Project Abstracts

Jasmine Penrod, Susanna Martin, Maria Blasiole, Sydney Black
Faculty Mentors: Dr. Debra Lee

The Way We're Living is Killing Our Hearts

Background: Cardiovascular disease is the leading cause of death worldwide. Modifiable behaviors are an effective way to reduce cardiovascular disease, yet increasing trends in cardiovascular events demonstrate that current education strategies are ineffective. PICO: In sedentary adults at risk for cardiovascular events, is providing patient education about exercise through technology more effective compared to in-person education in increasing adherence toward activity recommendations? Evidence: Guided by the PICO Question, we explored current evidence and determined that the use of technology (telephone follow-up, text messaging, webpages, or smartphone apps) to educate and reinforce patient education on modifiable cardiovascular risk factors, including physical activity, has proved to have a positive effect on reducing cardiovascular risks, by promoting exercise behavior, amount, and intensity, in patients post-cardiac events. Recommended Research: Current evidence does not address our population or intervention specifically, thus further research is needed. Recommendations include an experimental intervention among sedentary adults at risk for cardiovascular disease, comparing traditional, in-person education to technology-based education, examining adherence to exercise recommendations over time. A mixed-methods study that combines the experimental intervention with a qualitative exploration of patients' perception of engaging with health professionals in a virtual modality is also suggested.

Erich Sonntag, Abigail VanVoorhis (Sledz), Emily Moore (Trinka), Kathleen Hyland
Faculty Mentor: Dr. Debra Lee

Screening for Intimate Partner Violence in the Emergency Department

Intimate partner violence is a subject that is difficult for individuals to discuss with healthcare professionals due to the vulnerability that comes when speaking of such a subject, factors outside the victim's control, and the nature of the relationship between the abuser and the abused. Therefore, nurses need keen assessment skills and standardized screening tools that allow for accurate and effective screening processes for individuals who may be experiencing intimate partner violence. The goal of this study is to find out exactly what that process is in regard to diagnosing intimate partner violence in the emergency department setting. The research completed is a systematic qualitative review of the process, as well as what hinders said process, when a nurse is screening for intimate partner violence. Evidence suggests that there are a multitude of helpful screening tools that aid healthcare providers when assessing individuals for potential intimate partner violence. However, outside of these screening tools, nurses lack the confidence and assessment skills needed to accurately identify intimate partner violence. Our research points to the need for more effective education programs and, potentially, revised screening tools for nurses that come in contact with the studied population regularly.

John Krichbaum
Faculty Mentor: Carrie Stroup

The Effectiveness of Psychosocial Interventions on Pediatric Oncology Patient Outcomes

Purpose: The purpose of this integrative literature review was to determine the effectiveness of psychosocial interventions on psychosocial outcomes for pediatric oncology patients and their caregivers. Method: The Whittemore & Knafl (2005) methodology framework guided this review. This structure allowed for the inclusion of both qualitative and quantitative research through the inclusion of experimental, non-experimental, theoretical, and empirical data which yielded the most complete analysis of the information. Results: Art and play therapy interventions resulted in enhanced coping, communication, treatment tolerance and quality of life while decreasing anxiety and distress. Music therapy interventions resulted in enhanced religious activity participation, courageous coping, social integration, and family environment with decreased distress levels. The hypnosis based intervention resulted in improved coping strategy development and emotional regulation. Cognitive behavioral therapy also resulted in reduced levels of distress. The Make-A-Wish intervention resulted in significant decreases in general distress, depression, and anxiety symptoms, improved health related quality of life, hope, and positive affect. The Advance care planning intervention resulted in improved spiritual well-being with decreased anxiety and depression. Conclusion: Implementing psychosocial interventions for pediatric oncology patients can reduce procedural anxiety, overall anxiety, distress, depression, and pain while improving quality of life, coping skills, communication, spiritual well-being, hope, and social and family functioning.

Stephen Meredith, Krista Mayle
Faculty Mentor: Dr. Sheri Hartman

Blood Pressure Education: A Knowledge Improvement Plan

Blood pressure (BP) obtainment is thought to be a remedial skill of a registered nurse, yet errors during BP measurements commonly plague our healthcare system. Deficits in BP assessment among nurses can influence patient care and clinical decision making that can result in poor patient outcomes. Continuing education has been identified as one intervention to help prevent and reduce errors in BP assessments. ***Purpose:*** The objective of this study was to identify the effect of education on the knowledge and performance in obtaining accurate blood pressure measurements among healthcare professionals, specifically registered nurses. ***Methods:*** An online education seminar was conducted for a total of nine participants enrolled in a class for first-year nurse practitioner students at Malone University. The seminar involved a PowerPoint presentation including current blood pressure guidelines, proper technique and procedure, and sources of potential errors. Participants were asked to complete an evaluation tool immediately following the education session. ***Results:*** A total of five participants completed the evaluation tool. Eighty percent of the participants (n=4) stated that 10% of the information covered during the education seminar was “new knowledge”, while 20% (n=1) of the participants stated that 50% of the information provided was “new knowledge”. Results revealed that all five participants reported not utilizing proper BP measurement technique for every patient encounter. Finally, 100% of the participants (n=5) stated the educational session will help them improve their overall performance in obtaining accurate BP measurements. ***Conclusion:*** Findings from this evidence-based project suggest that education about current BP guidelines, proper technique and procedure, and sources of potential errors resulted in increased knowledge about BP attainment, which is consistent with the literature. This finding supports the need for ongoing continuing education for registered nurses regarding BP assessment to improve nurse knowledge and potentially reduce BP obtainment errors.

