2017 Denman Undergraduate Research Forum Accepted Student Abstracts

Public Health and

Applied Health Sciences
Title: Undergraduate health professional students' perceptions of electronic cigarettes

Student Presenter: Basal Ali

Faculty Advisor: Sergakis, Georgianna

Abstract: Everyday, additional research emerges about the safety and adverse health effects of electronic cigarette devices, or e-cigarettes. There are several known public misconceptions about e-cigarettes, especially as they compare to conventional cigarettes. To that end, healthcare providers are among the first people to be asked by their patients about e-cigarettes and are often trusted to provide accurate information and dispel myths. Students training to become health professionals should be prepared to address the current issues and trends in health behavior facing our society. It's unclear if health professions programs address these current issues surrounding the new health-risk behavior of e-cigarette use. Without appropriate educational preparation, these future health professionals may be misinformed of the risks and safety of e-cigarettes. The purpose of this study was to examine health professions students in nursing, health sciences, medical dietetics and respiratory therapy programs regarding their knowledge, attitudes and perceptions about e-cigarette use and safety. An educational module was developed to provide current evidence-based information about e-cigarettes. This study explored the impact of a short educational module on the students' awareness, knowledge and perceptions which was measured utilizing a survey instrument before and after the delivery of the virtual module. Preliminary results in the respiratory therapy program suggest the module impacted knowledge, changed perceptions and increased confidence in counseling about e-cigarettes. Data collection for other programs is ongoing and anticipated results are that the module will improve knowledge and confidence for counseling patients in e-cigarette use following the online intervention. This data collection will guide future recommendations for e-cigarette content in health professions programs. Understanding the misconceptions surrounding e-cigarettes can help us direct the intervention and expose the need to properly inform the public, thereby positively impacting health outcomes.
Abstract: The policy response to HIV/AIDS in the United States is complicated and motivated by both scientific and political reasons. This research aims to understand how growing awareness of the concentration of HIV/AIDS among U.S. minorities, and broader racial issues in the country, caused changes in policy and funding in response to the epidemic. These findings will eventually be integrated into a book manuscript comparing policy responses to the HIV/AIDS epidemic between the United Kingdom and the United States. Over sixty transcripts from interviews with policy makers were reviewed to inductively identify policy initiatives that were initiated or influenced because of the racial dynamics of HIV/AIDS. Once these initiatives were identified, interview data were coded into specific nodes related to each one, using NVivo (software for qualitative data analysis). Deeper analysis then drew on this coding to understand the dynamics that impeded and facilitated the making of policy and funding choices designed to address the epidemic among U.S. minorities. Early results of this research suggest that important national policies, such as the Minority AIDS Initiative and the Ryan White CARE Act, came into being or were reframed once policymakers realized the extreme extent to which minorities were affected by the HIV/AIDS crisis. Policy challenges continue to arise surrounding these populations even after the epidemic was noticed in minority communities. By understanding how policy initiatives and decisions affected minorities in the HIV/AIDS epidemic, it is possible to better frame the U.S. response to future epidemics regarding the prevention of health disparities.
Abstract: Through the utilization of Mappler software researchers updated and expanded upon a pre-existing customized online portal which was created in an effort to provide residents of the Stambaugh-Elwood community of Columbus, Ohio (zip code 43207) with detailed information on possible environmental hazards existing within their neighborhood. This risk communications tool aims to serve as a resource, allowing residents to educate themselves about their own exposome and be better equipped to lobby for the environmental justice of their area. Data indicating high levels of particulate matter (PM 2.5) was obtained via the NASA MODIS satellite. Meanwhile data for other environmental indicators included on the mappler website were obtained through the EPA’s Environmental Justice Screening and Mapping Tool (EJSCREEN). This tool was also utilized to provide the mappler website with demographic information of Stambaugh-Elwood residents to highlight the existence of possible social constraints, emphasizing the community’s need for advocacy. Health data from Columbus Public Health was also incorporated onto the map, revealing the presence of disparate health outcomes in the area. Currently the mappler portal is constantly being improved with new features such as definitions from the Centers for Disease Control and Prevention (CDC) being added for the benefit of users. The updated mappler will be presented to residents in planned health fairs as well as advertised through mailed flyers.
India has unacceptably high maternal and infant mortality rates (374 per 100,000 and 45 per 1000, respectively) due to lack of antenatal care, unskilled delivery, and poor access to emergency obstetric services. To meet the United Nation's 2015 Millennium Development Goals, the government of India (GOI) implemented several programs to improve access to maternal healthcare services. The purpose of this systematic review is to synthesize and critically appraise the literature on government-led programs to improve maternal and infant health in India. Database searches were conducted in PubMed, Scopus, Medline, EBSCO, Cochrane Library, and CINAHL using key terms such as India, Indian women, Asian Indian, maternal care, antepartum care, postpartum care, skilled delivery attendance, rural healthcare access, and prenatal care. Articles published from January 1, 2002 to January 31, 2016 were included. Reviewers critically appraised the 34 qualifying articles using the QATQS evaluation tool. Preliminary analysis shows that one of the premier initiatives implemented in 2005 by the GOI is the Janani Suraksha Yojana (JSY) program. JSY uses conditional cash transfers for institutional delivery and employs Accredited Social Health Activists (ASHA) to promote maternal care in each India state. Studies show that programs have had minimal positive effect on maternal mortality rates, and the infrastructure of these health care systems is not ready to support a high level of quality of care. In conclusion, the GOI has made considerable effort to improve access to maternal care. Areas that need improvement include health promotion, infrastructure, and quality of care.
Abstract: Tobacco use remains a major public health issue, and exposure to tobacco marketing in the retail environment increases the likelihood that adolescents will start to smoke. Little is known about which adolescents are more likely to regularly visit convenience stores. Therefore, the objective of this study was to examine factors related to convenience store visits among Ohio adolescents. Participants included 1,221 adolescent males aged 11 to 16 years residing in one of nine rural Appalachian counties or urban Franklin County in Ohio. The baseline survey used mainly an audio-administered format, but convenience store items were interviewer-administered. The survey measured exposure to tobacco marketing continuously by number of convenience store visits in the past week. This measure was later categorized as 0, 1-2, 3-4, and 5 or more visits in the past week. The survey also measured demographics and tobacco use. Chi-square tests were used to examine factors associated with visits to convenience stores. Results indicated that ever having tried (ever-use) any tobacco product was associated with visits to convenience stores (17% of ever users had 5+ visits vs. 8% of never users, p
Abstract: We spend 90% of our time indoors where we are exposed to diverse microbial communities. Continued technological improvements in DNA-based methods allow for improved quantification and detection of these bacteria and fungi to better understand human exposure. Quantitative polymerase chain reaction (qPCR) and digital PCR (dPCR) have improved the ability of traditional PCR methods to quantitatively detect and identify DNA from environmental samples. qPCR provides a higher dynamic range and can accommodate a higher copy number, while dPCR, the newest technology, promises to be more repeatable and reproducible with a higher precision at low copy number. The detection limits for both technologies need to be determined for detection of microbes in the indoor environment. The goal of this work is to determine the quantitative accuracy, prevision, and reproducibility of these technologies and to establish extraction efficiencies during several stages of sample processing. It was found that upon collecting spiked dust samples from carpet that 6% of the total spiked DNA is lost, while 65% of DNA is lost during DNA extraction, leaving only 29% of the starting DNA quantity recovered in PCR analysis. These values indicate the importance of including extraction efficiencies in calculation of total DNA concentration and will provide context to the forthcoming method detection limits, accuracy, and precision of qPCR and dPCR in quantitative analysis of microbes in house dust samples.
Abstract:
It has long been realized that lower body strength plays a significant role in pitching performance, particularly peak ball throwing velocity (BTVel). Previous studies have shown vertical ground reaction forces produced by both the lead and trail legs in the pitching motion are significantly correlated with BTVel. In an attempt to incorporate this finding into an applicable field test, other work has investigated the correlation between vertical jump height and BTVel; however, no studies have examined a relationship between vertical jump power and BTVel, which allows for an athlete’s mass and rate of force production to be accounted for. The purpose of this study was to determine if peak BTVel is more closely related to vertical jump power than vertical jump height. Vertical jump height was measured in 21 male baseball pitchers varying in experience and skill among the high school, collegiate, and professional levels (n=13 high school, 6 collegiate, 3 professional; age 18.7±4.1 years; height 1.85±0.06 m; mass 83.6±8.6 kg). The Vertec vertical jump assessment was used, and the maximum of three trials was taken. Peak BTVel was determined using a Stalker Sport II Radar Gun while pitchers threw 5 full-effort pitches. The Harman Formula was then utilized to estimate power output. Pearson correlations were used to determine the strength of relationship between jump measures and peak BTVel. Peak vertical jump height was found to have a significant, but moderate correlation with peak BTVel (R²=0.34, β=1.20, p=0.006), congruent with previous studies. However, when substituting vertical jump power for vertical jump height, a stronger correlation with peak BTVel was shown (R²=0.55, β=7.36x10^{-3}, p
Abstract: Strong evidence generated in the intensive care unit (ICU) population suggests the development of delirium, agitation, and deep-sedation effects numerous patient and family-centered outcomes. Little information exists, however, about the frequency of these syndromes/symptoms in the Long Term Acute Care Hospital (LTACH) setting (i.e., centers that specialize in mechanical ventilation weaning and rehabilitation). This interim analysis describes the prevalence, incidence, and duration of delirium, coma, deep sedation, and agitation in adults who require mechanical ventilation in the LTACH setting and explores the accuracy of Registered Nurses' (RNs') assessment of delirium. The ongoing study utilizes a prospective, observational, before/after design. The first five patients enrolled at the single-center LTACH were included. A trained research assistant performed daily, in-person delirium and level of arousal assessments using valid and reliable tools (i.e., the Confusion Assessment Method-ICU [CAM-ICU] and Richmond Agitation Sedation Scale [RASS] respectively) up to 28 days or discharge. Medical charts were used to record RNs' delirium assessments. In-person assessments were performed on 62/100 (62%) total LTACH days. From the total days assessed (n=62), 39 days (63%) were spent at goal RASS (i.e., -1 to +1), 22 (35%) deeply sedated (i.e., -2 to -3), 1 (2%) in coma (i.e., -4 or -5), and no days agitated (i.e., +2 to +4). Excluding 1 coma day, delirium occurred on 28/61 (46%) of all assessed days. RNs frequently misinterpreted CAM-ICU results, with 55/100 (55%) CAM-ICU assessments recorded as "Unable to Assess" in patients who had applicable RASS scores. Episodes of deep sedation and delirium are common in the LTACH setting, occurring in over 1/3 and nearly 1/2 of all days assessed respectively. Over 1/2 of CAM-ICU assessments were inaccurate, creating an opportunity to improve LTACH RNs' delirium assessment skills.
Abstract: Breakfast consumption has been linked to numerous positive effects in children related to improved dietary quality and obesity prevention. The purpose of this study was to assess differences in dietary patterns between children who consumed breakfast versus those that do not by weight status. Dietary intakes of 13- to 18-year-old children (n=4,110) from the 2005-2012 National Health and Nutrition Examination Survey and were categorized by breakfast consumption. Dietary intakes were assessed using a 24-hour recall. Breakfast consumption was tallied using self-reported meal identification for foods reported. Diet quality was tabulated using the Healthy Eating Index-2010 score (HEI-2010, 0-100 range). Children's weight status was categorized using BMI-for-age percentiles into normal weight, overweight, and obese classifications. Approximately 72% (n=2,870) of children ate breakfast on the day of report. Normal weight children were more likely to eat breakfast (74%) than overweight and obese children (66%, respectively) on the day of intake. Overall diet quality was better in children who ate breakfast (HEI-2010: 42.1-43.0) than those who skipped breakfast (HEI-2010: 37.8-39.5) with little differences in HEI-2010 noted by weight status. Children who ate breakfast had better diet quality scores for fruit, whole fruit, whole grains, dairy products, and empty calories, but had lower scores for vegetables, protein foods, fatty acids, and refined grains. Overall diet quality was better in children who ate breakfast than those that did not regardless of weight status. Breakfast consumption is related to better dietary patterns and further research is needed to explore the drivers of the intakes that create those differences.
Category: Public Health and Applied Health Sciences

