2014 Poster Abstracts

Morning Poster Session

**Ahsan, Arsalan** (Physician Assistant Program)
Faculty Sponsor: Brook Gram, Physician Assistant Studies  
*Home Based Testing for Obstructive Sleep Apnea*
Abstract: Is home sleep study accurate in diagnosing obstructive sleep apnea, a type of sleep disorder? Do you have a problem staying asleep? Do you often wake up at night grasping for air? Do you feel sleepy and tired during day time? You might have obstructive sleep apnea. Obstructive sleep apnea can cause poor blood pressure control, increase in weight, and sudden death. The study addresses the most facile and accurate way to test obstructive sleep apnea, by comparing two different testing methods. The study was conducted through randomized literature review of articles published in medical journals about comparing home sleep testing to sleep lab testing. The goal was to create patient specific guidelines for home based testing. The finding suggests home testing is accurate and comparable to traditional sleep lab testing.

**Baumgardner, Emily** (Chemistry)
Faculty Sponsor: Debra Boyd-Kimball, Chemistry and Biochemistry Department  
*Impact of Short-Term Exercise and Age on Oxidative Stress in the Brain of Mice*
Abstract: As humans age, many physiological changes take place. Cell regeneration begins to lag, bones lose density, and metabolism slows. Not surprisingly, the brain undergoes changes as it ages as well. One consequence of an aging brain is the tipping of a delicate balance between pro-oxidants and anti-oxidants toward a detrimental state of increased oxidative stress. Many have pointed to the importance of maintaining a healthy lifestyle, including moderate exercise and a balanced diet, to slow this destructive process. In this study, a link between the protective effects of exercise on age-related brain degeneration is being examined for implications in the study of Alzheimer’s disease. Using mouse models, biochemical analyses were performed in order to determine oxidative stress levels with respect to age and access to exercise wheels. From these assays, the effect of a short-term exercise regimen on aged mice can be compared to the oxidative effect of natural aging.

**Englert, Nicole M.** (Physician Assistant Program)
Faculty Sponsor: Brook Gram, Physician Assistant Studies  
*Do Water Births Provide Any Benefits Over Conventional Birthing Styles in Regards to Fetal Complications?*
Abstract: This research project explores whether water births provide any benefits over conventional birthing styles in regards to fetal complications. Water births are becoming a more popular alternative to conventional birthing styles because of the more relaxed atmosphere they provide for the mother during labor and birth. While it has been shown that there are beneficial effects for the mother, there is limited information available on the safety of water births for the newborn. The research being conducted is a systematic literature review of many medical studies looking at APGAR scores, respiratory problems and NICU admissions of newborns born in the water. At this time, no recommendation can be made, as there is still much controversy in the research surrounding the potential risks to the newborn.

**Goggin, Caitlin** (Exercise Science), **Mary Catherine Powers** (Exercise Science)
Faculty Sponsor: Lonnie Lowery, Human Performance & Sport Business  
*The difference in the effects of caffeine on the upper body versus lower body muscles.*  
Abstract: Caffeine is a widely used drug by many college students specifically athletes and those looking to improve performance. There has been debate on whether caffeine intake enhances resistance exercise explosiveness within the literature. The purpose of our study is to determine the difference in electrical activity of the upper versus lower body muscles in the bench press and squat after ingestion of caffeinated coffee (Via ®). Based on previous research, it is expected that greater electrical activity will be shown in
the upper body muscles than in the lower body muscles after ingestion of Via®. Results of this study aim to clarify differences in previous research regarding caffeine and resistance exercise performance.

**Greenwell, Alyssa** (Biochemistry)  
Faculty Sponsor: Robert Woodward, Chemistry and Biochemistry Department  
*Synthesis of the LpxC Substrate as a Tool for Antibiotic Development*  
Abstract: In today's world bacterial infections are becoming increasingly more difficult to treat as bacteria are developing resistance to the current treatment methods. Therefore the need for the development of new drugs is a growing issue. In order to create these new drugs, new methods to kill the bacteria must be developed. Bacteria utilize a structure, known as Lipopolysaccharide (LPS), on the outside of their membrane which acts as a shield for the bacterial cells protecting them from damage by external agents such as antibiotics or host immune responses. Inhibiting the production of LPS would diminish the bacteria's ability to protect itself. Because of this, targeting the production of LPS could allow for the development of a new antibiotic. In order to inhibit the production of LPS, a synthetic pathway was proposed and tested to make the compound which would inhibit its production.

