folic acid use when non-pregnant. Community education should promote daily folic acid use especially in non-pregnant women.

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Poster Number: 16

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Seasonal Analysis of 10 Risk-based Pollutants in Wastewater Biosolid Samples

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Introduction

Biosolids are the nutrient-rich, organic byproduct of the wastewater treatment process. Biosolids are recycled into soil amendments to improve soil quality or into fertilizer to promote plant growth and suppress disease.

Methods

Utilizing data from the City of Wichita's Public Works and Utilities Sewage Treatment Division, seven samples of biosolids were collected each month from January 2012 to December 2014. These samples were tested to determine the average levels of 10 EPA risk-based pollutants (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc) resulting in 36 average pollutant levels for each of the ten pollutants.

Results

A one-way ANOVA test yielded seasonal variation only among arsenic, $F(3,32)=5.09$, $p<0.01$ and zinc, $F(3,32)=3.27$, $p<0.05$. A post hoc Tukey test showed that with both arsenic and zinc, pollutant levels were higher during the fall months (September, October, November) than in the spring months (March, April, May).

Discussion

This data likely correlates with excess pesticide and rodenticide use in the community. Applications increase during the summer months and by fall, the heaviest applications occur, as insects and rodents begin coming inside. During the winter months, there are less pest and rodent problems which would explain why the pollutant levels decrease. These results could likely influence the land application of biosolids in the city of Wichita and surrounding areas.

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Correlation Between Dissolved Oxygen and Heavy Metal Concentrations in the Big Arkansas River

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Introduction

Toxicity from heavy metals due to industrial discharge into local water systems may impose serious health problems in human populations, including organ damage, cancer, autoimmune disease, fetal brain damage, delayed child development, and death. As dissolved oxygen (D.O.) concentration levels are strong determinants of species biodiversity and overall water quality, the purpose of this research was to determine if a relationship exists between the D.O. and heavy metal concentrations in the Arkansas River that may be indicative of a public health concern.

Methods

Samples of D.O. and seven heavy metal concentrations were collected in 2013 through 2015 quarterly and semi-annually at eight locations in the Big Arkansas River. Trending of D.O. and heavy metal concentrations were assessed. Correlation tests were also performed between D.O. and each heavy metal.

Results

The most prevalent heavy metal concentration was lead (mean = 25.394, 0.012, 105.00) followed by copper (mean = 7.34, 0.01, 26.00); the lowest concentration detected was cadmium (mean = 1.286, 0.01, 2.00). All heavy metals showed a negative relationship to the dissolved oxygen concentration: Zinc $r(56) = -0.315$ ($p = 0.0182$), Lead $r(56) = -0.561$ ($p < .0001$), Nickel $r(56) = -0.332$ ($p = 0.0123$), Copper $r(56) = -0.486$ ($p = 0.0001$), Chromium $r(56) = -0.486$ ($p = 0.0001$), Cadmium $r(56) = -0.465$ ($p = 0.0003$), Silver $r(56) = -0.392$ ($p = 0.0028$).

Discussion

There is a negative relationship between the dissolved oxygen and heavy metal concentrations suggesting that heavy metal toxicity may be influential in the water quality of the Big Arkansas River.

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A Rapid Review of Measuring Fluid Responsiveness to Guide Treatment of Sepsis and Septic Shock

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Introduction

Rapid delivery of sufficient fluids is essential to reducing mortality from septic shock. We meta-analyzed the diagnostic accuracy of using different measurements of fluid responsiveness to mediate care and the impact of using such methods on mortality.

Methods

We executed two meta-analyses: one of diagnostic accuracy and one for reduction of mortality due to measurement-guided treatment. Using methods at <http://openmetaanalysis.github.io/> we based literature searches on citation searches of sentinel articles. The quality of articles were assessed with the Cochrane Risk of Bias for RCTs and the Quadas-2 for DTAs. The goal of the meta-analysis was to create clinical subgroups as needed to explain heterogeneity of results.

Results

Regarding diagnostic accuracy, the Non-Invasive Cardiac Output Monitoring (NICOM), was most accurate with sensitivity of 80% and specificity of 79%. At the prevalences of fluid responsiveness studied (mean = 59%), the positive and negative predictive values for the NICOM were 84% and 27%, respectively. Regarding impact, three trials that used various methods, when pooled, shows an insignificant trend towards reduced mortality. Heterogeneity was 23%.

Discussion

Assessment of fluid responsiveness to guide the treatment of septic shock is not proven to reduce mortality. Patients at risk of fluid overload or in settings with high mortality may benefit from systematic monitoring. The assessment of diagnostic accuracy was limited by studies' inclusion of patients who were being monitored for reasons other than sepsis. The assessment of efficacy was limited by two large trials of bioreactance that were abandoned.

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Neuroimaging Practices in the Very Low Birth Weight Neonates: A Retrospective Study

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Introduction

Cranial ultrasound (CUS) and magnetic resonance imaging (MRI) are used to detect brain injury in very low birth weight (VLBW) neonates. Despite various studies that have shown the added value of MRI over CUS for select infants, there is no consensus on the overall value of or the indications for MRI. This study reports the characteristics associated with selective neonatal MRIs and with abnormalities exclusively detected by MRI.

Methods

Radiology reports of neonates admitted between 2010 and 2014, whose birth weights were between 501-1500 grams, were retrospectively reviewed. We excluded infants who died or were transferred and those with a major congenital malformation.

Results

Out of the 605 VLBW neonates, 2.8% had new MRI findings. The MRI did not detect any new intraventricular hemorrhages (IVH), ventriculomegaly or cystic periventricular leukomalacia (PVL). Increasing birth weight was associated with decreased incidence of MRI and as well as decreased number of exclusive MRI findings. Among the 94 infants with reported MRI, 43 (46%) had significant findings and 17 (18%) had new significant findings not found by CUS. Infants with severe IVH, PVL, severe retinopathy of prematurity, and bronchopulmonary dysplasia all have significantly higher odds of receiving MRI as well as detecting new findings on MRI.

Discussion

Although routine MRI cannot be recommended, selective MRIs have a relatively high detection rate of significant findings. Further study of infant and maternal characteristics associated with the new findings may inform a protocol for the use of MRI.

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Clinically Significant Cardiopulmonary Events and the Effect of Documentation Standardization on Apnea of Prematurity Management

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Introduction

Respiratory pauses are common in preterm infants and non-pathologic unless prolonged or associated with changes in perfusion, heart rate or oxygen desaturation. A wide variation in diagnosis and treatment exists today. This makes nursing documentation critical for optimal management. We engaged in a series of changes that included a consensus definition of clinically significant cardiopulmonary event (CSCPE), documentation, and a guideline for caffeine use. This study is to define the impact of care standardization on caffeine and cardiorespiratory monitoring at neonatal intensive care unit (NICU) discharge.

Methods

We abstracted electronic medical records for infants 24-36 weeks gestation with birth weights appropriate for gestational age admitted to the Wesley NICU. A run chart was developed for each group of 50 dismissals to describe the implementation of the new protocol. Infants were divided into baseline (1/1/12-12/31/13) and post-implementation (9/1/14-7/31/15) periods. We excluded infants who died, transferred prior to discharge, had major pulmonary anomalies, required a home monitor for mechanical ventilation or had a family history of sudden unexpected infant death. Infants were compared across cohorts using Kruskal-Wallis tests. This process was granted exempt approval by the institutional review board.

Results

Of 687 baseline infants, 74% were diagnosed with AOP with incidence falling to 49% of 365 post-implementation infants being diagnosed with CSCPE ($p < 0.001$). Infants discharged on caffeine decreased from 18% to 5%, and home monitor use also fell from 54% to 16% following the new definition ($p < 0.001$).

Discussion

Standardizing definitions, assessments and treatment reduced the use of caffeine and home apnea monitors upon NICU dismissal.

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Poster Number: 21

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Analyzing the Relationship between Chronic Disease Self-Management Programs in Worksites and the Adoption of Policies Related to Physical Activity and Access to Healthy Foods

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Introduction

Adopting worksite policies associated with physical activity and nutrition has been a successful initiative in the development of a healthy environment and the prevention and management of chronic conditions by making the healthy choice, the easy choice. The purpose of this study is to discover if worksites that offer chronic disease self-management programs adopt more policies related to physical activity and access to healthy foods compared to those who do not offer the chronic disease self-management programs.