Title: Undergraduate health professional students’ perceptions of electronic cigarettes

Student Presenter: Bianca Edler

Faculty Advisor: Sergakis, Georgianna

Abstract: Everyday, additional research emerges about the safety and adverse health effects of electronic cigarette devices, or e-cigarettes. There are several known public misconceptions about e-cigarettes, especially as they compare to conventional cigarettes. To that end, healthcare providers are among the first people to be asked by their patients about e-cigarettes and are often trusted to provide accurate information and dispel myths. Students training to become health professionals should be prepared to address the current issues and trends in health behavior facing our society. It’s unclear if health professions programs address these current issues surrounding the new health-risk behavior of e-cigarette use. Without appropriate educational preparation, these future health professionals may be misinformed of the risks and safety of e-cigarettes. The purpose of this study was to examine health professions students in nursing, health sciences, medical dietetics and respiratory therapy programs regarding their knowledge, attitudes and perceptions about e-cigarette use and safety. An educational module was developed to provide current evidence-based information about e-cigarettes. This study explored the impact of a short educational module on the students' awareness, knowledge and perceptions which was measured utilizing a survey instrument before and after the delivery of the virtual module. Preliminary results in the respiratory therapy program suggest the module impacted knowledge, changed perceptions and increased confidence in counseling about e-cigarettes. Data collection for other programs is ongoing and anticipated results are that the module will improve knowledge and confidence for counseling patients in e-cigarette use following the online intervention. This data collection will guide future recommendations for e-cigarette content in health professions programs. Understanding the misconceptions surrounding e-cigarettes can help us direct the intervention and expose the need to properly inform the public, thereby positively impacting health outcomes.
Category: Public Health and Applied Health Sciences