**Lee, Heather** (Biology)  
Faculty Sponsor: Lin Wu, Department of Biology  
*Effects of Alcohol and Caffeine Consumption on the Behavior of Mice*  
Abstract: A popular alcoholic beverage, today, is the combination of alcohol and caffeine, which has been harmful to the human body. Many studies have been done to observe the effects of caffeine and alcohol individually on animal behavior, however there are few studies conducted to examine the combined effects of these substances. The combined effects of caffeine and alcohol during adolescent development will be studied to analyze mice anxiety in adulthood. A large and small light-dark box set up experiment is used to test for anxiety. Anxiety is defined by the few entries and less time spent in the light box. The combined effects of the substances will experience higher anxiety in comparison to the effects of the substances individually.

**Love, Emily** (Physical Education & Health Education), **Johnathan Zahn** (Health & Physical Education), **Derek Frye** (Health & Physical Education), **Derick Schwedt** (Health & Physical Education), **Kevin Stacey** (Physical Education), **Jenny Gamertsfelder** (Physical Education, Health and Special Intervention)  
Faculty Sponsor: Bruce Pietz, Human Performance & Sport Business  
*What does P.E. actually stand for in today's schools?*  
Abstract: The PE grading and assessment procedures of a local public school were provided to a member of the research team. A lack of alignment between the recently adopted state physical education standards and the assessment procedures prompted an initial data inquiry. A data fish discovered similar practices in several schools indicating the need for a more focused and intensive study. Data collection for this survey-based research project was structured into three distinct phases. The first phase was an initial website search. The second phase included emailing principals and PE teachers. The third phase included phone interviews to collect more focused information. With the obesity level of today’s youth over 30% in the United States, an increase in daily physical activity must occur with school-aged children. Assessing skill development, fitness levels, and out of class participation will provide a sound skill base for students to participate in more daily physical activity.

**Nieschwitz, Kaylah** (Athletic Training)  
Faculty Sponsor: Morgan Bagley Cooper, Athletic Training  
*Treatment of bipartite/tripartite patella in a female collegiate athlete*  
Bipartite/tripartite patella is a rare knee injury where the patella is fractured into two, or in this case, three pieces. This injury was found in a female collegiate athlete. This condition is only found in 10% of the population and only 20% of those individuals present with symptoms. Her case is even more rare because it is usually found in young male athletes. Many different treatment methods were tried throughout the season to ease her pain and allow her to continue. After her season was finished she was able to have surgery to repair the knee.
**Paridon, Angela (Biology)**  
Faculty Sponsor: Kim Risley, Biology Department  

*Soil Microbial Metagenomic Analysis and Phage Hunting of Huston-Brumbaugh Nature Center Native Lindera benzoin (Spicebush)*  
This is the first soil microbial metagenomic and phage hunting research performed at the Huston-Brumbaugh Nature Center. Twenty-five different soil samples were taken from diverse areas throughout the research period, most centered around regions where Lindera benzoin was present to see if the plant had an impact on the bacteria and bacteriophage populations on the surface soil. Out of the 25 samples taken only two were positive for coliphage; sample 3 with a titer of 2x10^7 pfu/mL, and sample 6 with a titer of 2.5x10^7 pfu/mL. No samples were positive for mycobacteriophage when using plaque assay host specific technique. All but four samples showed positive results for the 16s.

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**Peck, Kalyn (Physics), Hogan Harris (Physics), Matt Jones (Mechanical Engineering), Mitch Weaver (Physics)**  
Faculty Sponsor: Robert Ekey, Physics & Astronomy Department  

*Physics of Loops and Jumps with Hot Wheels*  
Abstract: In Advanced Physics Laboratory, we investigated the physics found in the Hot Wheels Loop and Jump Track Set. After intense play, our initial experiments examined the energy conservation in the system under various conditions using video analysis. Other physical aspects explored were the minimum speed required to complete the loop, friction in the system and conditions for a long jump. The results of these experiments show how complicated a simple children’s toy can be and provides a practical application of physical principles.