Methods

A sample of 225 worksites, ranging from 2-3,500 employees, completed an online survey through WorkWell Kansas. Organizations reported information on demographics, type of business, wellness support and communication, and wellness initiatives related to physical activity, nutrition, mental health, and chronic disease self-management. A Pearson's chi-squared test was utilized to determine the relationship between the implementation of chronic disease self-management programs and policy adoption.

Results

Worksites who implemented evidence based chronic disease self-management programs revealed a close significant relationship related to the adoption of policies that support employee physical activity (χ^2 , $N= 225$, $p=0.056$) while there was no relationship related to policies supporting employee access to healthy foods (χ^2 , $N= 224$, $p=.365$). Worksites that did not fully complete the survey were removed from the analysis.

Discussion

The data reveals that organizations that offer disease management programs may be more willing to adopt policies that support physical activity in the worksite. However, it displays the need for health professionals to continue to promote and advocate for the role of policies in the worksite.

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Prevalence and Outcomes of Incomplete Kawasaki Disease versus Complete or Classic Kawasaki Disease

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Introduction

Kawasaki disease is a self-limited vasculitis of unknown etiology that affects children. It is known to cause coronary artery lesions that could lead to serious complications if left untreated. The American Heart Association (AHA) established guidelines in 2004 for the diagnosis and management of both incomplete and classic Kawasaki disease.

Methods

We performed a retrospective review of charts and electronic medical records of children age 0-16 years hospitalized at our institution with a diagnosis of Kawasaki disease from January 1994 through December 2014. Patients were categorized into complete or incomplete Kawasaki according to the 2004 AHA guideline. Clinical findings, lab parameters, and outcomes were compared between groups.

Results

Ninety patients with Kawasaki were included in the analysis. Thirty-five patients were diagnosed prior to the new 2004 guidelines and 55 patients were diagnosed after. Of all patients, 46% had classic Kawasaki and 54% had incomplete Kawasaki. Rash was more prevalent in classic disease ($P=0.029$), along with oral changes, extremity changes and conjunctivitis ($P<0.001$). Laboratory findings were not significantly different between groups. Length of stay, number of IVIG doses and coronary abnormalities were similar in both groups. Patients less than 24 months old (classic and incomplete had a similar distribution by age) had increased prevalence of coronary artery disease compared to older children ($P=0.022$).

Discussion

Patients with complete and incomplete Kawasaki had similar outcomes. Patients younger than 24 months old were at a higher risk for coronary artery disease.

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Verbal Fluency in Parkinsonism with and without Dopaminergic Deficiency on [123I]-FP-CIT SPECT Imaging

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Introduction

No studies examine verbal fluency in individuals with parkinsonism who demonstrate normal dopamine uptake on [123I]-FP-CIT SPECT imaging [i.e., Scans Without Evidence of Dopaminergic Deficiency (SWEDD)]. The purpose of this study is to determine if SWEDD participants have similar verbal fluency performance to individuals with dopaminergic deficiency on imaging.

Methods

Data were obtained from Parkinson's Progression Marker Initiative. Participants diagnosed with idiopathic Parkinson's disease were included if they completed tests of verbal fluency at baseline and 24-months and SPECT imaging. Forty-two participants had SWEDD, while 255 participants had evidence of dopamine deficiency. ANCOVAs were used to compare category and letter verbal fluency performance between the two groups at baseline and 24-months.

Results

At baseline, group differences were not significant at $p < .05$. At 24-months, letter fluency performance was significantly worse in the SWEDD group $F(1, 293) = 9.72, p = .002, \eta^2 = .032$; as was category fluency, $F(1, 293) = 5.67, p = .019, \eta^2 = .019$, after controlling for education and motor symptom severity. Education was significantly related to letter fluency, $F(1, 293) = 33.69, p < .001, \eta^2 = .103$, only. Motor symptoms were significantly related to letter fluency, $F(1, 293) = 6.50, p = .011, \eta^2 = .022$ and category fluency, $F(1, 293) = 5.76, p = .017, \eta^2 = .019$.

Discussion

Among individuals with parkinsonian symptoms, individuals with SWEDD have significantly worse verbal fluency after 24-months than those with dopaminergic deficiency on SPECT imaging. The results suggest deficits in verbal fluency, in some individuals with parkinsonism, seem to be related to changes outside of the dopaminergic system.

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Gas Chromatography: An Analysis of Salmon Oil

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Wichita Collegiate School

Introduction

Earlier studies of salmon fatty acid content and distribution have shown higher concentrations of eicosapentanoic acid (EPA) and docosahexonic acid (DHA) in wild caught salmon versus farm fed. This study compares the fatty acid quality of wild caught and farm fed salmon to detect possible improvements in fish farming practices. An increase in the ratio of beneficial omega-3 fatty acids (EPA and DHA) to non-beneficial fatty acids would indicate an improvement of farming practices that would produce healthier salmon.

Methods

Various samples of wild caught and farm fed salmon purchased from the surrounding Wichita area to determine if two methyl esters (DHA and EPA) were present. To extract salmon oil, the samples were heated for five minutes in 95°C water and then juiced with a lemon presser. Acid-catalyzed transesterification reactions were performed to prepare samples for gas chromatograph (GC) injections. The standard used was GLC 685 from NU-Chek-Prep, INC. Over 45 samples of four different types of salmon were processed in order to ensure consistency.

Results

Peaks of interest (EPA and DHA) were determined to have retention times of 19.3 ± 0.3 and 23.5 ± 0.3 minutes. After performing the initial statistical analysis to determine the similarity between the ratio mentioned above between wild caught and farm fed salmon, significance could not be determined with the available data.

Discussion

Improvement of the study needs to be made by increasing the number of different salmon samples and determining the sources of farm fed salmon.

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Location: Sunflower

The Health Impact of the Microbiome through the Gut-Brain Axis

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Introduction

The purpose of this study was to better understand complex interactions of the body with the gut microbiome because of the growing awareness of the significance of bacteria in the human body. The human body and microbiota have a complex interaction of many factors. Bacteria optimization can help reverse challenging and seemingly unrelated health conditions. Because of the complexity of the gut-brain axis, it was necessary to limit the scope of the literature study to physiological mechanisms involving the nervous, circulatory, and endocrine systems.

Methods

Most research was done using websites that provide medical journals such as Nature Publishing Group, National Center for Biotechnology Information, PubMed, etc. Dr. David Perlmutter's Brain Maker was a valuable resource.

Results

Gut bacteria can be altered through probiotics and antibiotics. The microbiota is also affected by the digestive tract's response to negative emotions. Altering microbiota can also lessen some neurological and intestinal disorders like autism and IBS. Gut microbiota communicates chemically to the brain through short chain fatty acids (SCFAs), gut hormones, and cytokines. The Gut-Brain axis also communicates through the autonomic nervous system (ANS), enteric nervous system (ENS), and vagus nerve. The nervous system affects the bacteria through neurotransmitters. In turn, gut microbiota can affect the nervous system through nutrient processing and gut motility.

Discussion

The Gut-Brain axis is a fertile field for research due to its complex nature and the increasing recognition of microbiome causation.

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Biological Model Study using Electromagnetic Screening Techniques for Peripheral Artery Disease

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Introduction

Peripheral artery disease (PAD) is a slowly progressive vascular disease characterized by abnormal narrowing of peripheral arteries through atherosclerosis. PAD often goes unnoticed and is heavily underdiagnosed due to its initially asymptomatic features and if not detected early enough can lead to critical limb ischemia or limb amputation. Current PAD screening options are limited to the clinical setting and require specialized equipment, specialized training in operation, specialized training for interpretation of the results, and lack the ability to screen for PAD in a simple, cost effective point-of-care manner.

Methods

In this study, our objective was to create a novel, non-invasive, point-of-care screening patch for the early detection of PAD. To attain our objective, we tested our hypothesis that electromagnetic changes in the permittivity and permeability of blood can be used to detect blood-flow abnormalities of PAD with a simple wireless biosensor - applied like a small adhesive bandage. Encapsulating a section of tubing with combination of meat and fat, we can simulate how the skin patch would function on human tissue with changing arterial volume.

Results

During pump flow, substantial resonant peak differences were detected by Vector Network Analysis. Verified by ultrasound, there stands a high correlation between resonant peak shifts and arterial volume.