Daniel Molnar, Melanie Lebo
Faculty Mentor: Dr. Sheri Hartman

Positive Regard in Healthcare

The primary aim of this study was to explore how the use of Positive Regard (PR) and non-judgement in an acute care setting would affect job satisfaction, job performance, and vitality for acute care RNs. A 10-minute verbal educational session about PR was provided for RNs (n=12) working in an ICU. The 12 nurses practiced implementing PR over a 12-hour shift and then completed an evaluation form. Findings suggested that barriers existed when attempting to utilize PR in the acute care setting such as stressful situations or receiving negativity from coworkers. Results showed that 92% (n=11) of RNs felt an improved or significantly improved mood while consciously using PR. These findings suggest that the use of PR in an acute care setting may improve job satisfaction, job performance, and vitality.

Amanda Chambers, Misty Elder
Faculty Mentor: Dr. Sheri Hartman

Documentation: A change in progress

"The aim of this evidence-based project was to increase the knowledge of documentation requirements for the health care staff at a long-term care facility, using Lewin's Change Theory as a guide. Eleven nurses attended a 20-minute education session regarding essential nursing documentation. Education was provided using team based learning strategies. The nurses completed an evaluation tool after the education session to evaluate knowledge gained. Descriptive statistics were used to analyze the data. Findings demonstrated that nine participants learned something new during this session. The top three areas identified as new information were following: (a) the need for ongoing education regarding documentation in a long-term care setting; (b) daily inadequacies of documentation among nursing staff prior to the educational session; and (c) an increase in knowledge, competence and performance related to nursing documentation was achieved following the educational session. "

Rebekah Fannin, Carole (Dionne) Gaskin
Faculty Mentor: Dr. Sheri Hartman

A Necessary Change Involving Preoperative Fasting: An Evidence-Based Project

This evidence-based project addressed a needed change in the surgical field related to preoperative fasting. Literature suggests that decreasing preoperative fasting times results in more positive patient outcomes. It was noted that some surgical centers do not adhere to the preoperative fasting guidelines as set forth by the American Society of Anesthesiologists (2017). Therefore, this project utilized Kurt Lewin's theory of change to implement and evaluate an educational session about preoperative fasting to eight members of a surgical staff (six RNs, one CRNA, and one MD) at a small, rural hospital in northeast Ohio. At the conclusion of the educational session, the eight participants completed an evaluation survey. Findings from the survey demonstrate that 100% of the participants expressed an increase in knowledge of fasting guidelines and 50% of the participants stated comfort with these guidelines. However, seven of the eight participants indicated they would not change their current practice stating the greatest impediment to change was the primary provider's intent to follow the ASA (2017) guidelines. Therefore, it is recommended that continued education be provided to surgical staff to promote best possible patient outcomes.

Christie Snyder, Andrea Perry
Faculty Mentor: Dr. Sheri Hartman

Bedside Shift Report

Background: Patient safety and quality of care is a national priority. During a nursing shift report, miscommunication can create opportunity for an error, which can lead to adverse patient events. The purpose of this project was to improve the nursing hand-off process, using bedside shift report (BSR), which has the potential to yield improved quality of care and increase patient and nursing satisfaction. Method: This quality improvement project involved educating nurses about BSR in an intensive care unit. A total of 45 nurses attended the education session and 43 nurses completed the post-education evaluation tool. Findings: Findings suggest the BSR education session led to an improvement in perception of communication among the nurses in this project. Additionally, a perceived increase in knowledge and competence was noted. As a result of the educational session, the majority of nurses responded that they will now perform BSR regularly. Conclusion: Effective nurses' education and management's support are vital for achieving nursing understanding and therefore compliance with BSR. BSR has potential to yield benefits for patients, nurses and the healthcare organization overall.

Danielle Lightell, Jill Covert
Faculty Mentor: Dr. Sheri Hartman

Nursing Knowledge of Diabetes Management and Patient Education

The Chronic Illness Trajectory provides a framework to understand how individuals with chronic ailments move along an illness continuum, from stable to acute, when admitted to the hospital. This is noted among the patient population diagnosed with non-insulin dependent diabetes mellitus (NIDDM). Although insulin may not have been needed upon admission (stable phase), during the hospital stay, the patient's glucose becomes elevated due to illness (acute phase) resulting in the need for insulin. However, it is common for this patient population to refuse insulin while in the hospital due to personal embarrassment of having uncontrolled blood glucose, placing them at risk for poor outcomes. Therefore, education and guidance from nurses is essential so that this population moves from the acute phase back to the stable phase, ultimately improving health outcomes. Yet, the literature demonstrates that a deficit of knowledge of diabetes management exists among nurses who care for patients with NIDDM. Hence, the aim of this evidence-based project was to implement and evaluate an educational intervention for nurses caring for patients diagnosed with NIDDM, so that they may properly educate their patients about insulin needs while in the hospital. The education session included information about medical management of NIDDM among hospitalized patients and guidance for effective communication of insulin needs among this patient population. Sixteen Registered Nurses from a local hospital volunteered to attend this education session and completed an evaluation survey immediately following the education. Findings from the evaluation survey revealed that this diabetes management education demonstrated an increase in nurses' knowledge and competence. Additionally, the nurses that received this education stated they were likely to utilize this information to educate their patients in the future. Keywords: diabetes management, patient education, nurse knowledge, insulin, type 2 diabetes, blood glucose, Chronic Illness Trajectory."

Angela Smith
Faculty Mentor: Dr. Sheri Hartman

Reducing Stress for Nurses

Stress is noted among nurses. Increasing workloads, long shifts, and staffing shortages are a few of the stressors that cause nursing fatigue. Negative outcomes are associated with nurse stress. The aim of this research was to find and implement techniques known to reduce stress and evaluate the effectiveness on nurses' stress levels by participating in the study. Research revealed that physical activity and mindfulness have the ability to reduce stress. The project design and intervention had sixteen MSN students at Malone University track their steps and read mindful quotes for thirty consecutive days. All sixteen participants were given thirty quotes and a step tracking tool to utilize for the activities. At the completion of thirty days an evaluation survey tool was completed and collected from all sixteen participants. Data analysis results noted that stress was higher prior to the thirty days than after. Findings demonstrate that employees that practice mindfulness and increase their physical activity daily may have lower levels of stress.