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**Ridgley, Jason R. (Psychology) & Christina R. Harris (Psychology)**  
Faculty Sponsor: Kristine Turko, Psychology  

*College Students and Stereotypes of Gender-Traditional Career Paths*  
Abstract: Previous research regarding priming and gender has focused on the differences between the sexes with regard to stereotyping, rather than attempting to determine what factors and cognitive processes result in stereotyping. The present study aims to address this concern by examining the relationship between priming, gender, and stereotypes. This will be accomplished by priming gender and measuring participants’ degree of association with traditionally gender-typed career paths. This study will use gendered and neutral primes in a task to prime gender, followed by the administering of the Gender-Career IAT from Harvard University’s Project Implicit. It is hypothesized that priming gender will lead to increased stereotyping. It is further hypothesized that males will prefer careers embodying more masculine traits while females will prefer careers emphasizing feminine traits such as nurturance. Finally, it is hypothesized that an individual’s preference for career roles depends on the prime participants receive.

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**Serluco, Gina (MAEL)**  
Faculty Sponsor: Jennifer Martin, Education Department  

*Education for Community is a Community for Education*  
Abstract: When the headlines read “School Levy Fails,” it is clear of the community and schools disconnect, but less apparent of how much this could negatively affect a child’s education. Will improved community and school relationships create a better school environment? This research project is important in not only education but also in society as a whole because education is necessary for youth to learn to become members of the community as in their careers and contributing citizens, therefore it is imperative that our communities support schools. I took the approach of collaborative action research by working with a committee across the Willoughby-Eastlake School district to promote the current school levy. Using data from personal journals, surveys, and interviews, I analyzed the root cause of the community and school disconnects: how the school (students and staff) views the community and vice versa. As a committee, we determined what the community needs from the schools, as we know the schools need community support for funding to keep education at its best and secure the future.

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**Shivers, Morgan (Biochemistry), Joyanna Hoffman (Biochemistry)**  
Faculty Sponsor: Debra Boyd-Kimball, Chemistry and Biochemistry Dept.  

*The effect of social isolation and environmental enrichment on oxidative stress in the brains of mice.*
Abstract: Studies have shown that an increase in oxidative stress levels could be responsible for the early stages of Alzheimer’s disease. Social isolation has been associated with increased risk of developing Alzheimer’s disease while regular mental stimulation, or environmental enrichment, may decrease the risk of developing the disease. More recent studies have been suggesting that environmental enrichment and social isolation could be connected to oxidative stress levels in the brain. Social isolation may cause an increase in oxidative stress levels while environmental enrichment could help in reducing oxidative stress levels in the brains of mice. The purpose of this study was to examine the effects of social isolation and environmental enrichment on oxidative stress in the brains of mice. The results of biochemical tests completed to determine the level of oxidative stress in the brain will be presented.

Wills, Mary Katherine (Sociology & Criminal Justice)
Faculty Sponsor: Kathleen Piker-King, Sociology and Criminal Justice Department
Alliance for Children & Families, Inc.
Abstract: With the increasing need of subsidized housing in communities, it is important to understand the operation behind the organization. It is necessary to examine the history of an organization, assets, informal or formal control, communication between staff, research design methods, and ethics involved in operating a non-profit organization. Subsidized housing is a method used to maintain the family structure and keep people from becoming homeless. Subsidized housing involves case management, which is a way to teach adults proper life skills in maintaining a financially stable lifestyle. The monograph details the operation of Alliance for Children & Families, Inc. a non-profit organization and analyses the functionality of the organization.

Afternoon Poster Session

Coy, Brittany (Middle Childhood Education)
Faculty Sponsor: Fang Du, Academic Affairs, Institutional Research Office
E-Portfolios: Giving students a step-up in the employment world while promoting at attitude of lifelong learning.
Abstract: For years students have relied on heavy, paper filled binders as portfolios to impress future employers. Students do not realize how much of a disadvantage they are at when they hand a potential employer a large binder filled with past assignments. This research project looks at the effectiveness of web portfolios and the benefits that e-portfolios offer students in and outside of the classroom and after graduation. My research looks at individual e-portfolios and case studies that examine the effectiveness of online portfolio. This world is becoming more technology oriented, even grades are only posted online. Research shows that students with more technology skills have a head start after graduation, and this alone is a reason to expand the use of e-portfolios on college campuses. Research has shown that online portfolios are sustainable, individualized, and the ideal way to showcase student success and lifelong learning. Drop the binder, share your story.