Discussion

Achievement of our goal, to create a point-of-care solution for PAD screening may result in early detection and subsequent just-in-time risk factor reduction intervention ultimately improving prognosis and potential decrease in the number of legs lost to amputation.

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Intra-Operative Experience using Magnetic Resonance Imaging (MRI) Based Patient Specific Cutting Guides during Total Knee Arthroplasty

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Introduction

A relatively new TKA system involves the use of a preoperative magnetic resonance image (MRI) to obtain accurate implant placement more consistently. The specific aim of this study was to evaluate the initial intra-operative experience of a single surgeon using this new technique.

Methods

Fifteen knees (12 patients: 6 female and 6 male) were reviewed from TKA procedures using the selected manufacturer's patient specific cutting guides between January 2011 and April 2013 at a single institute. Patient demographic and specific parameters and intraoperative alterations of component positioning were recorded and evaluated.

Results

The preoperative plan was able to predict correctly the size of the implanted femoral component in 87% (n=13) and tibial component in 80% (n=12) of the cases. However, 60% (n=9) of cases required additional intraoperative corrections on femoral resection, and 73% (n=11) cases required an additional 2-4mm correction on the tibial proximal resection. Twenty percent (n=3) cases required additional tibial varus/valgus correction, but there were no tibial slope corrections for any of the 15 cases.

Discussion

The initial intra-operative experience of a single surgeon using current patient specific cutting guides for a selected manufacturer to align femoral and tibial components during TKA has raised some concerns. We agreed with previous studies that caution should be taken when using patient specific cutting guides without supportive data. The results provided more evidence to assist orthopaedic surgeons in the decision of whether to use these patient specific systems versus conventional TKA methods.

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Intrusion Characteristics of High Viscosity Bone Cements for the Tibial Component of a Total Knee Arthroplasty using Negative Pressure Intrusion Cementing Technique

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Introduction

The purpose of this study was to evaluate the high viscosity bone cement intrusion characteristics comparing negative pressure intrusion technique (NPI) and finger-packing technique in cadaveric proximal tibial bone.

Methods

Soft tissues were removed from twenty-four fresh frozen cadaver proximal tibiae, and standard arthroplasty tibial cuts were performed. Palacos-R and Simplex-HV bone cement were used. Each tibia was randomly assigned to receive one of the two bone cements with finger-packing technique and NPI technique. Forty-five Newton weight was applied along the long axis of the tibia during cement-setting phase. Once the cement had cured, sagittal sections were prepared and analyzed for cement penetration depth using digital photography and stereoscopic micrographs. Area of interest (AOI) for each specimen was also used to quantitatively evaluate the area of cement penetration.

Results

When using Palacos-R, no significant differences were detected in cement penetration between the two cementing techniques. When using Simplex-HV, cement penetration was significantly increased with finger-packing technique when compared to NPI technique. When comparing NPI cementing technique, significant differences were detected at Zone 4, where Simplex-HV penetrated deeper than Palacos-R. When finger-packing technique was used with Simplex-HV, significant differences were detected in bone cement penetration at Zones 3-5. When looking at AOI, no significant differences were found between Palacos-R and Simplex-HV with NPI technique. Higher penetration depths were achieved with Simplex-HV compared to Palacos-R in finger packing technique.

Discussion

The data suggests that high viscosity bone cement may provide good fixation of the tibial component of a TKA when used with finger packing technique.

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Prenatal Drug Exposure is Associated with Poor Planning and Strategy Formation in Children and Adolescents

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Introduction

Prenatal exposure to drugs and alcohol affects fetal brain development and behavioral and cognitive outcomes, including executive functions. Estimates suggest 5-10% of pregnancies may be affected by drug or alcohol use. This study aimed to assess the relationship between prenatal substance exposure and executive functioning, specifically planning and strategy utilization.

Methods

In this retrospective review of clinical data, 403 consecutive clinical cases were reviewed and n=38 met inclusion criteria (Age 6-15 years; known or suspected prenatal substance exposure; completed BRIEF and CVLT-C).

Results

Nine children had single drug exposure, 19 had multiple exposures, and 10 had unconfirmed but suspected exposures. Prenatal exposures included alcohol (n=16), marijuana (n=6), methamphetamines (n=3), cocaine (n=8), and other (n=2). Diagnoses included ADHD (n=23), cognitive disorders (n=11), disruptive behavior disorders (n=11), and mood disorders (n=18), and 76% had multiple diagnoses. Strategy formation as measured by the CVLT-C Semantic Clustering did not differ from the normative population ($t(37) = 0.69, p=.945$). All other measures of executive functioning (BRIEF Planning/Organization; BRIEF Organization of Materials; BRIEF Monitor; and CVLT-C Serial Clustering) were significantly poorer than normative means ($p<.05$). There were no significant correlations between behavioral measures of strategy utilization (CVLT-C) and parent ratings of executive function (BRIEF).

Discussion

Results suggest that children with prenatal drug exposure perform more poorly than healthy children on measures of planning and organization, but may use certain strategies at about the same rate.

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Exploring Patient Care Satisfaction in Adult Psychiatric Units

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Introduction

Recently, Via Christi changed patient satisfaction surveys from Press Ganey to Professional Research Consultants (PRC). Only 15 surveys are collected monthly to evaluate patient satisfaction regarding hospitalization. Results are difficult to interpret due to variability. Therefore, we surveyed patients to investigate issues associated with key driver (KD) scores for quality of care (QoC).

Methods

The survey was adapted from Menninger Institute and included a scored, 20 item questionnaire, along with ratings on QoC by provider type. A convenience sample of hospitalized patients (about to be discharged) were recruited. Data were entered into REDCap. Correlation analysis was conducted to determine item associations with KDs.

Results

Participants included 60 adult patients; 58% were female, 35% had some college, 45% self-reported hospitalization due to depression. Dignity and Respect (KD) was highly associated with patients reporting that their care team listened, cared about me and made me feel safe. Reached Treatment Goals (KD) was associated with being able to talk openly and complete a care plan. Recommending this Facility (KD) was associated with understanding reasons for hospitalization, their diagnosis, and ways the care team helped them deal.

Discussion

Based on the survey responses, we recommend patients are given sufficient time to share concerns in a safe, confidential environment; have a good understanding of reasons for hospitalization, along with their diagnosis and treatment plan. Also important is completing a care plan (including: symptoms, triggers, support system, crisis and follow-up plans) with the care team before discharge. Incorporation of these recommendations should improve scores on the PRC survey.

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Comparing Sodium Content of Free Meals to Dietary Approaches to Stop Hypertension (DASH) Diet Guidelines

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Introduction

Hypertension prevalence among the homeless is rising. The Dietary Approach to Stop Hypertension (DASH) diet and sodium restriction can decrease blood pressure. Those who are homeless are very limited in their dietary intake and often reliant on free meal programs. The objective of this study was to compare meals served at a large, free meal program to the DASH diet guidelines for sodium intake for those with hypertension.

Methods

A sample of eight meals from seven consecutive days served at a multi-site free meal program in Wichita, KS were analyzed for sodium content and servings of food groups in the DASH diet. Indirect nutritional analysis was performed on the sample meals using standardized serving sizes and information from labels and the USDA National Nutrient Database.

Results

Meals in the sample contained the DASH-diet recommended servings of vegetables and fats/oils, fewer than recommended servings of grains, fruits, nuts/seeds/legumes, and low-fat/fat-free milk servings, and more than the recommended servings of lean meats/poultry/fish and sweets/added sugars. Mean sodium intake of the meals in the sample was 2528.68 mg with a standard deviation of 916.67 mg, over 110% of daily intake as recommended by the USDA for the general population and nearly 170% of that recommended for those with hypertension and pre-hypertension.

Discussion

Clients of free meal programs with hypertension would find following diet-based treatment difficult. Sodium restrictions would be difficult to adhere to for those with hypertension who rely on programs that serve pre-prepared and processed foods. Finding cost-effective alternatives to these foods would greatly benefit those with hypertension who rely on free meal programs.

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Google® It: Comparison of Internet Information about HPV Vaccines

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Introduction

The HPV vaccine has been recommended to males and females between ages 11-12 (or before first sexual encounter). The vaccination rate (2013) is low (37.6%) for full doses and often not completed (57.3% one dose; 47.7% two doses). Barriers include: lack of parental knowledge, perceived risk is low, concern for increased sexual promiscuity, cost, and lack of healthcare provider recommendation. Most (80%) Internet users seek health information and often use Google® with a single word search and typically never go past one or two pages of results.