Title: Addressing nurses' unmet needs for cognitive work by analyzing 'brains' format and content

Student Presenter: Simon Fernandez

Faculty Advisor: Patterson, Emily

Abstract: The project goal is to empirically identify and creatively explore how to address unmet needs for nurses using an electronic health record in the inpatient setting through direct observation of use of a 'workaround' system, handwritten notes on paper ('brains'). Prior research identified a remarkably extensive use of paper artifacts ('brains') in conjunction with use of electronic health records by nurses in inpatient settings. The construction of 'brains' typically taking 30 minutes at shift beginning. This information, even outdated, is often relied upon as the primary information source when a nurse is asked questions, participates in rounds, assesses patients, and during other major clinical tasks. A mixed-method study was conducted to identify needs. For the first study, six publicly available 'brains' from an online repository were analyzed. For the second study, direct observations were conducted of nurses using 'brains'. Twenty nurses were observed twice in four hour observations. Photographs of the 'brains' were taken at beginning and end of the time period. The format, layout, and content were analyzed. All nurses used 'brains' with 1-4 patients per page, some handwritten content, header information in upper left corner, and common annotations (i.e. emphasizing lab values by circling). Differences were identified regarding inclusion of other information (medication information, 'to do' lists, content of margin notes) during the shift. The next phase exploration of HIPAA-compliant solutions for addressing identified needs, either electronically (phone-based application), a hybrid paper-electronic solution, or paper-based approach (standardizing 'brain' creation/content), while allowing personal customization. The significance of this work lies in optimizing the time that nurses can spend on care provision while having rapid access to integrated, personalized overview of information that supports their cognitive work. In achieving these goals, it is anticipated that quality of care, patient satisfaction, patient safety, and shift change handovers will ultimately be improved.
Category: Public Health and Applied Health Sciences

Title: Reddit recruitment of women refused abortion or contraception due to their provider's conscientious objection

Student Presenter: Katherine Friedman

Faculty Advisor: Gallo, Maria

Abstract: Social media websites (e.g., Facebook or Twitter) have been used to recruit hard-to-reach populations for research. In the context of reproductive health, women who are refused contraception or abortion care by a healthcare provider or pharmacist due to the professional's moral or ethical beliefs constitute a hard-to-reach population. Restricting access to contraception can increase the rates of unintended pregnancy, infant mortality, and unsafe abortion. For a qualitative study, we used Reddit to recruit women who were denied reproductive healthcare in the last two years in the US. We chose this social media website for its anonymous nature and because of the topic's sensitivity. To our knowledge, this is the first study to use Reddit to recruit participants for data collection. We recruited participants via 1) Reddit posts asking eligible women to respond through Reddit's private messaging (PM) system and 2) PMs to Reddit users who had posted about an experience that involved being denied this care. For the first approach, we posted recruitment messages thirteen times on six 'subreddits' (Reddit pages dedicated to specific topics) at different times and days of the week during a five-month interval to reach as many women as possible. This approach yielded no interviews. For the second approach, we used key words in Reddit's search function, which led us to identify posts from 13 potentially-eligible women. After messaging these women, three completed the interview. The use of "throwaway accounts," accounts created solely to post something sensitive without associating it with a known account, might have negatively affected our ability to recruit. While posting a request for Reddit users to voluntarily respond through PM does not appear feasible, the second recruiting approach, in which potential participants were identified by searching posts, could be successful for recruiting hard-to-reach populations if sufficient numbers of existing posts were available.
Abstract: Background and Objective: The American Association for Respiratory Care (AARC) loses approximately 1,500 members each year. This may be the result of a disconnect between the new Respiratory Therapy professionals and the Association. Our 2016 study is designed to identify why graduates of accredited Respiratory Therapy Programs choose not to belong to the AARC upon graduation. Methods: We will use a mixed methods study design, which will include qualitative and quantitative data. We will recruit directors of accredited respiratory care programs via email to distribute the link of our survey to their 2016 graduates with an invitation to participate. Demographic and survey response data will be reported in aggregate form. Groups of Respiratory Therapy graduates of two-year and four-year programs will be compared based on those with an active membership versus those who did not convert to active membership. Student's paired t-test with p 0.05 is considered statistically significant. Results: Data collection will be completed in February 2017. Conclusions: Data will be analyzed and our study will have conclusions by March 2017.
Abstract: In the last 30 years, the US has seen a rapid decline in home scratch cooking. During this time, chronic lifestyle-related diseases have also increased. The purpose of this research is to ascertain the factors contributing to cooking behaviors among adults in Ohio State University campus area of Columbus, Ohio. This cross-sectional study included 150 participants, recruited at three different sites; a natural foods grocery store, a fast food business, and a food pantry. After providing consent, each participant completed a battery of surveys that collected data on sociodemographic characteristics, cooking behaviors, and factors promoting or hindering scratch cooking. Data was analyzed using contingency cross-tabs and chi-square analysis to assess the significance of relationships. Study participants were mostly female (58%) white (59%) with majority (53%) non-students. Additionally, majority (72%) reported engaging in scratch home cooking more than 50% of their meals. Preliminary results show health as the highest factor contributing to participants' scratch cooking behavior (42%) and time was the largest factor for those who did not majority cook at home (46%). Skill was the lowest (4%). (20 %) Students cooked at home from scratch significantly less than non-students (85% P
Category: Public Health and Applied Health Sciences

Title: From bedside to bench: validation of cigarette smoke biomarkers in normal and high at-risk mucosa (HARM) oral cells