Kyle Leskosky
Faculty Mentor: Dr. Lora Wyss

Improving Nurse Perception and Use of Early Mobilization in the Intensive Care Setting

Early mobilization of patients in the intensive care setting plays an important role in the outcomes for these patients. Current research shows that the benefits of early mobilization include a decrease in patients' length of stay in the hospital, increased patient mobility, psychosocial benefits, and an overall decrease in medical complications. Despite this evidence, the use of early mobilization in the general ICU population within a 26-bed cardiac and pulmonary ICU has been inconsistent. The purpose of this project was to improve the perception and use of early mobility practices within this ICU. The project utilized an educational packet, followed by an implementation period and a survey. Thirty registered nurses participated in the project. Overall, the surveys showed that the nurses planned to increase their use of early mobilization after being educated on the benefits. Barriers to using early mobilization practices also were noted on the survey. The education packets were successful in improving the perception of early mobilization; but the continued use of such practices can only be assessed in the future.

Eric J. Baker
Faculty Mentors: Jay Case, Jacci Stuckey

Caught in the Widow's Web or A Preliminary Survey of the Recognition that the P-61 Northrop has Received Since 1940

This Honors Thesis project consists of two part. The first part is a brief history of the World War II P-61 Northrop "Black Widow" Night Fighter, including the reasons for its creation; its construction; its service during and after the war; and its legacy, namely the advances it made in aircraft radar technology and meteorology. The second part focuses on the research for my Honors Thesis, answering the question, "What recognition has the P-61 Northrop 'Black Widow' Night Fighter received since its inception in 1940, especially when compared other contemporary aircraft [specifically the P-51 North American Mustang and the P-38 Lockheed Lightning]?" The research clearly shows that the P-61 Black Widow has received less recognition than the P-51 Mustang and the P-38 Lightning. It also gives data on that difference in recognition, specifically that any source in a subject related to the P-61 Black Widow [namely sources on World War II or Aircraft] will likely have, overall, about a 50% of mentioning the aircraft [as compared the P-51 Mustang (about an 88% chance) or the P-38 Lighting (about a 76% chance)].

Brady Stevens
Faculty Mentor: Karyn Collie

Komodo dragons and their activity levels

"Komodo dragons (Varanus komodoensis) are known to be most active during daylight hours. The goal of this study is to observe and measure behavioral differences from the Komodo dragon between morning and afternoon hours. I will be using the scanning method of sampling and taking note of behaviors every minute. These behaviors include: basking, locomotion, resting/sleeping, eating, and alert. I expect that the animal will exhibit a higher level of activity in the afternoon (P.M.) hours than the morning (A.M.) hours as they warm up from their basking light. "

Olivia Whiteaker
Faculty Mentor: Karyn Collie

South American Sea Nettle and Moon Jellyfish

The South American sea nettle is found in the southwest Pacific Ocean, along Peru, Chile, Argentina, and Uruguay. They are yellow in color and have long tentacles. The moon jellyfish live throughout the Atlantic, Indian, and Pacific oceans. They are white almost clear and are small. Both are different sizes have different tentacle sizes, one may move less often than the other, and one may have more jet propulsions than the other. The goal of this study is to understand their differences and what in their habitat causes them to be different. Why does one jellyfish have shorter tentacles than the other? How do the colors of their bells benefit them? I will be studying their differences; looking at and measuring their tentacles, counting jet propulsions in a sample survey of the group of jellyfish for 5 minutes each, and counting how many times they move up and down and left and right throughout their cage. I will spend 30 minutes at a time observing each tank. I expect the South American sea nettle to move slower and less than the moon jellyfish.

Daelen Simons
Faculty Mentor: Karyn Collie

African Lions

Activity levels can be an important part of an animal's life. It gives us an idea of their health, physical fitness, and age of the individual. With that being said, I would expect that the lions will be more active in the early hours of the morning and the later hours of the day. To test this, I will conduct an ethogram to track the typical behaviors seen in lions and use scan sampling as a way of obtaining my data. Scan sampling is done by recording any observed behaviors at predetermined time intervals. This study will be done on African lions to see how active they are during the morning versus in the afternoon. I am choosing to perform a study on activity levels because it is important for animals to be healthy because when they are not healthy, they will struggle to survive in the wild.

Olivia Zilinski
Faculty Mentor: Karyn Collie

Animal Behavior Research Project

Ring-tailed lemurs (Lemur catta), are among the most social mammals, feeding, resting, and traveling in groups (conspiracies). Those kept at the Akron Zoo all inhabit the same enclosure and show an array of different behaviors, many of which are unique to the species. As interactive as they are, however, the activity level displayed in some of the lemurs may differ from that of the rest of the conspiracy at any given time. Could this be that behavior is linked to the size of the conspiracy and that lemurs act in such a way that is dependent on the presence of other members of the community within the vicinity? The purpose of my observational study is to answer this question. Playing, chasing, grooming, sunbathing, resting, walking, foraging, and climbing are the state behaviors I plan on documenting, using scan sampling. For other activities such as marking territory, vocalizing, and jumping, I will use the all occurrence sampling method, as they are shorter behaviors that can be easily documented at any given time. Activity level among ring-tailed lemurs is expected to increase as the number of lemurs in a given part of the enclosure increases because they seek attention.