Genshock, Eric (Environmental Science)
Faculty Sponsor: Charles McClougherty, Biology Department, Huston-Brumbaugh Nature Center
CARBON DIOXIDE EFFLUX FROM SOILS: THE EFFECT OF N FERTILIZATION ON FIELD AND WOODLAND ALFISOLS
Abstract: Land management influences carbon dioxide efflux from soils. This study examined carbon dioxide efflux in adjacent forest and field communities on a Canfield silt loam (Alfisol) in Washington Township, Stark County, OH. Additionally, the response of carbon dioxide efflux to a moderate addition of ammonium nitrate was examined. Efflux was measured from June 7th until July 12th, 2013 in 20 circular plots, each with an area of 71.6 cm², in each community. Gas efflux was measured with a LiCOR 6400-09 IRGA. Initially field plots produced significantly more carbon dioxide than forest plots. On June 17th ammonium nitrate, in solution, was applied at a rate equivalent to 150 pounds per acre to half the plots in each community. After ammonium nitrate was added the amount of carbon dioxide efflux relative to control plots increased by 58% in the forest while the field increased by 56%. This increase was short lived for forest plots which decreased to normal levels within a few days, while field plots continued to release higher amounts of carbon dioxide than their controls.
Gosser, Lauren (Chemistry)  
Faculty Sponsor: Robert Woodward, Chemistry and Biochemistry Department  
Preventing LPS Biosynthesis: The Development of a Chemoenzymatic Synthesis of the LpxC Substrate  
Abstract: The presence of the biomolecule lipopolysaccharide (LPS) on the surface of Gram (-) bacteria aids in the defense of bacteria against antibiotics. This resistance due to LPS has raised concerns in the pharmaceutical world and has led to considerable investigations concerning LPS, specifically how it could be targeted for antibiotic development. LpxC, the enzyme responsible for the first committed step in the biosynthesis of LPS, has emerged as one such target. In order to test the inhibitory effects of compounds against LpxC, it is vital to have the substrate of the enzyme. Unfortunately, the natural substrate is expensive and not readily available. To remedy this problem, a chemoenzymatic synthesis of the substrate is being developed. This route makes use of the established activity of the enzyme Lipase-435 to selectively remove acetyl protecting groups from peracetylated N-Acetyl-D-Glucosamine. It also enables investigation of the adaptability of phosphotransferases (e.g., NahK) and uridyltransferases (e.g., GlmU) to reactions involving acylated sugars.

Kirk, Sarah (Exercise Science), Mary Catherine Powers (Exercise Science), Caitlin Goggin (Exercise Science)  
Faculty Sponsor: Lonnie Lowery, Human Performance & Sport Business  
Caffeine Content and Exercise-Psychostimulant Effects of VIA® Instant Coffee  
The purposes of this study were to objectively determine the caffeine content of VIA® instant coffee (VIA) and to elucidate its psychostimulant effects during exercise. There is little commercial information about the caffeine content of VIA. We hypothesized that VIA would increase (p<0.05) subjective reports of energy, alertness, and focus during exercise in resistance-trained university students, compared to themselves in a decaffeinated (DCF) condition. Caffeine Content: VIA and DCF individual packets were analyzed in triplicate by high performance liquid chromatography (HPLC) to determine caffeine content. Exercise-Psychostimulant Effects: After 24 hours of dietary control and caffeine abstinence, fasted subjects performed resistance exercise under two conditions (VIA, DCF) separated by 48-72 hours. Immediately after exercise, subjects rated feelings of energy, alertness and focus on a five-point scale. VIA was found to contain 164±3 mg (mean +SD) per serving. For DCF, caffeine was below the calibration range (<9 mg per serving). Regarding psychostimulant effects, there was a significant increase in alertness, energy, and focus. These preliminary data reveal caffeine content for VIA substantially above reported values for regular instant coffee (164 vs. 64 mg) and support the hypothesis that VIA increases exercise related perceptions of energy, alertness, and focus.