Student Presenter: Lea Ghastine

Faculty Advisor: Weghorst, Christopher

Abstract: In the mouth, cigarette smoke (CS) triggers changes that can lead to oral cancer (OC). The 5-year survival rate for OC is only 57%, with higher mortality in some minority groups. There is a strong correlation between fruit and vegetable intake and decreased oral cancer risk. Black raspberries (BRBs) are a potential intervention for decreasing the risk of OC development in high at-risk mucosa (HARM), such as found in smokers. In a previous clinical trial (NCT01514552), we identified several promising CS-associated biomarkers. Biomarkers are genes that exhibit changes in expression in response to an environmental exposure. The current study investigated changes in gene expression in oral cells induced by exposure to CS or BRBs. In this study, human normal and HARM oral cells were exposed to either CS or BRB chemicals. CS extract was obtained by aspirating UK3R4F Reference Cigarettes through serum-free cell culture media under constant pressure using a custom smoking apparatus. Cells were either treated with BRBs or exposed to CS in a dose-escalation format. Cells were harvested after 48 hours, and total RNA isolated. Changes in the clinical biomarker signature were assessed using RT-qPCR. We examined 8 genes, 5 of which were excluded for failing reproducibility standards. Two genes (ACTB, TRNP1) were evaluated as biomarkers following normalization. Analysis using qbase+ software revealed that neither CS nor BRBs significantly affected either biomarker in normal cells. In HARM, CS significantly affected both biomarkers, and BRBs significantly altered ACTB, but not TRNP1. These outcomes demonstrate that neither CS nor BRBs significantly alter biomarker expression in competent healthy cells. Conversely, in HARM, TRNP1 validates as a CS exposure biomarker. Unexpectedly, the historical "housekeeping gene" ACTB presents as a statistically significant biomarker of both CS and BRB exposure. These biomarkers may assist in identifying individuals at risk for OC development.
Category: Public Health and Applied Health Sciences

Title: Comparing mothers' self-reported and observed responses to children's negative emotions

Student Presenter: Kelly Haller

Faculty Advisor: Feng, Xin

Abstract: The relation between a mother's self-reported and exhibited response to a child's expression of a negative emotion was examined in the context of a pre-visit questionnaire completed by the mother and observation of a clean-up task performed during a mother/child lab visit. The study also examined whether maternal depressive symptoms had any effect on the relation between self-reported and observed responses. Eighty-five mother-child pairs were included in the study. Results indicated that mothers may think they are responding in one manner, but they are observed behaving in a somewhat different manner, at least in a brief controlled environment. Another finding of note is that the children of mothers with severe depressive symptoms displayed greater negative emotion overall, and the mothers with severe depressive symptoms responded to such displays with largely critical responses. On the other hand, the children of mothers with minimal or no depressive symptoms displayed less negative emotion during the clean-up task, and when the children did display negative emotion, the mothers with minimal or no depressive symptoms responded in an overall supportive manner. These results suggest that mothers may not be aware of the responses they send to a child's expression of a negative emotion, and maternal depressive symptoms may play a role in a mother's response to a child's expression of negative emotion.
Abstract: Femoroacetabular impingement (FAI) is the leading cause of hip dysfunction in young and active populations. Previous FAI research has highlighted bilateral postural control discrepancies measured by the single leg anterior reach (SLAR). The reason for these performance differences is unknown, but one possible reason could be differences in the amount of time spent completing the SLAR on each leg, also known as trial length. The purpose of this study was to determine if trial length differs between the involved and uninvolved limb in individuals with FAI. Twenty subjects (males/females:6/14, height=165.7&plusmn;8.2 cm, weight=66.5&plusmn;13.7 kg, age=34.6&plusmn;6.8 y) were tested using a three-dimensional motion capture system (Vicon Motion Systems Ltd., Oxford, UK) using retroreflective markers on the first toe of each foot. Trial length was calculated from the frame in which the marker on the big toe of the foot reaching anteriorly passed the frontal plane of the marker on the toe of the stance limb to the frame in which the marker of the reach limb returns through that same frontal plane. A paired t-test was conducted to examine bilateral differences in trial length during the SLAR task between involved and uninvolved limbs. Statistical significance was determined a priori at p&le;0.05. No significant temporal difference was revealed (p=0.71) between limbs. The average trial time for the involved limb was 2.7&plusmn;1.2 seconds, while the uninvolved limb averaged 2.7&plusmn;1.0 seconds. These findings suggest that a protective strategy that effects trial length is not employed by the involved limb of individuals with FAI during SLAR tasks, and this is likely not the cause of performance deficits. SLAR performance has been shown to be dependent on ankle dorsiflexion range of motion, therefore future studies may want to compare bilateral differences of ankle dorsiflexion range of motion as it relates to SLAR discrepancies in individuals with FAI.
Category: Public Health and Applied Health Sciences

Title: Assessment of current pitching workload practices for high school baseball pitchers

Student Presenter: Emily Holmes

Faculty Advisor: Onate, James A.

Abstract: Upper extremity injuries are common in baseball players, especially pitchers, and are occurring at younger ages. According to the National High School Sports-Related Injury Surveillance Study, 44,760 high school baseball players were injured during the 2015-16 academic year, with an estimated 38% of these injuries occurring to the arm, shoulder or elbow. To reverse this trend, USA Baseball in conjunction with Major League Baseball created the PitchSmart program to give age-appropriate pitching safety recommendations. The purpose of this study was to evaluate high school baseball coaches’ current pitching workload practices and knowledge of the PitchSmart program. An anonymous survey, created by content experts and demonstrating strong representational validity, was developed from PitchSmart recommendations. Seven core questions assessing specific knowledge of the PitchSmart program were asked in addition to other pitching workload related questions. These core questions focused on pitch count and recovery recommendations. This survey was sent electronically to 68 central Ohio high school baseball coaches with a 19.1% response return rate (13/68), although not all of the questions were completed by each respondent. Over half of the respondents (58.3%) had previous knowledge of PitchSmart, but only 14.3% (1/7) of those with knowledge actually followed the recommendations. Amongst the core PitchSmart questions, 90% of coaches allow their pitchers to throw 100+ pitches per game, 70% of coaches don’t allow pitchers to play catcher in the same day, and 80% of coaches allow 3+ days of rest for more than 60 pitches. These results suggest that further instruction and awareness of the PitchSmart program is warranted, in addition to research looking to improve coach buy-in and adherence to recommendations.
Category: Public Health and Applied Health Sciences

Title: Bridging social and environmental justice: understanding the geography of environmental segregation in Columbus, OH