Methods

Investigators used Google® and key words 'HPV vaccine' and 'Gardasil' as search terms. The top ten websites (removing ads and news sites) were evaluated based on CDC vaccine information recommendations. Content was evaluated for quality (why vaccinate, disease prevented, dosing, side effects, serious reactions, delaying first dose, tracking, cost, age/gender, risky behaviors) and readability. Content was scored and websites were ranked.

Results

Website rankings based on content information scores were not parallel to Google® rankings. Preliminary results indicate a wide variability in content scores (29-55 on 13-65 point scale). The lowest scores (per topic) were information regarding: concern of risky behaviors, serious reactions, tracking vaccination series, and cost.

Discussion

There was wide variability in content among the top ten Google® websites (search terms = HPV Vaccine and Gardasil®). Healthcare providers should be aware of the varied quality of information available on the Internet and guide patients to optimal resources.

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Provider Reported Understanding of Adolescent Vaccinations in Their Practice

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Introduction

Kansas, while above average for Tdap vaccination rates, falls below average for adolescent vaccination rates of Meningococcal (MCV), human papillomavirus (HPV), and Influenza. The aims of this study were to evaluate vaccination practices in Kansas, recognize barriers, and identify tools to increase vaccination.

Methods

Kansas Chapter, American Academy of Pediatrics (KAAP) provided email addresses for providers. An anonymous survey was emailed to providers who were given 21 days to reply. No personal data was collected.

Results

Forty-eight complete responses were analyzed. Of those included, 45 (94%) worked in general pediatrics and 35 (73%) had been practicing > 10 years. Tdap and MCV vaccines were commonly up to date with 31 (65%) and 20 (42%) respondents reporting >90% immunization rates, respectively. Influenza and HPV vaccines were given less frequently with only 4 (8%) respondents and 1 (2%) respondent reporting > 90% vaccine administration, respectively. Most practices (n=44, 92%) relied on an internal electronic medical record to track vaccinations. Estimated vaccine refusal rates appear inversely related to immunization rates, with Tdap and MCV being the least refused (< 10%) and HPV being refused most. HPV (n=42, 89%) and Influenza (n=40, 83%) vaccines had refusal rates >25% in most clinics. Practices requested vaccine-specific patient education supplies, staffing support, and best-practices workshops most often to support vaccination efforts.

Discussion

Vaccines not required by schools have the lowest administration rate. Patient education supplies would potentially increase vaccination rates. Future research should aim to better understand vaccine refusal and implement processes to offer comprehensive and accurate vaccine counseling.

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Implementation of Nutrition Best Practices in Kansas Worksites

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Introduction

Nutrition best practices can be implemented at the worksite through multiple strategies including information, programs, benefit design, policies, and environmental supports. As few worksites have adopted these best practices, it is unclear what, if any, worksite characteristics could be associated with adoption of these best practices. This study sought to determine if there were relationships between adoption of nutrition best practices and having a worksite wellness coordinator and worksites' urban/rural location.

Methods

This study utilized data from the WorkWell Kansas Phase I Assessment.

Results

Almost half (48%, n=113) of respondents reported having at least one individual responsible for employee wellness. More nutrition best practices were adopted if there was at least one individual at the worksite dedicated to wellness $t(175) = 5.03, p < .01, d = 0.79$. More nutrition best practices were offered in urban worksites than rural worksites $t(223) = 5.34, p < .01, d = 0.64$.

Discussion

Worksite wellness coordinators and urban worksites may offer important lessons for worksites to improve their food and beverage environments.

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The Provision of Chronic Disease Self-Management Programs and Worksite Employee Characteristics

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Introduction

With the increasing prevalence of chronic diseases among working adults and an aging workforce, chronic disease self-management programs (CDSMPs) can be an important component in worksite wellness. The purpose of this study was to determine if there were relationships between the provision of CDSMPs at worksites and the worksites' demographics, such as age.

Methods

Data analyzed for 237 worksites that completed the WorkWell KS Phase I Assessment included: worksites offering an evidence-based CDSMP, the number of employees, and employees' ethnicity, race, age, and gender. Chi-square analyses were performed to assess the association between the dependent and independent variables.

Results

Worksites with employee majorities of: non-Hispanics (90.9%), whites (88%), those younger than 50 years (65%), females (60%). Few (6.57%, n= 18) respondents reported offering a CDSMP at their worksites. Increase in the number of employees was negatively correlated with the CDSMP offering at worksites ($p < 0.05$). Major rural worksites (68.5%) were less likely to offer CDSMP than urban worksites.

Discussion

Worksites with predominately non-Hispanic whites, those younger than 50 years, and females were more likely to offer CDSMPs. The lack of provision of CDSMPs for more than 90% of the respondents indicate the need for widely available evidence-based chronic disease programs.

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Employers Offering Group Health Plans Should Incentivize Active Commuting

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Introduction

Active commuting can reduce the risk of chronic disease and improve health. Physically active employees can financially benefit employers, as physically active employees tend to use fewer sick days and better utilize the company health insurance policy. This study sought to determine if there was a relationship between worksites offering group health plans and the provision of bike racks to support employees' active commuting.

Methods

A total of 220 Kansas worksites completed the WorkWell Kansas Phase I Assessment about worksite wellness and asked to complete 120 questions regarding five strategies and five topics relating to employee wellness. This study, which focused on benefits strategies relating to physical activity and assessed the potential relationship between whether businesses that offered group health plans were more likely to provide resources for their employees for promoting physical activity, specifically active commuting, through the provision of bike racks.

Results

91.82% (n = 202) of worksites offered group health plans to their employees. Those worksites that offered group health plans to their employees were significantly more likely to provide bike racks than worksites that did not (n=18, 8.18%), $2(1, N=220)=8.221, p=0.0041$.

Discussion

Worksites that offer a group health plan were more likely to provide bike racks to help facilitate active transport. Providing administrative and environmental supports could potentially increase employee participation in physical activity.

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Nutritional Food Labeling Programs in Workplaces within Kansas Food Deserts

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Introduction

A food desert is defined by the United States Department of Agriculture as a low income area with reduced access to healthy foods. Food deserts are associated with higher rates of obesity and chronic disease. A healthy food environment in the workplace is linked with improved dietary habits. One strategy to encourage healthy food choices in the workplace is the adoption of nutritional food labeling programs. The objective of this study was to identify the prevalence of nutritional food labeling programs in worksites located within food deserts in Kansas.

Methods

Counties labeled as food deserts were areas where the closest grocery store was more than one mile away in urban areas and more than ten miles away in rural areas. Data from the Center for Disease Control's Community Health Assessment and Group Evaluation (CHANGE) were collected from the worksite sector and nutrition module. Coalition members who completed the CHANGE tool provided responses related to worksite nutritional food labeling programs. These members assigned values from 1 (no program present) to 5 (program present).

Results

Of the 73 worksites, 43 existed in food desert counties and 30 within non-food desert counties. The mean rating for the presence of nutritional labeling in food deserts was higher ($M=3.14$) than for non-food deserts ($M=2.36$). Worksites in food deserts were more likely to emphasize nutrition labeling than worksites in non-food deserts.

Discussion

Nutrition labeling programs in worksites may represent an access point for healthful foods in areas that have reduced financial and geographic access to healthy food purchases.

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Presence of a Breastfeeding Policy and Availability of a Breastfeeding Room in Workplaces in Kansas

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Introduction

Breastfeeding has significant benefits for the infant, mother, and the mother's employer. The rates of breastfeeding in the United States are still low. Even though most women who work outside the home indicate a desire to breastfeed, in reality they are less likely to breastfeed. Accommodations in the workplace may increase rates of breastfeeding. This study examines what demographic or foundational characteristics are associated with a breastfeeding policy or environment in Kansas workplaces.

Methods

Data are from Worksite Wellness, a state-wide survey of employers in the WorkWell Kansas program. The study population included all employers who participated in the survey. Incomplete surveys were excluded. The survey included 120 questions, including demographic information, foundational characteristics, and wellness program components. Two questions in the survey specifically related to breastfeeding policies and environment. Using STATISTICS, we assessed the associations between workplace characteristics and breastfeeding policies and environments.