Danielle Norton
Faculty Mentor: Karyn Collie

Grizzly bear daily activity levels

In the wild, Grizzly bears follow a consistent seasonal schedule that is reflected in their daily behaviors and activity levels. This is observed in their “hibernation” patterns that occur during the winter season. Based on what is known about this seasonal schedule, Grizzly bears in captivity will not hibernate in the same way but may experience decreased activity. I will be studying the two captive Grizzly bears at the Akron Zoo, and I will attempt to determine if within this transitional winter to spring season, there is a time of day that they are the most active. My hypothesis is that if bear behaviors are impacted seasonally and daily by temperature, then the bears will be most active in the midday period when it is warmest. I will test this hypothesis by conducting a scan sampling study and documenting the number of bear behaviors occurring in five minute intervals. Then, I will compare the number of behaviors occurring to the time of day and temperature. If there are more instances of behaviors recorded from the ethogram during the midday period when temperatures will presumably be higher, then the hypothesis will be accepted.

Justin Weidinger
Faculty Mentor: Karyn Collie

Snow Leopard Behavior

This research is on the behavior of snow leopards in captivity. I am trying to determine if captive snow leopards are more active or non-active. I am also looking at what hour of the day between 11am-4pm they are the most active. To complete this study, I am going to observe the snow leopards using the scan sampling method. I will have a time interval of one minute, so after every minute I will record the activity level. The activity level will be either active or non-active. Then I will compare my results of activity level and what times they were active to determine when they were most active and if they were mostly active or non-active. I expect to see the snow leopards spend more time non-active than active, and to be most active in the morning between 11am-12pm.

Jenna Zimmerman
Faculty Mentor: Karyn Collie

Akron Zoo Bald Eagle Behaviors

In this study, I am interested in observing the behaviors of the bald eagles at the Akron Zoo. Sometimes the behaviors of captive animals differ from those of animals of the same species in the wild. To see if there could be a difference in the behaviors of animals in captivity, I am looking to see what time of day the eagles are most active. By selecting certain behaviors and separating them into categories, I can differentiate the specifics of the behaviors that the eagles are performing at a given time. These include active and passive behaviors as well as two others that include behaviors that are not quite passive or active. They are called “Out of View” and “Unknown.” Active behaviors are behaviors that involve the animal performing some sort of task or moving around. Passive behaviors are the opposite, behaviors in which the animal does not show much movement. Active behaviors include eating, socializing, vocalizing, and moving around and walking. Passive behaviors include sleeping and standing still. The “Out of View” behavior is for when the animal that I am watching goes into a spot in its enclosure that I cannot see. “Unknown” is for any sort of behavior that is not included in any of the other categories previously mentioned. I will scan the enclosure every five minutes to look for the behaviors and the number of times these behaviors are performed will be recorded throughout the day to see whether active or passive behaviors are a more common occurrence in the morning or later on in the day. My prediction is that these animals will be most active in the earlier hours of the day since I know that this is the case for their wild counterparts.

Camryn Ottey
Faculty Mentor: Karyn Collie

Evaluating Water Use in Captive North American River Otters

The North American river otter (Lontra canadensis) is a semiaquatic mammal native to the coasts and waterways of North America. Since they are semiaquatic, captive otter enclosures in zoos and aquariums tend to have land portions and water portions. The objective of this study is to see how captive North American river otters divide their time between the land and water portions of their enclosures and how this may be impacted by the presence of zoo visitors. For two five hour periods in March, I will conduct an observational study which records the behaviors of Akron Zoo’s otters. Using an ethogram, I will record the otter’s behavior every two minutes by noting whether it is in water, partially in water, on land, not visible, or off exhibit. The presence or absence of other zoo guests will also be noted. I hypothesize that otters spend more time in water or partially in water when humans are present and more time on land when they are alone.

Natalie Sasala
Faculty Mentor: Karyn Collie

Behavior differences of North American River Otters according to time of day

The purpose of this study was to assess the behaviors of the North American river otters observed throughout a day. River otters are very active and mobile animals that can travel up to 26 miles in one day. The behaviors that were observed during this study were Active Swimming in the main pool (AS), time spent in the Waterfall Area (WF), time on Land (OL), and time spent Off Exhibit (OF). The study took place at the Akron Zoo in Akron, OH and was from 11am-4p on March 20th and March 27th, 2021. Scan sampling is the method that was used to collect the data for this study; a scan was done every two minutes since there was more than one otter on exhibit. Since there is a male and a female, I will be looking at the behaviors exhibited by both when they are on exhibit. This study is important in furthering the knowledge on North American river otters and understanding how time of day can influence what behavior is being displayed, either in water or on land.

Morgan Pittinger
Faculty Mentor: Karyn Collie

Observing the Yellow Spotted Amazon River Turtles at the Akron Zoo

The study will take place on the yellow spotted Amazon River turtles at the Akron Zoo, observing whether the animals are more likely to be at the top half or the bottom half of the water column in the exhibit. Also, the behaviors it has while at the top or bottom of the water column will be observed. The study will look at resting, swimming, eating, or a foraging state when the study starts. The method of scan sampling will be used for both location and behavior, scanning every five minutes. This study will be looking at not only whether the species frequents the top or bottom more but also what kind of behaviors differ when they are at the top or bottom of the water column. The hypothesis is, that I expect to see yellow spotted Amazon River turtles to frequent the bottom of the water column more because they are less exposed at the bottom half, and the natural behavior of this wild species would be to lay low so they are not as exposed to predators.

Morgan Priddy
Faculty Mentor: Karyn Collie

Where do Ring-Tailed Lemurs Spend Most of Their Time?