Student Presenter: Frank Johnson

Faculty Advisor: Reece, Jason

Abstract: Social justice and environmental justice are well-developed fields which each inform urban planning policy in multiple ways, including the use of neighborhood evaluation data metrics. However, little is understood about the relationship between the two concepts of social and environmental equity at the neighborhood scale. This research uses spatial correlation analysis to map the geographical relationship between socioeconomic and environmental indicators over the city of Columbus. Using this analysis, I identify the conflicts are similarities between the geography of socioeconomic quality and the geography of environmental quality. The Bexley and Near East neighborhoods are found to be a meaningful contrasting case study of how planning policies can influence the development of socioeconomic and environmental inequity in unison. The history of each neighborhood's development and policy factors contributing to contemporary conditions are discussed, as well as future implications on policy. The concept of environmental segregation is put forth as a framework aligning socioeconomic and environmental justice as informed by the spatial correlation analysis, which showed similar inequitable clustering patterns of socioeconomic and environmental assets over the city.
Abstract: This study aims to determine support factors that influence women's decisions to breastfeed their multiples for over 12 months and characterize this group of particularly successful breastfeeding mothers, with the intention of informing breastfeeding promotion interventions. The American Academy of Pediatrics recommends breastfeeding exclusively for 6 months. However, it is estimated that only 25% of twins and 15% of triplets still receive some human milk at 6 months. Multiple births comprise a relatively small proportion of births annually but are associated with a high frequency of complications, such as prematurity, that create breastfeeding difficulties. These circumstances make multiples an important target for breastfeeding interventions. Data were collected via a self-administered online survey that was distributed internationally via La Leche League. The survey included questions regarding breastfeeding experience with each child and the various types of support that influenced the experiences. All the women breastfed multiples for over 12 months and a majority are white, well educated (80% with college degree), and 30 - 39 years old. Most live in the United States and have 2 - 3 children. Only 20% of respondents indicated that their child's primary care provider's recommendations were important/very important to their decision, and only 12% indicated the same regarding their doctor's recommendations. Factors highly rated as important included nutritional value of breast milk, other health benefits of breastfeeding, establishing a strong bond, and mother and child enjoying breastfeeding. A majority of the sample (71%) felt their partner was important/very important to their decision. This relationship is the most highly rated as influential. Including the woman's partner could enhance educational opportunities designed to encourage mothers of multiples to breastfeed. Additionally, emphasis on health benefits of breastfeeding may encourage mothers to breastfeed longer. Further research to test breastfeeding interventions should be completed with these results in mind.
Abstract: HIV/AIDS is one of the most politically charged illnesses in our nation's history, and policy making in response to the disease continues to be complex. This disease is unique in its tight dependency on government and healthcare policy decisions, as morality and politics greatly influence prevention efforts, access to treatment, and quality of care. Under the direction of Dr. Tasleem Padamsee, this research contributes to the historical documentation that will be featured in her forthcoming text on the history of HIV/AIDS related policy making in the United States and the United Kingdom. This smaller study documents all HIV/AIDS related policies that were proposed, debated, or passed in the U.S. from July 1st of 2013 through January 20th of 2017, the end of the Obama administration. Previous to this specific study, this history had not been documented. By collecting relevant data from three major news sources in the U.S. (The New York Times, Kaiser Health News, and POZ), this qualitative research rendered approximately 500 news articles relating to HIV/AIDS healthcare policy making. These articles were then summarized to capture their core information in a more concise form. The information was then organized in a spreadsheet, separated into columns relating to various topics that are both distal and proximal to HIV/AIDS policy decisions. This analysis yielded two major areas of concern in U.S. HIV/AIDS policy since 2013: funding and access to care. After the passage of the Affordable Care Act, methods of payment for HIV/AIDS treatment began to change in the United States which concurrently affected patients' access to care. There was also a shifting emphasis from treatment to prevention of HIV/AIDS. The significance of understanding health policies and the decisions surrounding them lies in the information they provide that is relevant to shaping future policy and public health decisions.
Abstract: This research aims to contribute to our understanding of (1) policy processes that influence cities' and organizations' ability to implement syringe access programs, and (2) the ability of these programs to contribute effectively to reducing disease and other negative impacts of injecting drug use on users and surrounding communities. Injecting drug use is the leading cause of Hepatitis C transmission and the second leading cause of HIV transmission. Syringe access programs (SAPs), have been proven to decrease the incidence of these blood-borne diseases among practicing injecting drug users (IDUs). A CDC study of 9 U.S. cities also found that SAPs resulted in a 13% decline in drug injection and 20% reduction in needle sharing, further showing the efficacy of SAPs. Despite this, only 7% of IDUs have access to a SAP. Columbus has been dealing with a significant uptake in opiate usage and was in desperate need of an SAP until Safe Point opened in 2015. Three forms of data collection were used in this research: systematic news searches to document the history of how Safe Point was launched, key informant interviews with 15 policy actors involved in that process, and participant observation through regular volunteering shifts at Safe Point. Together, these data provide a holistic view of how local leaders were able to initiate the SAP and how it currently operates to reduce risk. Preliminary results indicate that there were many policy obstacles in the opening of Safe Point, and that both social barriers (such as stigma) and legal barriers (such as the drug paraphernalia law) inhibit the program from being maximally effective. To minimize mortality and morbidity in the context of an ongoing opioid epidemic, more programs like Safe Point will be needed, and barriers to the efficiency of these programs will need to be addressed.
Title: Comparison of Achilles tendon ruptures in the NFL between offense, defense, and special teams players

Student Presenter: Matthew Krill

Faculty Advisor: Borchers, James

Abstract: Compare the incidence of Achilles tendon (AT) ruptures between position groups in the NFL over the 2009-10 to 2016-17 seasons. Ruptured Achilles tendons are devastating injuries suffered by players in the NFL every year that require a long and grueling recovery time and can be career-ending. A player on offense, defense or special teams experiences different forces and movements based on position. In efforts to improve safety, identifying players most susceptible should be evaluated. AT ruptures in the NFL were documented from the 2009-10 to 2016-17 NFL seasons. Injury data was divided based on position (offense, defense, and special teams) and time of the season of injury (off-season, pre-season, regular season, and post-season). Descriptive statistics were calculated for all categories. There were 118 AT ruptures documented in the NFL with a mean of 14.75±3.77 per season. Defensive players had the greatest number of AT ruptures (N=69, 8.625±2.62 per season) followed by offensive players (N=46, 5.75±2.12 per season) while special teams players had the fewest number of AT ruptures (N=3, 0.375±0.74 per season). The 2014-15 season had the greatest number of ruptures in a season (N=21), whereas, the 2009-10 season had the fewest (N=8) led by defensive players (N=14 and 5 respectively) and offensive players (N=7 and 3 respectively) while special teams players sustained no ruptures either of those seasons. The incidence of AT ruptures increased between the 2009-10 and 2016-17 seasons. Defensive players in the NFL have accounted for 20 more ruptured AT than offensive and special teams players combined. Further studies should examine what predisposes defensive players to a great incidence of AT ruptures in efforts to optimize player safety.
Category: Public Health and Applied Health Sciences

Title: Evaluation of three amorphous black raspberry confections for analysis of salivary kinetics and polyphenol profile in oral cancer prevention