Results

Only 26% of responding workplaces had both a breastfeeding policy and breastfeeding room. Rural worksites, workplaces with a wellness initiative in the last 12 months, and workplaces with at least one individual responsible for wellness were more likely to have both a breastfeeding policy and breastfeeding room.

Discussion

Breastfeeding women are less likely to continue breastfeeding once their return to work. Few workplaces in Kansas have both a breastfeeding policy and a breastfeeding room. Expanding workplace wellness programs and encouraging breastfeeding as a component of wellness may have the potential to ensure success for breastfeeding mothers in the workplace.

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Role of the WIC Breastfeeding Peer Counselor in Kansas

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Introduction

Since 2010, the Kansas WIC program has used Breastfeeding Peer Counselors (BPCs) to support women with breastfeeding. The program currently employs 38 counselors at 33 WIC sites serving a total of 45 counties in Kansas. Though the literature provides evidence that BPCs positively impact breastfeeding rates, little information exists on why they are successful. The purpose of this study was to assess the role of the Breastfeeding Peer Counselor.

Methods

This was a cross-sectional, descriptive study using self-reported surveys. All Kansas WIC BPCs were invited to participate in the study. The survey instrument included 28 Likert-type questions. Survey constructs included demographic characteristics, training, professional development, perceptions of strengths and barriers, and job responsibilities. Each construct had an open-ended question. Upon survey completion, a \$10 gift card was provided. Descriptive and content thematic analyses were conducted.

Results

Via US mail, 38 surveys were mailed to BPCs; 31 were completed with a response rate of 81.6%. The majority of women were non-Hispanic white (77.4%), aged 26-45 (71%), received some college (54.8%), and had an annual household income of \geq \$25,000 (70%). Respondents expressed a desire for collaborative learning and shadowing other breastfeeding professionals. Women expressed a need for additional training in communication, breastfeeding problems, and the new hire orientation process.

Discussion

This study's findings may help WIC program administrators enhance the Breastfeeding Peer Counselor program. Additional qualitative follow-up studies are warranted including with WIC clients on how the BPC helps in attaining one's breastfeeding goals, and with BPCs to obtain information on an educational intervention.

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Assessing Medical Knowledge: Innovating the Curriculum in an Obstetrics and Gynecology Resident Program

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Introduction

The Council on Resident Education in Obstetrics and Gynecology (CREOG) In-Training Examination is the only standardized, national exam administered to obstetrics and gynecology (OB/GYN) residents. Residency programs are tasked with implementing methods to provide consistent education, while objectively measuring resident performance. The KUSM-W OB/GYN Residency Program implemented use of the CaseNetwork CoreCases, a unique educational tool presenting evidence-based and peer-reviewed cases approved by experts appointed by the American College of Obstetricians and Gynecologists. This project assesses how the CoreCases can be implemented to improve examination scores and resident education.

Methods

The following data were collected retrospectively from the KUSM-W OB/GYN Residency Program: CREOG scores for 2013-2016, CoreCases utilization data, and results from a CoreCases Utilization Survey designed by the residency program administrators. Survey responses were based on a Likert scale and written comments were solicited.

Results

CREOG results suggest the least amount of change in scores occurs between residency years 1 and 2, with the greatest improvement between years 2 and 3. The majority of survey respondents strongly agreed or somewhat agreed that the CoreCases enhanced their education, were easy to use, and the residency program should continue its usage. Notably, 35.7% (5 of 14) of residents providing comments felt CoreCases would be most beneficial to under-level residents.

Discussion

Utilizing CoreCases, which focuses on core OB/GYN topics, more heavily in the first half of residency may provide an earlier enhancement of knowledge. The program should consider implementation of other tools which may be of more benefit in the second half of residency.

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Group Evaluations of Individual Faculty Hospitalists

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Introduction

Faculty evaluations are instrumental tools that improve instruction and faculty development. Residents in our program would seldom evaluate individual faculty hospitalists out of concern for anonymity. Hospitalists requested individualized feedback. Our objectives: 1) Increase the percentage of completed evaluations of hospitalists above 80% 2) Improve the quality of hospitalist feedback.

Methods

The hospitalist evaluation form was revised to address areas of importance to hospitalists and residents. Chief residents moderated meetings with the resident team to complete group-based evaluations of individual hospitalists. A 4-question survey was distributed to hospitalists and another 4-question survey distributed to residents, both based on a 5-point Likert scale. Surveys were completed before and four months after implementation of the changes. Pre- and post-survey data of responses were compared using the Mann-Whitney test and probability proportion test.

Results

Completed evaluations increased from 0% to 80% in one month and to 100% in two months. Hospitalist satisfaction increased above 80%, with statistically significant increases for all survey questions. Resident satisfaction increased significantly with regards to the evaluation process. Positive trends that were not statistically significant were noted for resident perception that evaluations are anonymous and that hospitalists use evaluations to improve.

Discussion

Group-based resident evaluations of individual hospitalists led to an increased percentage of completed evaluations and increased satisfaction with evaluations among hospitalists. These changes led to increased satisfaction with the evaluation process and perception of anonymity among residents. Limiting factors: not every incomplete resident participation in the new evaluation process and a lack of a first year residents had no pre-intervention point of comparison for first year residents.

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Session: Afternoon
Poster Number: 42

Category: Resident
Type: Poster
Location: Sunflower

Using Standardized Patient Technology as a Tool for Promoting Residents to Indirect Supervision

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University of Kansas School of Medicine-Wichita

Introduction

In order to promote residents to indirect supervision with direct supervision available, data is collected from various sources including supervising attending physicians and senior residents. In an attempt to standardize this process, data was also collected from standardized patient (SP) encounters. Data collection is focused on the following milestones, which are required by ACGME to promote PGY1 residents to indirect supervision with direct supervision available: 1. The ability and willingness to ask for help when indicated, 2. Gathering an appropriate history, 3. The ability to perform an emergent psychiatric assessment, and 4. Presenting patient findings and data accurately to a supervisor.

Methods

SP encounters are conducted with each resident in August of the PGY1 year after completing at least 6 on-call experiences under the supervision of a senior resident. During the SP encounter residents complete the following tasks: 1. Each resident is given thirty minutes to interview a patient actor portraying an overdose and is assessed on their ability to safely conduct an emergency psychiatric assessment. 2. After completing the patient interview, each resident presents their findings to the faculty members that observed the encounter, who then evaluate the accuracy of the presentation. 3. Residents are given a second case and asked to hand-off (sign-out) the case to a peer while being observed by faculty.

Results

Not applicable.

Discussion

The SP session provided a structured tool to assess ACGME milestones and served as a supplement to observations made on the wards, including data regarding a resident's ability to ask for help.

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Location: Sunflower

Observations from Longitudinal Residency Match Data at KU School of Medicine

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Introduction

Kansas has historic and projected primary care physician shortages. Ninety-seven of 105 counties are designated as primary care shortage areas based on one or more state or federal definitions. The shortages are projected several years into the future. One aspect of resolving the primary care physician shortage is to retain KU School of Medicine students in Kansas for residency, particularly in primary care. Nationally, 53% of residents graduating from residency programs practice in the same state as their residency. The project question was: What is the record at KU School of Medicine for matching students to Kansas residency programs, particularly in primary care (family medicine, internal medicine, pediatrics, and combined programs)?

Methods

KU School of Medicine administrative data on the National Residency Match Program for medical students from 1993 to 2016 were evaluated.

Results

Trends for longitudinal match data revealed an increase in the number of KU medical students who leave the state for residency and a corresponding decrease for those who stay. Students matching to primary care residencies also revealed trends to leave the state. These data were observed for the Kansas City and Wichita campuses.

Discussion

Despite the historic and projected primary care physician shortages in Kansas, more students are leaving Kansas for residency including primary care residencies. This trend was observed regardless of campus. KU School of Medicine should review admission processes, curriculum, and its mission to the State to address this aspect of the primary care physician shortage.

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Session: Afternoon
Poster Number: 44

Category: Faculty
Type: Poster
Location: Sunflower

How Long Should Family Medicine Residency Last?

Rick Kellerman, M.D., Trisha Melhado, MPH, Terry Ast, B.A., Kari Nilsen, Ph.D.