I will be studying the Ring-Tailed lemurs at the Akron Zoo. This study is based on enclosure usage to determine where they spend most of their time either in the top half of the enclosure or in the bottom half. The importance of studying space use of the enclosure is so that we can determine how to build or rearrange the enclosure based on the individual and the natural history of them. For an animal like a lemur, it might be beneficial to have all of their enrichment in the top half of the enclosure rather than the bottom half since they will not use it as often. The behaviors like walking, running, jumping, scratching, grooming, alert, and cuddling will be documented along with where they perform them (top or bottom). There have been studies related to space use for captive animals, but there are few for this species. With the information gathered it could help increase the welfare of the animals. The enclosure will be scanned every minute and wherever each lemur is and what they are doing will be documented. I believe that the Ring-Tailed lemurs will spend most of their time in the top half of the enclosure sleeping.

Clarece Willett
Faculty Mentor: Karyn Collie

Comparing the Social bonding Initiations between Male and Female African Lions (Panthera leo)

African lions (Panthera leo) are the only social members of the big cat family. Lions can live in family groups called prides that are primarily composed of the breeding male, adult lionesses, and his cubs. A lion relies heavily on socialization; whether to simply survive the harsh environment or to ensure that good relations are kept within the pride. While a male's only job is to simply protect his territory and ensure that his fitness is increased, a female's job is to hunt and care for the cubs. Both of those jobs are shared by all lionesses within the pride, as females will hunt together and will care for all of the cubs, not just their own. The purpose of this study is to determine who initiates and engages the most in social bonding and social interactions. The study will be done using the scan sampling-group observation method. Every minute I will record one of the following behaviors for a lion: grooming, nuzzling or head-butting, playing, and sleeping together within a foot of each other. By the end of this study, I hypothesize that it is the females who will engage the most in social bonding and interactions.

Olivia Kitchen
Faculty Mentor: Karyn Collie

Otter Activity Levels Based on Observer Numbers

"For this research project, I will be studying whether the activity levels of the North American river otters (Lutra canadensis) are affected by the number of observers at the Akron Zoo. The purpose of this project is to find out whether the otters are more active around large groups or small groups of people. To measure this, I will be recording behaviors and group size (whether it is a small or large group -- based on the number of people) every minute. Once these factors are collected, I will be able to determine whether the activity is higher or lower when more people are observing. My hypothesis is that the otters' activity levels will increase when there is a large group of people observing them. "

Amy VanLew
Faculty Mentor: Karyn Collie

Bald Eagle (Haliaeetus leucocephalus) Vocal Behavior

This observational study was conducted with the purpose of determining whether a correlation exists between the frequency of peal calls given by bald eagles (Haliaeetus leucocephalus) living in captivity at the Akron Zoo and the number of zoo guests present at the birds' exhibit. Adult bald eagles demonstrate little variety in the vocalizations they produce; their calls have been divided into three distinct categories: wails, peals, and chatters (Eakle et al., 1989). Data was gathered using scan sampling as well as the all-occurrence sampling method. Scan samples were conducted at two-minute intervals to determine how many people were present at the exhibit. Additionally, the number and types of calls produced by the eagles during each two-minute interval were recorded using the all-occurrence sampling method. After all data were gathered, an ANOVA test was performed to determine if there is a correlation between the number of guests present at the bald eagle exhibit and the types of vocalizations that the birds produced. It is hypothesized that bald eagles will produce peal calls more frequently when a large number of guests are present at their exhibit.

Hannah Venmar
Faculty Mentor: Karyn Collie

Penguin Research

Spheniscus humboldti is a species of penguins from South America. They live in colonies, so naturally they are social animals. In this study, a group of 13 penguins at the Akron Zoo will be observed to see if they really do prefer to do the same behavior as the others around them or if they prefer to be solitary and not interacting with the other penguins. Social behaviors consist of grooming one another, huddling, swimming together, chasing each other, or mating. Solitary behaviors consist of self-grooming, resting, or walking by themselves. To do this, group scans will be completed every two minutes to see whether or not the penguins are doing the same behaviors at the same time or not. All of the penguins' behaviors on display will be noted. The data will be collected over two days and will be statistically analyzed. From previous research, the hypothesis is that the penguins prefer to be doing the same behavior as the other penguins in the enclosure because they are social animals.

Dalayna Riffle
Faculty Mentor: Karyn Collie

Behavioral Reaction of Amblyeleotris guttata During Burrow's Disturbance

One mixed species tank at the Akron Zoo contains orange spotted gobies, a stripey, royal grammas and a firefly goby. Since all are in the same enclosure, they interact with each other on a very frequent basis. The orange spotted goby digs burrows that are located at the central point of the tank and shifted to the right, and the bigger of the two being closer towards the middle. After observation, the stripey showed itself to be the most aggressive tank inhabitant. When swimming in the proximity of the goby, the stripey would chase either goby back into their respective burrows. If the firefish goby or any of the royal gramma entered the same area, the orange spotted goby would continue its previous behavior. To find a correlation between behaviors elicited by other fish near the orange spotted gobies' burrows, each time of disturbance will be recorded, as well as how long any reaction lasts. This study is to find how the orange spotted goby's behavioral reaction to the dominant tankmate entering the burrow's proximity differs from their reaction to other fish in the enclosure.

Ashley Forret
Faculty Mentor: Karyn Collie

Observational Study of Freshwater Stingrays

For my study, I will be focusing on freshwater stingrays. The conditions I will be comparing are whether the stingrays rest at the bottom or engage in active swimming more frequently. I want to test the relationship between activity and horizontal location over time, which will include them being near to or far from the glass. To distinguish between the different locations, I will create a diagram of the exhibit with labeled regions. For each behavior, I will be using the scan sampling method, so I will be recording the location and behavior of each individual every few minutes. My hypothesis is that freshwater stingrays spend more time resting on the seafloor than engaging in active swimming.

Matthew Kuyken
Faculty Mentor: Karyn Collie

Does the Komodo Dragon bask more in the morning or the afternoon?