Student Presenter: Samantha Marks

Faculty Advisor: Vodovotz, Yael

Abstract: Previous investigations report black raspberry (BRB) polyphenol bioavailability is largely affected by individual differences in saliva and their interactions to the BRB compounds while in the oral cavity. One hypothesis suggests extending the exposure of BRB compounds in the mouth enhances their absorption and bioactivity. Yet another hypothesis suggests prolonging the oral residence time of BRB will enhance their degradation thereby diminishing their bioactivity. Profiling polyphenols in saliva following the release of the confections at different rates will help elucidate whether confections with the greatest residence time in the oral cavity will result in the greatest quantity of polyphenols to partition into the saliva. Therefore the primary objective of this study is to investigate the impact of oral residence time on BRB polyphenol profiles in saliva using three amorphous forms (glassy: hard candy, viscous: pectin-gummy, elastic: starch-gummy) to mediate the length of BRB exposure in the oral cavity. Nested within a four-week, randomized, phase I study, 30 men and 30 women, non-smoking adults evaluated three amorphous confectionary forms having three different release rates (prolonged, intermediate, and rapid), each containing 1.25g freeze-dried BRB. HPLC with tandem mass spectroscopy was used to quantify and profile black raspberry compounds and their metabolites from the confections and saliva, respectively. All confections were well accepted. Oral residence time was 74% longer and saliva volume was 42% greater with glassy than the other two amorphous forms. Fifteen polyphenols were identified in saliva. Preliminary data shows that saliva after hard candy consumption had significantly (p≤0.05) higher ellagitannin and methyl ellagic acid malonyl pentoside compared to the other confections. Extending oral residence time enhanced salivary concentration of polyphenols which suggests that confections with extended release of BRB compounds may be a good strategy for future prevention trials for oral cancer.
Abstract: According to the World Health Organization (WHO), cancer is the second leading cause of death worldwide after cardiovascular disease. Among women and men, breast cancer and prostate cancer, respectively, are the most commonly diagnosed and the leading causes of death (WHO, 2015). Much research has been conducted in an attempt to determine factors affecting the initiation, promotion, and proliferation of tumor cells. One such modifiable risk factor has been determined: obesity. Evidence from studies investigating the relationship between body-mass index (BMI) and the risk for developing 22 different types of cancer shows that a higher BMI is associated with a greater risk of cancer diagnosis (Bhaskaran et al., 2014). Obesity is highly prevalent in the United States and also continues to rise globally. However, in Europe, particularly in the Mediterranean region, the obesity rates are lower than that of the United States. In addition, cancer incidence and mortality rates are lower in these regions. Thus, attention is drawn towards the differences in dietary lifestyle between the United States and the Mediterranean regions. The purpose of this literature review is to describe and compare disease outcomes, specifically those related to cancer, from populations consuming the Mediterranean diet against those populations consuming the Westernized diet. Literature was found using the search engines PubMed, EBSCOhost, and the university library database, and the focus topics were on the Mediterranean and Westernized dietary patterns in relation to cancer development, outcome, and mortality. The literature demonstrated that individual adherence to a Mediterranean diet both in the Mediterranean region and the United States was associated with a decreased cancer risk and mortality. The adoption of the Mediterranean diet as part of a healthy lifestyle needs to be encouraged among Americans as part of an intervention for reducing cancer risk and/or improving disease outcomes. References Bhaskaran K., Douglas, I., Forbes, H., dos-Santos-Silva, I., Leon, D. A., & Smeeth, L. (2014). Body-mass index and risk of 22 specific cancers: a population-based cohort study of 5.24 million UK adults. Lancet, 384:755-765. WHO. (2015) Cancer. Retrieved November 27, 2016, from http://www.who.int/mediacentre/factsheets/fs297/en/.
Abstract: The human thorax is one of the most commonly-injured areas of the body in motor vehicle crashes. Rib fractures in particular are highly prevalent. In order to gain a better understanding of the loading capabilities of human ribs, an ongoing project is examining the geometric and structural properties of post-mortem human ribs. One hundred and seventy-four mid-thoracic ribs from 89 subjects were individually impacted in a dynamic experiment simulating a frontal loading car-crash scenario. Peak force and linear structural stiffness were calculated for each impact. A total of 227 cross-sectional histological sections were imaged from the impacted ribs at varying locations. Robusticity of the rib was measured for each cross-section by dividing Total Cross-Sectional Area (Tt.Ar) by overall Curve Length (Cv.Le). The location of each cross-section relative to total Cv.Le was also observed. Multiple predictors were then combined into a single multivariate model, to account for potential collinearity. Multiple linear regression was used to compare the effects of robusticity, section location, and age on measured force and stiffness. The data were appropriately grouped to control for sex. All predictor variables were centered and standardized using standard deviation values. The regression model revealed that robusticity and age have significant influence on both Peak Force and Stiffness (p
Abstract: Clostridioides (Clostridium) difficile is a spore-forming bacterium that can produce toxins upon replication in the intestinal tract (i.e., colonization), causing inflammation, primarily colitis, with more severe complications in susceptible individuals (e.g., inflammatory bowel disease and cancer). The main source of infection has long been attributed to person-to-person transmission in health care facilities with spill over into the community. However, recent studies have shown that most cases ~70-75% of cases are not due to health-care transmissions. Since the first reports of C. difficile infections in the 1980s, there has been a growing interest in quantifying to what extent infections are due to foodborne exposure. To address this hypothesis, the objective of this study was to conduct a systematic review of the scientific literature reporting the presence of C. difficile in foods for subsequent quantification of the risk factors associated with the prevalence using meta-analysis and meta-regression. A systematic review was conducted following the Cochrane Handbook for Systematic Reviews. An initial search of studies retrieved 1,923 records from PubMed and the Web of Science using a consensus keyword algorithm. Secondary search used Google Scholar citation to identify grey literature and peer-review reports not indexed in PubMed and Web of Science. As of January 2017, 70 studies were considered relevant and passed screening for inclusion in itemized and cumulative meta-analysis. The earliest study was published in 1981, with an exponential increase of annual studies on the topic over the last decade. Geographically, selected studies were conducted in Africa (n=3), Asia (n=13), Australia and New Zealand (n=2), Europe (n=17), North America (n=34) and South America (n=1). Together, the generated dataset represents microbiological protocols from 22 different countries, 216 scientists, and 207 itemized food products of plant and animal origin, including beef (n=37), pork (n=33), poultry (n=31), seafood (n=25) and vegetable (n=24) items. The overall unweighted arithmetic average of the prevalence (%) of C. difficile across all tested food items was 10.7±17.2%, with a mean sample size per item of 95.6±137.6 (mean±SD). This work will help appraise existing evidence and determine global prevalence of C. difficile in foods intended for human consumption as risk factor for C. difficile infections.
Category: Public Health and Applied Health Sciences
Title: Factors that influence respiratory therapy graduates' membership in the American Association for Respiratory Care
Student Presenter: Haley Pohl
Faculty Advisor: Dunlevy, Crystal