University of Kansas School of Medicine-Wichita

Introduction

Family medicine (FM) training in the United States is largely based on a model developed in Wichita almost 50 years ago. In the intervening 50 years, medical knowledge, diagnostic modalities, and treatment options have increased tremendously. The purpose of this study was to assess the preferred length of FM residency.

Methods

Family medicine residents and physicians in Kansas (N = 211) were surveyed via email regarding their opinions about three or four year residency program length, and whether changing the length of training would impact medical student interest in FM or have an effect on outside perceptions of FM.

Results

Eighty-three family medicine physicians and residents completed the survey (39.3% response rate). Sixty-three percent of respondents (N = 52) preferred a three year residency program. The majority felt three years provided adequate training and raised concerns about mounting debt for residents. Sixty percent indicated that a four year residency would result in decreased medical student interest in FM. Most (N = 52) also indicated that a four year residency would not affect how people viewed family physicians compared to nurse practitioners and physicians assistants.

Discussion

The majority of responders preferred to keep residency programs at three years mainly for financial issues and satisfaction with the length of training, but could see the benefit in offering additional training for those who needed/wanted it. Respondents felt that a 4-year program might deter medical students from choosing family medicine. Future research will examine perceptions of 'competency-based' vs. 'time-based' residency training.

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Type: Poster
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Training Medical Students to Respond to Patients Requesting Physician-Assisted Death

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University of Kansas School of Medicine-Wichita

Introduction

Inquiries about physician-assisted death occur in states where it is legal and illegal. We explored the ability of third year medical students to recognize, engage, and address patient requests for hastened death using standardized patient (SP) scenarios.

Methods

SPs presented three cases portraying patients dying from metastatic lung cancer. Students were segregated by three storylines given by SPs: 1) explicit request for hastened death, 2) strong hint, 'Can't we speed this along?' or 3) general concern, 'I don't know if I can do this, Doc.' Students, SPs, and two independent faculty observers responded to dichotomous questions designed to measure the extent to which students' handled the case. Rater agreement was evaluated with McNemar test, Kappa or Fleiss Kappa.

Results

Sixty-seven students participated. Faculty observers and SP reported 99-100% of students recognized request for hastened death. No significant differences occurred by storyline. However, students differed from faculty ratings for feeling prepared to address the case, 44% vs. 67-85%. Rater agreement was fair for students' discussion of why patient desires hastened death, $\kappa=0.281$, conditional probability (cp) of 'yes' was 0.746; and fair for whether the student spent adequate time engaging and exploring patient's concern, $\kappa=0.360$, cp=0.860.

Discussion

The majority of students reported inadequate preparation to address physician-assisted suicide scenarios. While rater agreement was fair, both faculty members tended to rate students positively for ability to recognize, engage and address patient requests. Future research should clarify specific content domains of the student's concerns and formulate methods to address these.

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Poster Number: 46

Category: Faculty
Type: Poster
Location: Simulation Center

You too can do Fancy Statistics for Your QI Projects

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University of Kansas School of Medicine-Wichita

Introduction

Inferring causation in quality improvement is difficult because lack of randomization and controls. Interrupted time series (ITS) is recommended to overcome this; however, this analysis is technically difficult and requires a statistician. Our goal is to create a publically available website for executing ITS and demonstrate its advantages.

Methods

We used our existing, open-source website for creating SPC charts, and added code for ITS using the R programming language. We used linear regression (LR) and segmented regression (SR) to test for both change in slope and change in level of outcome after an intervention. We illustrated results using a sample data set derived from a prior local project to improve screening for depression.

Results

The before-after analysis shows significantly more screening after the intervention (83% after and 38% before; difference = 55%; $p < 0.000$ by Fisher exact test). LR showed no benefit but found a significant secular decrease in the rate over time. However, SR showed both a smaller level change of 29%, $p = 0.020$ and a simultaneous significant secular decrease in the rate over time. SR revealed that LR created a missfitted model by forcing a smooth curve about the intervention.

Discussion

The segmented regression analysis provided more information about the relationship between the intervention and the outcome. This method is available to KUSM-W and other researchers online at <http://qitools.github.io/>. The examples used are online and labeled as 'Project 1': second and third analyses.

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Poster Number: 47

Category: Student
Type: Poster
Location: Simulation Center

The Development of an Intracranial Pressure Sensing Technique to Eliminate Shortcomings of Current Methods

Andre Wakim, Jacob Griffith, Kim Cluff, Ph.D.

Wichita State University

Introduction

Intracranial pressure (ICP) elevations are common for patients who have intracranial pathologies, or have recently undergone neurosurgery of certain types. Current methods of measuring ICP often require surgery or highly specialized equipment. In this study, we investigated an innovative, practical, and non-invasive method for measuring ICP using a sensor capable of both measuring volume changes and media differences through the edge of a skull.

Methods

To verify the ability of the sensor to differentiate between small volume changes, such as those which cause ICP changes, a study was conducted which measured the resonance frequency of the sensor through the cranium per different volumes of water. Secondly, the environment surrounding the sensor was altered from a beaker of tap water to a beaker of salt water, to simulate cerebral spinal fluid (CSF) and blood, and identify a difference in resonance frequency.

Results

At volumes comparable to an adult human cranium (1000 mL), the sensor was able to identify small fluctuations in fluid content as small as 50mL. Furthermore, the difference in signals from the salt water and tap water provide evidence that the sensor may be able to differentiate between cerebral spinal fluid (CSF) and blood.

Discussion

Moderate volume elevation of one fluid in the cranial cavity results in an equivalent decrease of another fluid. However, excessive volume increases cause an increase in the ICP. These findings suggest that this sensor may be useful as a non-invasive, cheap, mobile device for quick detection of ICP.

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Category: Student
Type: Poster
Location: Simulation Center

A Survey of Safety Recommendations for All-Terrain Vehicle Dealers and Track Owners in Kansas

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Introduction

All-terrain vehicles (ATVs) are associated with high rates of morbidity and mortality. Since 1998, there has not been nationwide public awareness nor regulation of safety training. The purpose of the study is to determine Kansas ATV dealers and tracks safety recommendations.

Methods

The study was a cross-sectional survey design which included ATV dealers and track owners in the state of Kansas. Telephone surveys were then conducted and results are provided in descriptive statistics.

Results

Thirteen of forty-one dealers contacted responded to the survey for a response rate of 32%. Five of sixteen ATV tracks responded to the survey for a response rate of 31%. Most ATV dealers sell safety gear (70% - 100%) and all recommend safety gear to buyers and riders. All ATV tracks reported requiring helmets (100%) but were varied in their responses regarding other forms of safety gear. The majority of ATV dealers (77%) recommended safety courses, but only 31% of dealers and 40% of tracks offered such courses. Overall, most ATV tracks (80%) felt they had a professional responsibility to educate riders/owners on safety. However, only approximately half (52%) of dealers felt the same.

Discussion

Overall, ATV dealer survey respondents reported giving additional safety information less frequently when selling new ATVs compared to used ATV sales. ATV dealer respondents also reported rarely offering skills tests or safety courses to buyers. On the other hand, ATV track survey respondents did report requiring helmets, but only about half offered safety courses or materials.

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Poster Number: 49

Category: Student
Type: Poster
Location: Simulation Center

Measuring Stress and Presenteeism among Kansas Hospital Employees: What Stress-Reduction Interventions Might Hospitals Benefit From Offering to Employees?

Jessica Huff, MS-4

University of Kansas School of Medicine-Wichita

Introduction

Workplace stress can cause significant strain on hospital employees. Stress negatively affects job satisfaction, increases burnout, increases presenteeism, and decreases the quality of patient care. No research has been conducted to develop interventions to decrease work-related stress among hospital employees. This study sought to determine Kansas hospital employee perceived stress levels within and outside of the workplace, and how this perceived stress affects workplace presenteeism. Additionally, this study sought to identify stress reduction interventions of greatest interest to employees of Kansas hospitals.

Methods

A 12-item survey was administered to 126 Kansas Hospital Association member hospitals via e-mail. A total of 399 surveys (n= 399) were completed.

Results

Nearly all (97.8%, n=389) respondents reported some level of perceived stress within the workplace, and most (92.4%, n=366) respondents reported some level of perceived stress outside of the workplace. Based on SPS-6 scores, a majority (93.4%, n=366) of employees reported moderate to high levels of presenteeism due to stress. Stress reduction strategies of greatest interest to employees were mental health leave (90.8%), child care at work (81%), elder care at work (80.7%), work from home part-time (79.3%), yoga classes (74.5%), coworker support groups (74%), increased staffing (73.3%), increased recognition or reward for a job well done (73.2%), and decreased workload (72.8%). Employees were more likely to participate in these interventions if given protected time to perform the activities.