The Komodo dragon is an apex predator at the top of its food chain on Komodo Island. This requires a great deal of energy for hunting and killing prey, as well as for competing for dominance and breeding rights. Being a reptile, the Komodo dragon gets its needed body heat from basking in the sun and gaining heat from the surroundings. I want to know when the Komodo dragon does most of its basking to gain its energy. This will better our understanding of the daily routine of the Komodo dragon. To do this, I will record the amount of time a Komodo dragon at the Akron Zoo basks under its heat lamp in the morning and afternoon. My hypothesis is that the Komodo dragon basks more in the morning than in the afternoon to get most of its energy needed for hunting and competition for the rest of the day.

Lane Jones
Faculty Mentor: Karyn Collie

Galapagos Tortoise Attentiveness

The purpose of this study is to observe the Galapagos tortoise to see how often they are active. I will measure this by using the behaviors attentive and locomotion for activity. There also will be behaviors like out of view, asleep/head down and other. The topic of my study will be to see what causes the Galapagos tortoises to change states more often. I will be using scan sampling every half hour 5 minutes and every time they are fed. My hypothesis is that the tortoises will be most active when they are fed and when there is new enrichment placed in the enclosure.

Lauren Goodman
Faculty Mentor: Karyn Collie

The Impacts of Captivity on Snowy Owl (Bubo scandiacus) Auditory Attention

"This research examines the role of instinct and socialization with humans on the snowy owl (Bubo scandiacus). Owls have incredibly sensitive hearing; and are naturally attuned to the sounds of rustling or the quiet whimpers of prey animals. Snowy owls are certainly no exception. However, animals living in captivity, which are fed and viewed by humans every day, become desensitized; and may even seek human attention, since humans are the providers of their meals. The goal of this research is to see how much influence instinct still has on a snowy owl that has been kept in captivity; by observing what the owl pays attention to. What an animal pays attention to is what it most cares about. This research will have enrichment implications for owls kept in captivity, possibly creating a new demand for more naturalistic enrichment. I predict that the owl will pay the most attention to natural sounds such as leaves rustling or small birds chirping. "

Alanna Copeland
Faculty Mentor: Karyn Collie

Red wolf activity in urbanized regions

The focus of my study will be red wolf (Canis lupus rufus) and their diurnal activity in captivity versus in the wild. Coyote (Canis latrans) behavior changes in urban areas, and I wanted to know if the same factors impact red wolves as well. The purpose of my study is to observe if Red Wolves in captivity in the middle of urbanized cities, such as the Akron Zoo, are more active during the day in comparison to members of the species that live in the wild. My hypothesis is that red wolves in captivity are more active during the day than native red wolves in the wild. For my study I will be using the focal scan sampling as my method of collecting data. When I arrive to the animals enclosure I will be looking for these behavioral traits- feeding (FE), alert (AL), locomotion (LO), face rubs (FR), body shake (BS), Laying down eyes closed (EC), Not visible (NV), other (OT). Each scan will be done in 2 minute increments and behavioral traits noticed from the wolves during that time will be recorded on the log sheet. After recording behaviors on the log sheet we will transfer the data to excel so that we can see on average how much time is spent on each activity that these wolves are participating in. Once are data is collected, recorded, and calculated we will then compare our data to the natural history we know about wolves to see if my hypothesis is supported or not.

Ashley Edwards
Faculty Mentor: Dr. Debra Lee

The importance of healthcare providers implementing an emergency contingency plan in the home birth setting

"Mortality rates of mothers are higher during home births than during hospital-based delivery. Women experiencing an emergency while giving birth at home fare better when a contingency plan of care is in place. Without an emergency contingency plan, home birth care providers are not fully prepared to care for their patients during and after delivery. Our exploration of the evidence for best practice was guided by this question: What is the process (I) in which home birth care providers (P) develop an effective emergency contingency plan (O) for safe home births? The evidence suggests an effective contingency plan is vital to the safety of mother and child in the home birth setting and requires multiple interprofessional personnel who have good communication and teamwork. However, we concluded that more research is needed to identify best practices for developing and deploying an effective emergency contingency plan. One research recommendation is to conduct an appraisal of the care continuum from home to hospital to identify key areas, personnel, and processes associated with an effective emergency response. Our prioritized outcome would be a better understanding of how to put together a home birth health care team and an effective emergency contingency plan."

Lauren Geiger
Faculty Mentor: Kathryn Huisinga

A Potential Role of the CDH11 gene in stock breed horses with Navicular Syndrome

Navicular syndrome is a chronic, generally progressive, and often therapy-resistant forelimb condition that is a common cause of lameness in horses. While the cause of navicular syndrome has been investigated, it is currently unknown. There is evidence that there is a genetic component and that plays a role in the development of navicular syndrome in horses. This genetic component was pursued in this study of navicular syndrome to gain more insight into the molecular genetic determination of radiologic changes in the equine navicular bone. 20 stock breed horses older than the age of three were used in this study. One group consists of ten horses with navicular syndrome and a second group consists of ten horses undiagnosed with navicular syndrome. In order to investigate these two groups of horses, DNA was isolated from each horse and exon 2 of the CDH11 gene was sequenced. The CDH11 gene was selected for sequencing based on its roles in osteoblast differentiation. This study looked to identify mutation(s) that caused changes in the amino acid of a protein. The genomes were compared between the two groups to determine if there were correlations that could be linked to the degenerative activity of navicular syndrome.

Danny Miller
Faculty Mentor: Jay Case

Timeless Rivals

This project highlights the industrial and social development of two northeastern Ohio towns, mixed the birth of a gridiron rivalry of one of the largest sports in the entire world.