Laino, Eva (Biochemistry), Christine Culver (Biochemistry), Noah Kainrad (Biochemistry)  
Faculty Sponsor: Debra Boyd-Kimball, Chemistry and Biochemistry Dept.  
The Effect of the Antioxidants N-Acetyl Cysteine and Resveratrol on Ethanol-Induced Oxidative Stress in Mouse Liver  
Abstract: The objective of this study was to determine the preventative effects, if any, antioxidant supplementation would have against ethanol induced oxidative stress in the liver of mice. The mice were supplemented with Resveratrol (RES), N-Acetylcysteine (NAC), or a combination of the two antioxidants. The mice that received the RES only or the RES/NAC combination received the ethanol, as well as a control group, which received ethanol only and no antioxidants. It was hypothesized that the mice ingesting ethanol alone would show increased levels of oxidative stress in comparison to the mice receiving the antioxidant supplementation. The results of biochemical tests completed to determine the level of oxidative stress in the liver will be presented.

Le, Giang (CM-Media)  
Faculty Sponsor: Govind Shanadi, Communications Department  
U.S. Media Representation: Human Trafficking on Documentary and Film  
Abstract: This article discusses about how U.S. Media represents human trafficking on documentary and film, using example of particular movies in the years of 2000s. The research directs some main points that are shown on the movies, directly impact on how audience perceive about human trafficking. The related-topic movies I've watched fails to acknowledge and educate audience about the dangerous social problem when showing female victims as prostitutes or sex slaves. In addition, those movies are mostly set up in
developing countries, which shaped audience's thoughts about specific places of the crime. The influence of media in setting an agenda about the global issues is really powerful, especially on film industry. Therefore, the article's purpose is giving in-depth understandings of human trafficking that go beyond predominant depictions on popular movies.

**Leister, Lauren** (Physician Assistant Program)
Faculty Sponsor: Vanessa Worley, Physician Assistant Studies Program

*Comparing Cystic Fibrosis Treatments; How Gene Therapy Drugs Will Drastically Change the Management of This Devastating Disease.*

Abstract: you know that children with cystic fibrosis (CF) have growth retardation, malnutrition, and delayed puberty? The most devastating aspect of this disease: the average life expectancy for a patient with CF is late 30’s. In the US, 1/25 people are carriers of the gene responsible for CF. This systematic literature review compares treatments available with special attention to cost of treatment. Currently there is one gene therapy drug FDA approved and its efficacy data is powerful but it improves lung function for only 4% of CF patients. Two other similar drugs currently in clinical trials, when used in combination, might be able to improve symptoms and outcomes for over 50% of CF patients. These new drugs improve symptom control and lower potentially fatal disease-related complication rates so intensely because they target the primary cause of this disease. CF management will change dramatically when/if these drugs enter the market.

**Polen, Jeffrey** (CM- Public Relations)
Faculty Sponsor: Govind Shanadi, Communications Department

*Enticing New Demographics with YouTube*

Abstract: The largest manufacturer of dog collars and leashes in the world relies on YouTube to demonstrate to its customers how to properly use their products. Coastal Pet Products, Inc. is relatively new to social media, but it is crucial for them to use this medium effectively. In the past, customers would visit Coastal’s YouTube channel and be underwhelmed with what they found. Applied research and creative planning led to drastic changes that were made to the channel to improve functionality, design and search engine optimization in order to make a lasting impression on new demographics. A sophisticated YouTube channel allows Coastal to effectively showcase its products to a larger section of the 62 percent of American households with a pet.

**Rock, Logan M.** (Physician Assistant Program)
Faculty Sponsor: Brook Gram, Physician Assistant Studies

*The Effects of Two Newly FDA Approved Weight-loss Medications on Metabolic Syndrome*

Abstract: Does your body mass index (BMI) put you in the category of overweight or obese? Have you ever been told that you have high blood pressure, high triglycerides, abdominal obesity, or high blood sugar? Lorcaserin (Belviq) and Phentermine/Topiramate (Qsymia) are the two new FDA approved medications indicated for weight-loss and have been shown to be effective in achieving just that. This study aimed to determine which of the two drugs has the greatest impact on some of the components of metabolic syndrome, more specifically high blood pressure, high triglycerides, waist circumference, and fasting blood glucose. These components put patients at high risk for developing serious health complications such as cardiovascular disease, diabetes and stroke. A systematic review was performed of the existing scholarly literature and it was determined that the combination drug, Phentermine/Topiramate (Qsymia), has the greatest impact on reducing the aforementioned risk factors.