Discussion

This implies that it could be helpful for hospitals to provide protected time for employees to engage in the identified stress reduction strategies.

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Poster Number: 50

Category: Faculty
Type: Poster
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Multidisciplinary Team Meetings to Focus on High-Risk Patients

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Introduction

Complex care management is a type of team-based care that focuses on high-risk patients, e.g., with poor glycemic control, who may require multidisciplinary efforts to address coexisting physical, behavioral, and social barriers. In spring, 2015 our Family Medicine Residency clinic instituted team-based care (TBC) for complex patients. The first year of experience with TBC will be reviewed using quality improvement (QI) tools to summarize the issues encountered.

Methods

Notes and patient data were reviewed to describe demographics and relevant variables of this high-risk sample. Team members were queried about their perceptions of TBC, specifically, its aim, expected outcomes, barriers, and suggestions for future TBC visits. Impact on resident education was addressed separately. The experiences of team members were organized using standard QI tools including 1) IHI questions [regarding aim, measures, and improvement] 2) A flowchart [to map the process of team-based care] 3) PDSA cycles [to show changes instituted acutely to address problems as they occurred] 4) A fishbone diagram [to identify and classify causes of poor outcomes] 5) Pareto diagram [to identify the most common barriers].

Results

Charts of 30 patients were reviewed. Risk factors included behavioral health conditions, high utilization, poorly controlled or complex conditions (primarily involving patients with a hemoglobin A1C > 10%), social determinants, and referrals by staff. Flowchart, PDSA cycles, fishbone and pareto diagrams will be populated with the experiential data provided by team members.

Discussion

These results will be used to focus team efforts going forward.

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Session: Afternoon
Presentation Number: 55

Category: Resident
Type: Oral Presentation
Location: Santa Fe

Outcomes in Combined Anterior and Posterior Fusion for 3 and 4-Level Degenerative Lumbar Disc Disease

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University of Kansas School of Medicine-Wichita

Introduction

This study reported the clinical and functional outcomes in a consecutive series of patients with 3 or 4-level degenerative disc disease (DDD) between vertebral levels from L2 to S1 who were treated with combined anterior lumbar interbody fusion (ALIF) and posterior spinal fusion at one-year and two-year follow-ups.

Methods

A retrospective chart review was performed on all patients who underwent long segment fusion for DDD by a single surgeon between August 2002 and January 2012. Fifty-five patients were identified and 32 had complete charts for review (one-year follow-up: 14; two-year follow-up: 18). In addition to demographic data, disability (Oswestry Disability Index, ODI), pain level (Visual Analog Scale, VAS), and flexion-extension range-of-motion were measured pre- and post-operatively.

Results

Both VAS and ODI improved significantly post-operatively. The average VAS score improved from 6.5 ± 1.5 to 4.4 ± 1.7 for one-year follow-up, and 7.0 ± 1.8 to 4.4 ± 2.6 for two-year follow-up. For one-year follow-up, the average ODI score improved from $53 \pm 19\%$ to $37 \pm 17\%$, and for two-year follow-up, the average improved from $53 \pm 18\%$ to $31 \pm 24\%$. The level of improvement in pain and function was similar to previously published data for 1- and 2-level fusions, but overall pain and function scores were worse in this study group.

Discussion

Arthrodesis for 3- and 4-levels DDD is, on average, a successful surgery that shows clinically significant improvements in function and pain similar to fusion for 1- and 2-levels with low rates of re-operation. Patients with involvement of 3- or 4-levels have higher disability and pain both pre-operatively and post-operatively compared to shorter fusion level involvement.

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Presentation Number: 56

Category: Resident
Type: Oral Presentation
Location: Santa Fe

Second Generation Patient Specific Total Knees Still Demonstrate a Higher Manipulation Rate Compared with 'Off-the-Shelf' Implants

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Introduction

Patient specific total knee arthroplasty (TKA) theoretically provides a more accurate fit to the native knee but may have difficulty achieving full range of motion (ROM) post-operatively. Post-operative ROM data was compared between patients who underwent cemented patient-specific cruciate-retaining (PSCR) and standard cemented posterior-stabilized (SPS) TKAs.

Methods

We reviewed PSCR and SPS TKAs that were performed from January 2014 to September 2015 by the same surgeon using the same postoperative protocols at two selected facilities. 2 and 6 week post-operative ROM data was obtained and the number of patients with knee flexion less than 110° was recorded.

Results

21 patients in the PSCR group and 57 patients in the SPS group were included. The percentage of patients with knee flexion less than 110° was similar in both groups at pre-operative (10% vs 14%, $p=0.60$), and 2-week post-operatively (57% vs 68%, $p=0.35$). However, at 6-week post-operatively there was significant difference (29% vs 7%, $p=0.01$).

Discussion

Patients whose TKA was performed using patient specific cutting guides struggled to obtain 110° of knee flexion. Close monitoring, aggressive physical therapy and early manipulation is therefore recommended when using patient specific cutting guides and custom total knee implants. Further evaluation in a larger group of patients is warranted.

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Session: Afternoon
Presentation Number: 57

Category: Student
Type: Oral presentation
Location: Santa Fe

TCAA Injury Prevention Committee - Pilot Study Developing a Falls Scene Registry

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Introduction

Each year approximately one in three healthy older adults age 65+ and one in two age 80+ living in the community will fall. Fall-related injuries are the leading cause of death and disability and cost the U.S. approximately 10 billion dollars annually. Currently, no repository of scene data exists that informs prevention programs regarding circumstances that contribute to older adult falls.

Methods

This was a multicenter (4 sites: Kansas, Maryland, Oregon, Texas) pilot study consisting of interviews of older (55+) patients who had been admitted to a trauma center with fall-related injuries. Questions included information regarding environment, behaviors, injuries, fall history and demographics. Additional information was abstracted from patient medical record: comorbidities, medications and discharge information. Pilot data is presented descriptively.

Results

Forty-nine patients were interviewed: average age was 78, white (93.9%) and female (53.1%). Falls were most common: at home without agency (51.0%); in the bedroom (24%) or kitchen (20%), while walking wearing laced or flat shoes on plush carpet (16.3%), flat carpet (14.3%) or tile (14.3%). Most frequent injuries included: contusion (62.2%); and intracranial hemorrhage (57.1%).

Discussion

Preliminary data suggest that prevention efforts should emphasize on educating older adults to focus on ambulation and body position in their daily activities as well as consistency in use assistive devices. The development of a systematic and organized registry that documents scene data would inform public health agencies to develop fall prevention programs that promote older adult safety. Further, it would provide a large sample size to test factor associations with injury severity.

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Session: Afternoon
Presentation Number: 58

Category: Student
Type: Oral Presentation
Location: Santa Fe

Examining the Healthcare Preferences of Reproductive-aged Women in Sedgwick County, KS: A Qualitative Study

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Introduction

Preconception care refers to the provision of biomedical, behavioral and social health interventions to reproductive-aged women before or between pregnancies to improve maternal and infant health outcomes. However, empirical evidence suggests there may be disconnect between the delivery of preconception care and women's adherence to recommendations. Prior research has demonstrated the importance of incorporating patient preferences to improve patient satisfaction, uptake of services and the overall health care delivery system. The purpose of the present study was to investigate health care preferences among reproductive-aged women.

Methods

In this qualitative study, four focus groups were conducted with 21 reproductive-aged (18-44 years) women residing in Sedgwick County, Kansas. Qualitative data were analyzed using a conventional content analysis approach to identify themes related to participants' provider and health care preferences. Demographic data were analyzed.

Results

Findings indicate that participants had preferences for physicians who were younger, female, and many African American participants indicated preferences for physicians who were also African American. Participants also placed great emphasis on aspects of care delivery, including strong preferences for good bedside manner, patient-centered communication styles, culturally sensitivity, longer visit time, and interacting with welcoming staff and care environment.

Discussion

These findings have important implications for health providers and administrators who can advocate for women's health by identifying strategies that incorporate women's preferences in the provision of preconception care. Findings also underline the need for ensuring a medical workforce that reflects the diversity of its patient population. Focusing on women's preconception care helps to ensure healthy outcomes.