Abstract: Background and Objective: The American Association for Respiratory Care (AARC) loses approximately 1,500 members each year. This may be the result of a disconnect between the new Respiratory Therapy professionals and the Association. Our 2016 study is designed to identify why graduates of accredited Respiratory Therapy Programs choose not to belong to the AARC upon graduation. Methods: We will use a mixed methods study design, which will include qualitative and quantitative data. We will recruit directors of accredited respiratory care programs via email to distribute the link of our survey to their 2016 graduates with an invitation to participate. Demographic and survey response data will be reported in aggregate form. Groups of Respiratory Therapy graduates of two-year and four-year programs will be compared based on those with an active membership versus those who did not convert to active membership. Student's paired t-test with p 0.05 is considered statistically significant. Results: Data collection will be completed in February 2017. Conclusions: Data will be analyzed and our study will have conclusions by March 2017.
Category: Public Health and Applied Health Sciences

Title: Comparing the impact of geographic location on coping strategies among primary caregivers with food insecurity

Student Presenter: Allison Porter

Faculty Advisor: Kaye, Gail

Abstract: The objective of this study is to explore differences in coping strategies among urban and rural primary caregivers with food insecurity. According to the USDA, food insecurity is a household-level economic and social condition of limited or uncertain access to adequate food. In 2014, there were 17.4 million American households classified as food insecure with the highest prevalence found in rural and urban settings. To mitigate the effects of food insecurity, primary caregivers use an array of coping strategies to feed their children, including foregoing basic needs like medication, rent, and utilities to purchase food. However, little is known about the use of these coping strategies by caregivers from urban and rural environments. Understanding these coping strategies used by caregivers could be useful in creating geography-specific strategies to address this debilitating issue. Primary caregivers, over the age of 18 with dependents under the age of 18, were recruited at two family practice clinics in Columbus, Ohio. Questionnaires were administered to assess presence and severity of food insecurity and food coping strategies. Place of residence, neighborhood characteristics and demographic information were also obtained. Recruitment is ongoing and will be completed by March 20, 2017. Initial responses indicate that there appears to be differences in coping strategies used in urban and rural environments. Urban primary caregivers appear to have a greater prevalence of food insecurity and appear more likely to forego utilities and rent whereas rural primary caregivers appear to forego medicine to obtain food. By understanding the coping strategies used by food insecure caregivers from rural and urban locations, public health professionals will be able to better understand the complex nature of food insecurity to plan more strategic interventions which can protect against poor nutrition and health outcomes and better serve the populations affected.
Abstract: Individuals with lung cancer may face stigmatism due to the implicit and explicit attitudes of our society. These negative attitudes are linked to the association of the disease with smoking history and perception that the disease is self-inflicted. The effects of this health-related stigma are detrimental to the lung cancer patients’ emotional health and may affect disease outcomes. The purpose of this study was to assess the effectiveness of an Implicit Bias Workshop in increasing awareness of attitudes and behaviors that can negatively impact lung cancer patients among respiratory therapists. Subjects were recruited to participate in a qualitative interview before and after the workshop. The intervention was a two-hour workshop that focused on how implicit bias can affect communication and patient care interactions. The focus group participants responded to questions to examine their perceptions toward lung cancer implicit bias before and after the workshop. Preliminary results suggest that the respiratory therapists are not aware of their implicit bias and therefore unaware of the negative effect of their behaviors when interacting with patients that have lung cancer. Additional data collection and analysis will occur following the post-intervention focus group. It is expected that results will indicate that a workshop and self-reflection about implicit bias for lung cancer will positively impact respiratory therapists intended behavior.
Category: Public Health and Applied Health Sciences

Title: How do the social determinants of health care in complex patients impact the overall economic cost to the healthcare system?

Student Presenter: Evan Smith

Faculty Advisor: Hayes, William

Abstract: As policy changes nationwide, the correlation between economic policy and its effect on the health of the population will become more prevalent. The goal of this project was to analyze how social determinants of health care can affect the health of a complex patient, and how much cost was incurred as a result. This was accomplished by analyzing the cost pre and post intervention, with a focus on outpatient visits, cost of stay, and cost paid. The intervention consisted of improving the financial independence of the patient while addressing other social factors that may have been impacting health; such as housing, social support, and health literacy. This was accomplished by an interdisciplinary team assisting the patient navigate disability applications, understand diagnosis and treatment regimens, and increasing the overall self-efficacy of the patient. The team consisted of medical students, undergraduates, nursing students, social workers, and graduate students from the schools of public health, medical dietetics, and pharmacy. After the 6 month intervention, the overall cost was decreased by 45%, and the amount of unpaid charges was decreased by 40%. This led to a total saving of over $10,000 in only 3 months, with a predicted increase in savings long term. With an estimated 81 million complex patients in the US by 2020, interdisciplinary programs focused on improving social determinants of health care will have the ability to save the healthcare system valuable resources and expenditures.
Abstract: Aims: The objective of this study was to (1) examine the health related quality of life (HRQoL) of homeless youth and (2) determine its' association with diet quality. Methods: This cross-sectional study was conducted among 109 homeless youth, between ages 18-24 years, recruited through a drop-in center in Columbus, Ohio. After providing informed consent, each youth completed a sociodemographic and homeless experience survey. Diet quality was determined using two non-consecutive 24-hour dietary recalls, based on the 2010-Healthy Eating Index (HEI). The Short Form Health survey (SF-12v2) was used to assess HRQoL. Descriptive statistics and correlation analysis were respectively used in characterizing the population and in determining the relationship between diet quality and HRQoL. All data was analyzed using SPSS version 24. Results: Study participants were mostly male (67%), with 46% and 32% being African-American and Caucasian respectively. The mean physical component (PCS) and mental component (MCS) scores were also 52.75 ± 9.50 and 43.36 ± 12.71 respectively. MCS scores were significantly lower in females compared to males 45.95 ± 12.06 vs. 38.02 ± 12.50, p=0.002. The average HEI scores was 41.64 ± 11.20, compared to 58.27 ± 0.98 reported in the general US adult population. African Americans had a significantly higher diet quality than Caucasian: 44.60 ± 10.93 vs. 36.76 ± 11.87. In general, though, diet quality did not correlate with any HRQoL domains with the exception of general health (r = 0.19, p = 0.04) and mental health (r =0.18, p=0.05). Conclusion: Our findings confirm a poor diet quality among homeless youth, although, this was not associated with their health related quality of life. Gender and ethnic difference does exist with respect to homeless youth mental health quality of life and diet quality. These findings may help practitioners determine sub populations in need of more targeted interventions.
Abstract: The goal of this study was to determine the association between impulsivity and tobacco product use, including novel products such as electronic cigarettes (e-cigarettes), among adolescents in Ohio. Delay discounting is a measure of impulsivity that quantifies the rate at which an individual devalues future rewards as a function of time. High impulsivity has been related to tobacco use, illicit substance use, and various mental health conditions. Participants were 1,221 Ohio males between the age of 11 and 16 years, residing in either Franklin county or one of nine Appalachian counties. An audio-and interviewer-administered survey was conducted in a participant's homes. Delay discounting was measured using a nine question Kirby scale in which participants chose whether to receive one hypothetical monetary reward immediately or another, larger, reward after a given number of days. Those nine responses were then used to calculate a k constant that indicated the rate at which participants discounted by delay. Higher values of the k constant indicate higher levels of impulsivity. Preliminary analyses examined the relationship between impulsivity (log-transformed k constants) and tobacco use status (cigarette, e-cigarettes and smokeless tobacco), race/ethnicity, age and region using ANOVA or t-tests. Results revealed no statistically significant relationships between those variables and impulsivity. This could indicate, contrary to prior studies, that impulsivity does not relate to ever use of tobacco or the tested demographic factors. Further analyses are being explored to examine the association between impulsivity, incident tobacco use and other behaviors, such as alcohol use, drug use, and sensation seeking behavior.
Category: Public Health and Applied Health Sciences