**Rudibaugh, Cameron** (Biology)
Faculty Sponsor: Lin Wu, Department of Biology

*Recovery and health assessment of Little Beaver Creek, Ohio forty years following closure of the Nease Chemical Company.*

Abstract: In 1961, the Nease Chemical Company opened in Salem, OH and began using Little Beaver Creek as a cost effective way to remove waste byproducts generated from the chemicals they produced. The key chemical component used to produce fire retardants and pesticides was mirex, a chlorinated hydrocarbon and a persistent bio-accumulative toxic chemical. The facility ceased operations in 1975 due to environmental concerns. Elevated concentrations of mirex were found throughout LBC in studies
conducted from 1985-1986. As an important recreational site, it is crucial to gauge the success of cleanup efforts by studying the presence of aquatic biota, stream morphology, sediment chemistry, and fish tissue. At each site, stream habitats were assessed using the Qualitative Habitat Evaluation Index. Macroinvertebrates were identified and counted to determine diversity. Sediment sampled at each location was then processed and tested for traces of mirex and photomirex. It is predicted that trace levels of mirex still exists in the environment but the stream is mostly recovered.

Smith, Ryan (CM-Media)
Faculty Sponsor: Govind Shanadi, Communications Department
Seeing Eye-to-Eye: how Current Media is Shaping Societal Interaction
Abstract: Many people in older generations develop a “back in my day” approach to disprove the positive effects of technology many younger generations have grown up around. In order to either prove or disprove the idea that having one’s face in a screen hurts his or her communication, a study was done to reflect the usage of social media and its effect on face-to-face interaction. The study was conducted by one researcher with the help of three occupational professionals in the field of career development using the medium of a mock job interview. Each of the 17 participants, ranging in age from 18 to 21, were asked to fill out a survey detailing their usage of text messaging, Facebook, Twitter, Instagram, LinkedIn, phone calls and face-to-face interaction on both a daily and a weekly basis on a scale from one to ten. The participants then went into a mock interview with one of the professionals whose chose whether or not to “hire” the participant based on their own survey of questions based on listening and speaking on the same scale. The results were qualitatively correlated and found that there was no distinct relationship between social media usage and face-to-face interaction.

Taylor, Calley (Physician Assistant Program)
Faculty Sponsor: Brook Gram, Physician Assistant Studies
Very Low Birth Weight Infants in the Breech Position: Cesarean vs. Vaginal Delivery?
Abstract: Have you ever wondered what obstacles accompany the joys of childbirth? Breech positioning of an infant, which is where the feet or buttocks exits first, is more painful and can cause complications during and after childbirth. This systematic literature review researched very-low-birth-weight infants in breech position and whether cesarean deliveries have fewer effects on morbidity/mortality of children than vaginal deliveries. If one method decreases these risks for your child, wouldn’t you like to know? The research concluded that C-sections improve neonatal survival, but there tends to be a concomitant increase in comorbidity. And although a vaginal delivery may be safely considered in certain circumstances, cesarean delivery continues to be the normal route providers take in such cases. Providers can apply the results to future pregnancies, determining what best benefits each mother and child.

Zimcosky, David (Physician Assistant Program)
Faculty Sponsor: Vanessa Worley, Physician Assistant Studies Program
Systematic Review of Substance Abuse Screening Tools: Determining Which Tool is Best for Identification of Substance Abusers Prior to Opiate Prescription
Abstract: Phillip Seymour Hoffman, River Phoenix, John Belushi – do you know what these celebrities have in common? They all died from opiate overdose. This phenomenon occurs all over the US, not only for celebrities, but in persons from all walks of life. The U.S. Department of Health and Human Services has identified prescription opiate abuse as “the fastest-growing form of substance abuse nationwide,” with an estimated two million people becoming addicted to opiates every year. What further action can clinicians take to combat this growing epidemic? Though clinicians are time-constrained, there are screening tools that can quickly evaluate for the presence of substance abuse in patients. If these tools are employed prior to a clinician giving a prescription for an opiate pain killer, reduction of opiate abuse may follow. This systematic review analyzes several major substance abuse assessment tools to determine which is most effective and most appropriate for clinician use.