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Session: Afternoon
Presentation Number: 59

Category: Resident
Type: Oral Presentation
Location: Santa Fe

A Retrospective Analysis of the Impact of Weight Loss on Renal Function

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Introduction

Approximately 66% of Americans are overweight with approximately half classified as obese. Obesity is an independent risk factor for the progression of chronic kidney disease (CKD), and weight loss is correlated with reductions in obesity related glomerulonephropathy. This study investigated the effect of a medically supervised weight loss program on renal function at baseline and following 12 weeks of therapy.

Methods

This study was a retrospective analysis of adults enrolled in a physician-directed, community-based weight management program. Patients consumed 800 kilocalories per day, attended weekly behavioral education classes, and expended 300 kilocalories per day in physical activity. The primary outcome of improved renal function was assessed using statistical analysis to compare weight loss and GFR. Secondary outcomes included comparisons of diabetic parameters, lipid profiles, blood pressure, and medication use.

Results

A total of 71 patients with an average weight of 286 pounds, BMI of 53, and baseline GFR of 29 were included. Following 12 weeks of therapy, 80% of participants improved in CKD stage ($p=0.017$). Analysis revealed a positive correlation of 0.29 between weight loss and increased GFR ($p=0.029$). Approximately 64% of patients required fewer anti-hypertensive medications and 83% of patients required fewer diabetic medications.

Discussion

Organized weight loss programs are a viable treatment modality for the prevention of co-morbid disease progression. This study indicated a positive correlation between weight loss and improved renal function, with the majority of participants exhibiting an improvement in CKD stage. When controlling for both diabetes and hypertension, the effect of improved renal function with weight loss persisted.

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Category: Faculty
Type: Oral Presentation
Location: Santa Fe

High Performance Computer Analysis of Mammogram Images for Treating Breast Cancer

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Wichita State University

Introduction

According to recent reports, cancer is expected to become the number one cause of death in the United States by year 2030. A typical mammogram has poor contrast and physicians often cannot find microcalcifications while using mammograms. Scientists from research institutions including the University of California at Berkeley and Brown University are expecting that computing will provide the best skills to treat cancer in the next decade. The proposed high performance computer (HPC) analysis technique has the potential to accurately encircle the suspicious regions in mammogram images.

Methods

First, the newly collected images and any previous images from the patient are converted into corresponding digital values using computer technology. Digital image values are then processed using feature extraction and pattern recognition techniques. Processing digital images is highly computation intensive. We use state-of-the-art HPC systems and parallel programming to speed up the process. We have been collaborating with Dr. H. Neeman (Director of the University of Oklahoma Supercomputing Center), Dr. M.F. Islam (Hematology/Oncology Specialist), and Dr. K. Cluff (Assistant Professor of Biomedical Engineering) to develop effective solutions for breast cancer treatment.

Results

Experimental results, using more than 300 images from the University of South Florida Digital Mammography Homepage, suggests that the proposed technique can successfully distinguish between benign and malignant tumors.

Discussion

The proposed research has potential to discover solutions that will assist physicians treat breast cancer in a time- and cost-effective manner. Research outcomes of this project can be applied to prevent and control other types of cancer such as lung cancer.

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Session: Afternoon
Presentation number: 61

Category: Resident
Type: Case Report
Location: Roberts Amphitheater

Management of Twin Gestation in a Bicornuate Uterus with a Pregnancy in Each Uterine Horn: A Case Study

Locke Uppendahl, M.D., Darren Farley, M.D., Jennifer Duong, MPH, Laura Tatpati, M.D., Zachary Kuhlmann, D.O.

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Case Introduction

Disturbances in the development of the paramesonephric (Mullerian) ducts during the 6-12th week of embryogenesis may result in congenital malformations in the female reproductive tract. Failure of the Mullerian ducts to properly fuse or incomplete absorption of the uterine septum lead to wide spectrum of uterine anomalies, many of which have been associated with adverse reproductive outcomes.

Case Description

We report a relatively rare case of bicornuate uterus with twin gestations complicated by essential thrombocytosis. A 26-year-old gravida 3, para 1 with known bicornuate uterus conceived a dichorionic diamniotic pregnancy after letrozole treatment. Three-dimensional ultrasound revealed an embryo in each uterine horn. The perinatal course was marked by essential thrombocytosis and intrauterine growth restriction of baby A. At 35 weeks gestation, non-reassuring antenatal testing (BPP 4/8 in baby A) prompted delivery. Twin infants were successfully delivered by primary low transverse cesarean section due to multigestation, vertex/breech presentation, and bicornuate uterus.

Case Discussion

The incidence of bicornuate uterus is estimated to be 0.1-3%. Mullerian anomalies have been associated with obstetric complications, including spontaneous abortion, malpresentation, abruption, preterm delivery, and operative delivery. Due to the rare occurrence of twin gestation with uterine anomalies, there are no guidelines on how to manage the pregnancy or the recommended mode of delivery. In this case, antenatal testing and serial assessment of fetal growth were used to monitor fetal well being. We hope this case report facilitates the development of treatment strategies for multiple gestations with uterine anomalies.

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Presentation number: 62

Category: Resident
Type: Case Report
Location: Roberts Amphitheater

17-Year-Old Girl with AKI of Unknown Etiology with Nephrotic and Nephritic Features

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Case Introduction

We report a case of a 17-year-old girl who presented with acute kidney injury (AKI) with nephrotic and nephritic features. Work up including pathology reports failed to identify a known glomerulonephritis (GN) pattern. Also, aggressive treatment with pulse steroids, cyclophosphamide and rituximab has failed to yield any improvement. Thus, this enigmatic pediatric case makes for a worthwhile discussion.

Case Description

A 17-year-old girl presents with a bilateral lower extremity pitting edema, malaise, two day history of running 5km daily and complaints of a sore. Review of systems is negative for fever, rash, weight loss, arthralgia, arthritis, myalgia. Labs revealed AKI with nephrotic and nephritic features. Work up for post-streptococcal GN, rhabdomyolysis and infectious etiology (CMV, EBV, Parvovirus B19, Hepatitis B, C, HIV) returned negative. Serum IgA levels were low. An ANA and ANCA panel revealed elevated p-ANCA titers and anti-MPO Ab titers. Light microscopy and electron microscopy (EM) of a renal biopsy were inconclusive; revealing a possible immune complex mediated diffuse proliferative GN with exudative features.

Case Discussion

Pathology reports depict diffuse proliferative GN with EM appreciating significant IgG and C3 staining. However, medical workup has failed to reveal any infectious etiology or any occult underlying systemic disease. A literature review was performed which revealed some more rare, less studied forms of GN which may be considered in our patient: Mesangial IgG GN (Fakhouri et al. (2002)); ANCA-associated necrotizing and crescentic GN superimposed on lupus nephritis (Nasr et al. (2008)); and membranous GN associated with ANCA (Nasr et al. (2009)).

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Ulnar Nerve Anterior Transmuscular Transposition in the Lateral Decubitus Position: A Case Series

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Case Introduction

Ulnar nerve entrapment at the elbow is the second most common upper extremity neuropathy and has multiple accepted procedures for surgical treatment. Over a 16-year period, the senior author has performed 202 consecutive ulnar nerve anterior transmuscular transpositions as the primary procedure of choice for primary or recurrent ulnar nerve entrapment at the elbow and symptomatic primary or postoperative ulnar nerve subluxation at the elbow. The procedure is done in the lateral decubitus position for easier access to the ulnar nerve, for completion of all components of the nerve transposition, less risk to medial cutaneous nerve branches and for familiarity of elbow anatomy. By selecting this procedure as the primary procedure, the need for technically challenging revision surgery is greatly reduced and outcomes are favorable.

Case Description

In this case series, 85% of the surgeries performed were primary procedures and 15% were revision surgeries. The average short term follow-up was 15 weeks. Patients reported improvements of preoperative ulnar paresthesias 85% of the time in primary procedures and 73% in revisions. The need for revision ulnar surgery is low; three patients (1.4%) required further ulnar nerve surgery.

Case Discussion

This report reviews the indications and contraindications, surgical anatomy, surgical technique, postoperative management, short-term outcomes and pearl and pitfalls for performing ulnar nerve anterior transmuscular transposition in the lateral decubitus position.

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