Title: Mothers' and fathers' sociodemographic characteristics: prospective associations with preschoolers' problem behaviors

Student Presenter: Olivia Wolph

Faculty Advisor: Feng, Xin

Abstract: Problem behaviors in early childhood tend to correlate with unfavorable later outcomes. Much of the research has focused on maternal working hours, socioeconomic status (SES), and employment status in relation to problem behaviors, while little has focused specifically on the above sociodemographic characteristics of fathers. Moreover, few studies have considered both parents' occupational prestige and child sex. This study focuses on the individual sociodemographic characteristics of each parent in relation to child problem behaviors, especially occupational prestige, as well as child gender. The participants are 127 children (62 boys) and their families, assessed at two time points, child age 3 and 4. Occupational prestige was measured with the Four Factor Social Index, with a composite SES score created for each parent including education and occupation. Children's internalizing and externalizing problems were measured using Child Behavior Checklist. Regression analyses were conducted using mother's and father's SES, work hours and child sex to predict concurrent and later child problem behaviors. Results indicated that boys showed higher levels of externalizing behavior than girls at age 3 (B=.23, t=2.16, p=.03) and age 4 (B=.26, t=2.34, p=.02). Concurrently, father SES was negatively related to externalizing behaviors (B=-.29, t=-2.33, p=.02) at age 3, and father's work hours was negatively associated with child externalizing behaviors at age 4 (B=-.26, t=-2.05, p=.04). Prospective associations indicated an interaction between child sex and father SES at age 3 in predicting child externalizing problems, with father's SES negatively associated with externalizing behaviors only among boys (B=-.12, t = -1.86, p = 0.07). Internalizing behaviors was not associated with any sociodemographic variables. It is significant that externalizing problems correlated with father SES, father work hours and child sex, especially since past studies have yielded similar results. Future research should focus on fathers' role in relation to children's problem behaviors and child sex.
Abstract: The objective of this study is to examine the potential relationship between walkability and demographic characteristics at the city level. Failure to meet physical activity guidelines contributes to the high burden of chronic disease in the United States. Neighborhood environments that are conducive to physical activity help residents meet physical activity guidelines and lead healthier lives. Walkability is a score that characterizes the neighborhood activity environment; it takes into account distances to various types of destinations at the street-, city-, or zip code-level. Higher Walk Scores have been associated with higher levels of physical activity as well as better health outcomes among residents. To better understand how walkability may differentially affect certain populations, we assessed the Walk Score by income, age, and education among the 50 most populous Ohio cities. Data was collected from the US census and from www.walkscore.com. Walk Score was treated as a continuous score ranging from 0 (least walkable) to 100 (most walkable). We found that a 10-year increase in median age was associated with an 8.7 point decrease in Walk Score while a $10,000 increase in median household income was associated with a 2.0 point decrease in Walk Score. The percent of the population with less than a high school education was not found to have a significant association with Walk Score. These data give us insight into how Walk Score is associated with certain city-level characteristics. Future research should investigate the walkability of neighborhoods within cities so that policymakers can begin to take steps towards creating better built environments to improve physical activity and health outcomes.
Category: Public Health and Applied Health Sciences

Title: Assessing food resources for homeless youth: variety and quality of food at a homeless youth drop-in center

Student Presenter: Emily Yarcusko

Faculty Advisor: Hatsu, Irene

Abstract: Homeless youth have poor dietary outcomes, however, there is limited research on food resources available to them. One resource used by homeless youth to meet their basic and food needs are drop-in centers. This observational study collected data from a local drop-in center in central Ohio, and examines the variety and quality of food available to homeless youth. After providing consent, sociodemographic and homeless experience data was collected from 82 homeless youth utilizing the center. A validated home food inventory questionnaire (HFI) was used to obtain food availability information at five different time points, to account for variability in food donations. Food category scores were computed, with higher scores indicating greater availability. Possible highest score for dairy, vegetables, fruits, meat and other non-dairy proteins categories were 21, 20, 26, and 16 respectively. A summative score (range:0-71) was also computed to assess obesogenic food availability. A majority of the youth were male (53.8%), and nearly 28% had less than high school education. The mean age for youth was 21.13 ± 1.76y, while the average age of homelessness onset was 17.8 ± 3.4y.

HFI scores: Dairy: M = 5.20, SD = 1.48, (range 3-7); vegetables: M=11.60, SD = 2.79, (range 7-14); fruit: M = 11.0, SD = 2.45, (range 8-14); meat and other nondairy protein: M= 8.2, SD =1.92, (range 5-10). The mean obesogenic food availability score was 31 ± 4.58, (range 23-34). Vegetables and meat, including other non-dairy proteins were respectively the most available foods, while dairy products were the least available. The low obesogenic score confirms the availability of healthful foods. Future studies are needed to confirm our findings and also explore the extent to which drop-in centers contribute to the homeless youth food environment.
Abstract: Recent statistics indicate that approximately 12 percent of women in the United States will be diagnosed with invasive breast cancer in their lifetimes. A breast cancer diagnosis can be detrimental and produce long lasting effects to women's physical and psychological well-being. A number of variables that affect women's well-being have been identified in the literature. The purpose of this research is to conduct a systematic review regarding the variables that contribute to the psychological well-being of breast cancer survivors. Khan, Kunz, Kleijnen, and Antes' (2003) framework was used to conduct the systematic review. A total of 327 articles from CINAHL, PubMed, and Psych Info databases were extracted for review. The results indicated that the following variables are associated with the psychological well-being of breast cancer survivors: fear of recurrence, spirituality, race, socioeconomic status, ability to engage in physical activities, cognitive dysfunction, side effects related to treatment regimens, and social support. Healthcare professionals need to consider the role of these variables related to the psychological well-being of breast cancer survivors. Hence, further research needs to be conducted regarding the development and use of evidence-based interventions aimed at improving the psychological well-being of breast cancer survivors. This systematic review provides information on variables that may be investigated in future research and implementation studies with this population.