Sydney VanHoy
Faculty Mentor: Dr. Debra Lee

Cultural humility/awareness in the care of pediatric patients with Sickle Cell Disease

Most healthcare providers lack the cultural awareness required to provide holistic care to African-American (AA) pediatric patients with sickle cell disease (SCD). Further, there is a lack of trust in the healthcare system among the AA population. These two issues contribute to patients' under reporting pain, which can be a sign of impending vaso-occlusive crisis, a condition which, left untreated, can lead to disability or death. Guided by the PIO Question, "What is the process by which care providers are prepared to deliver culturally-sensitive, patient-centered care to those with Sickle Cell Disease", we examined current literature for an answer. Evidence indicates that although personal social experiences are the most influential in a provider's ability to provide culturally competent care, training is beneficial and can be used to improve patient outcomes. When cultural competence training is used in a duration of at least four months, it is shown to significantly increase cultural humility for providers, therefore being able to provide effective communication, intervention, building confidence that leads to an increase in adherence to treatment and client satisfaction. We recommend piloting an educational training program focusing on the African American culture, how they communicate best, and how they handle pain.

Ashley Zehr
Faculty Mentor: Andrew Reynolds

Malone University Undergraduate Student's Opinions on Abortion

For years there has been two polarized views on abortion. Everyone has his or her own opinion on the topic. Even since biblical times, there is scripture about abortion or not. Then as time continued, there were ways that women were able to have abortions. In the United States, abortion was illegal for a time, but then perceptions changed. This led to Roe v. Wade, which made abortion legal in the United States under the right to privacy. Through this study, the views of college students around the issue of abortion will be researched. The purpose of this study is to be able gain a baseline of where Malone University undergraduate students stand on their views of abortion. The survey instrument used was previous to survey college aged students in Nepal, so this will be a perspective in the United States. Also during my research, there have not been many previous studies done specifically on college student ages. This study will continue to open the door for continuous research on the next political generation of America. There are specific views on abortion, and undergraduate students can be in the place of figuring out where they stand. This will take a look at specifically Malone University undergraduate students and where they stand on the line of pro-choice or pro-life. Methodology: I have a Google form survey of 27 questions that is to be sent to all Malone undergraduate students. There are 8 demographic questions and 19 questions using a Likert scale from 1-4 with 1 being strongly disagree and 4 being strongly agree. Research prediction: I predict that the majority of Malone undergraduate students will fall between disagree and agree. There will be 20-30% of students that will have strong opinions (choosing 1 or 4 on the survey) on abortion, but the majority, 70-80% will fall in the middle (choosing 2 or 3 on the survey). The Malone student population provides an insight to what the future of America could hold in terms of abortion policy. The students will be the next generation to have a voice in the political realm. Malone students also provide a different demographic because Malone University is labeled as a Christian institution, however, not all the students attending claim to be Christian. This study provides an insight on what the desire is for future of abortion policy and how religion may shift perspectives. The Malone student population is also the sample that is easily accessible for me to survey through the institution.

Erika Johnson
Faculty Mentor: Lauren Seifert

Helping Others Treat Addiction

"The overall goal of my research project is to see the consistency of addicts understanding their short and long-term effects of substance abuse. Throughout my project I am going to have a survey given to multiple mental health professionals that are certified and trained specifically in this general field. My goal during this research project is to have a better understanding of the thoughts, feelings, and knowledge an addiction specialist might give to a client that is seeking help. Addiction is a serious and challenging issue that can be hard to tackle, but with the resources and knowledge, I fully believe many counselors can help their client make that change. A key reason I am interested in this career choice, is because addiction has been a constant struggle for my friends and family my whole life. It's something that has been second nature for a lot of individuals and I believe they are able to make that lifestyle change with the proper love and guidance. "

Camryn Ottey
Faculty Mentor: Jason Courter

Population Analysis of White-Tailed Deer in Quail Hollow State Park

White-tailed deer are one of the most common wildlife species in the eastern United States and have significant economic and ecological impacts. In many cases, these impacts are particularly notable in areas where hunting is not permitted, such as state and local parks. In January 2021, we conducted a deer density survey at Quail Hollow Park, a 700-acre county park in Hartville, Ohio. We deployed 7 trail cameras during our 3-week study that remotely transmitted wildlife photos to our smart phones. In total, we took 8,423 deer pictures during our study, which included 896 total buck pictures and 58 pictures of unique bucks that were identified by their antlers. By using the ratio of unique bucks to total buck pictures, we were also able to estimate the number of doe present based on the total number of pictures taken. Collectively, we estimated a deer density of approximately 0.63 deer per acre which vastly exceeds the estimated carrying capacity for healthy forests in Ohio. Our results suggest that population control measures may be needed to optimize ecosystem function in this park and we are in the process of identifying specific management recommendations for our partners at Stark Parks.

Stephen Kamph
Faculty Mentor: Lauren Seifert

U.S. National Park Visitation and Economic Output Research Project

My Individual Research Project in BUS351 examines U.S. National Park visitation and economic output. This topic and area of concentration is meaningful to me since I have always had a great interest in exploring the U.S. National Parks and learning more about their economic impact. Consequently, I wanted to better understand the correlation between park visitation and economic impact in the local communities. As of note, my research orientation was conventional, traditionalist. My hypothesis was that total park visitation predicts economic output at U.S. National Parks. To answer my research question, I used an archival research approach. More specifically, I used data sets and tables which contained information collected by the U.S. National Park Service. I then conducted a correlational analysis using Pearson Correlation and CORREL functions in Excel. My findings reveal that there is a strong correlation between park visitation and park economic output.

Julia Mizener, Elizabeth Selleny, Caitlyn Barrett, Kassandra Orr
Faculty Mentor: Dr. Debra Lee, Dr. Christina Fratena

Mental Health Promotion for Expectant Mothers to Prevent Postpartum Depression

"The incidence of postpartum depression (PPD) is increasing and can have significant health and safety implications for expectant mothers and their children. Delayed reporting of PPD increases the likelihood of serious long-term effects. Interventions to address this problem upstream are urgently needed. Our exploration of current evidence was guided by this question: For expectant mothers (P) what educational or screening resources (I) increase the likelihood of reporting PPD symptoms (O)? The evidence indicates that mental health education and promotion in the postpartum period is associated with positive outcomes. Additionally, ante- and postpartum depression screenings and home visits by health professionals decrease the risk of PPD. Although these measures are linked to positive mental health outcomes, the evidence is unclear as to which strategies, if any, increase the likelihood that expectant or new mothers will report PPD symptoms. There is a need for additional research to identify whether the proposed interventions have an effect on reporting PPD symptoms. The key outcome measure would be frequency and timing of symptom reporting in the targeted group, based on the Edinburgh Postnatal Depression Scale (EPDS) and qualitative data via survey and/or interviews. "

Elizabeth Angel, Amanda Begue, Madison Paris, Melody Weaver
Faculty Mentor: Dr. Debra Lee

Health Care Provider Education on CAMs

"Patients receiving chemotherapy agents such as cisplatin are having difficulty managing adverse effects such as nausea and vomiting (CINV) with usual treatments. To combat these symptoms patients are turning to healthcare providers for guidance with complementary and alternative medicines (CAMs). CAMs have been shown to reduce CINV and anorexia. Healthcare providers are not well educated on CAMs so patients are not getting the answers they need and are still suffering. Using this PIO question, “In healthcare providers (P) does exposure to education on CAMs (I) increase their likelihood of responding to inquiries from patients experiencing chemo-induced side effects with appropriate information (O)”, we concluded there is evidence to suggest that provider education on CAMs allows for them to be better equipped to give relevant and helpful information to patients decision-making and potential treatment of adverse effects of chemotherapy. In the pilot, nurses will be educated on CAMs. Nurses are encouraged to educate patients when they inquire. To monitor the outcome of the pilot patients will be asked to fill out a Questionnaire when entering the floor about prior knowledge on CAMs and another leaving on the nurses’ teaching. This will be analyzed to determine if nurses are properly educated on CAMs when patients inquire.

Allyson Wolf
Faculty Mentor: Karyn Collie

Activity of Grizzly Bears

"For my experiment, I am seeing if grizzly bears at the Akron Zoo are more active in the morning or during the afternoon. I will be looking at the activities they do during the morning and compare them to how they act during the afternoon. The purpose is to see if they wake up and have the energy or if it comes to them after they eat and wake up more. I will be using scan sampling and be timing when these activities are performed. I will be looking at the amount of times they get up and lay down, how many times they go in and out of their indoor enclosure. How often they pace, and the number of times the bears interact with each other (e.g., playing, fighting). This will show if they are more active in the morning or in the afternoon. "

Alicia Dean
Faculty Mentor: Karyn Collie

Do Captive Snow Leopards Become More Active Around Feeding Time?

Snow leopards are solitary animals; there is usually only more than one for mating or if it is a mother and cubs. At the Akron Zoo, there is usually one out at a time, and it is typically calm and relaxed. The purpose of this study is to see if captive snow leopards become more active as it gets closer to feeding time. I will be watching for a number of behaviors, such as, walking, climbing, resting, scent marking, vocalizing, and jumping. Two types of sampling will be used in this study, scanning and all occurrence. Behaviors will be statistically tested based on the frequency of particular behavior changes across time. I predict the snow leopard's activity will increase within the hour before being fed.

Alexandra Sebastian, Taylor Franklin, Justin Pavlik
Faculty Mentor: Dr. Debra Lee

Interprofessional Practice in Flight Transport of Critically Ill Patients

The effective use of communication skills within interprofessional relationships in flight transport is not well-presented in orientation. The flight environment, especially excessive noise levels, can be a barrier to effective communication. Transport nurses frequently report safety concerns, such as near-misses; communication challenges contribute to concerns. This group explored the current evidence guided by this PIO question: what is the process (I) by which new flight nurses (P) are prepared to communicate safely and effectively (O) during transport missions? We used an article appraisal tool and group discussion to evaluate the strength and relevance of the evidence. The evidence indicates new flight nurse training already presents many in-flight challenges and responses but the environment, including communication, is difficult to adjust to. Evidence points to a strong need for camaraderie amongst team members. However, additional research is needed to establish best practice in the training and orientation of new flight nurses. A promising topic is the effect of an extended orientation of flight nurses that included simulated missions focusing on in-flight communication skills; two study outcomes of interest would be nurses' perceptions of in-flight communication and incidence of adverse events such as near-misses or need for patient resuscitation.

Pollyanna Smith
Faculty Mentor: Karyn Collie

Color Preference in the Mantis Shrimp

The mantis shrimp is not well known for their color vision, which is much broader than that of most vertebrates and even humans. They can see into the infrared and ultraviolet. The peacock mantis shrimp is often chosen for zoo aquariums because they are large, colorful, and charismatic. However there is not a lot known about their behavior in captivity and ways to enrich their captive lives. This study was designed to look at ways color can be used to enrich the lives of mantis shrimp kept in captivity. Different coloured sticky notes were put on the outside of the mantis shrimp enclosure at the Akron Zoo for set periods of time. Behaviours were recorded based on an ethogram of 12 behaviours to determine if there was a preference toward a particular colour. They were also presented with two patterns on two different colours to determine if they had a preference toward a pattern. There was a preference found for both colour and pattern.

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In its thirteenth year as a Malone University event,

Malone University's Student Research Symposium

showcases student scholarship across schools and departments.
Please, join us in congratulating student participants and
their faculty mentors as we come together in community
to honor graduate and undergraduate research and creativity.