

*Welcome to the Sixteenth Annual*



# **Palmer Student Research Symposium**

April 10th, 2019



***Keynote Speaker: Dr. Rose Krial-Victor***

***"The Reach of the Research Experience"***



***Dr. Krial-Victor earned her Bachelor's of Science in psychology, mentored by Dr. Bill Deeds, at Moravian College. She then went on to receive her PhD in experimental psychology at New York University, specializing in learning and behavior, and continuing her love of physiological psychology with crossover coursework in NYU's Center for Neural Science. This led to a special interest in neuropharmacology, and eventually, seeking a career in the pharmaceutical industry.***

# Sixteenth Annual Morningside College Palmer Student Research Symposium

Wednesday, April 10<sup>th</sup>, 2019

**Opening Remarks**

Provost Deeds

**7:45-8:00**

Yockey

**Oral Session I**

**Humanities (Qualitative)**

**8:00-9:00**

**LC 103**

1. **8:00-8:15: Historical Accuracies of Changing Family Structures in Margaret Mitchell's *Gone With the Wind***

*Marianna Pizzini*

Margaret Mitchell's 1936 novel *Gone With the Wind* is one of literature's most read, analyzed, and criticized works. Many historians argue that its racist undertones diminish its historical value, but the researcher argues that Mitchell's representations of children during and after times of war are historically accurate. The study of Post-Traumatic Stress Disorder (PTSD) on children affected by war was rarely studied in the mid-nineteenth century; Mitchell's work dives into the complexities of war strain and its effect on family dynamics. *Gone with the Wind* offers a critical insight into the historical changes of families based primarily on the effects of war. While many other aspects of the novel seem to diminish its effectiveness as a historical piece of evidence, Mitchell's explanations of Civil War families increase its historical accuracy and build its credibility.

Faculty Sponsor: Dr. Christina Triezenberg

2. **8:15-8:30: Tropical Storms and Teenage Pregnancy: Maternal Power in Jesmyn Ward's *Salvage the Bones***

*Taylor Van Vliet*

Jesmyn Ward's National Book Award Winner *Salvage the Bones* describes the Batiste family as they prepare for and ultimately face Hurricane Katrina, as it quickly approaches their fictional town of Bois Sauvage, Mississippi. At the center of this novel is protagonist Esch Batiste, a fourteen-year-old whose own mother has passed away. Esch discovers she is pregnant, and she struggles to find an identity as a mother. Only at the peak of Hurricane Katrina, when her family is most in jeopardy, does Esch realize her ability to protect and nurture her child. In *Salvage the Bones*, Jesmyn Ward demonstrates the strength found in motherhood through the parallel created between Esch's developing relationship with her child and the development of Hurricane Katrina throughout the novel.

Faculty Sponsor: Dr. Christina Triezenberg

3. **8:30-8:45: The National Japanese American Student Relocation Council and the Pursuit of Continued Education**

*Katlyn Kneifl*

This presentation will examine the use of the NJASRC and the reintroduction of Japanese Americans into American society during and after World War II. The thesis is found by using evidence from students who attended Morningside College to prove the benefits of the NJASRC, and demonstrate how it helped Japanese-American college-aged students and society as a whole. Different sources used include the Morningside College newspaper (the *Collegiate Reporter*), Sioux City newspapers, applications of Japanese Americans who attended Morningside College, journals, interviews, letters, etc. To give more information and a more in-depth background about the NJASRC, different academic sources on the NJASRC are used. Not only did the NJASRC bring over 3,800 Japanese Americans from internment camps to college, but it also helped to improve the relations of Japanese Americans and citizens as a whole.

Faculty Sponsor: Dr. Greg Guelcher

## Oral Session II

8:00-9:00

### Social Sciences (Qualitative)

LC 104

1. **8:00-8:15: The Swift Boating of John Kerry: His Loss of the 2004 Election**

*Morgan Polenske*

This is a study of an important aspect of the 2004 presidential campaign. This paper will discuss the ways in which the Swift Boat Veterans for Truth and the George W. Bush campaign were able to turn John Kerry's exemplary military record and anti-war protest efforts against him in the 2004 election. Kerry volunteered for the U.S. Navy during the Vietnam War, was deployed on two tours, and earned various medals during his service. The advertisement "Any Questions?" put out by the SBVT is addressed in a case study manner to show the conscious choices the SBVT made to attack Kerry's actions in the military. This ad, and those like it, were damaging to Kerry's campaign by forcing Kerry to spend time combatting these accusations rather than promoting his own platform. This research is essential in understanding just one of the long-standing legacies of the Vietnam War.

Faculty Sponsor: Dr. Greg Guelcher

2. **8:15-8:30: Gun Control: A Political and Psychological Review**

*Lexi Gerry*

This literature review will be a two-fold analysis of the controversial debate of gun control, including a political science perspective and a political psychology perspective. The political science perspective analyzes gun control laws in regards to crime rates, a comparison of two states on opposite ends of the spectrum, the black market, and the targeting of mental illness. The political psychology perspective analyzes the gun control debate in regards to political agenda setting, media priming, political propaganda, media influence, and various psychological tactics used by politicians to guide such a two-sided debate. This analysis is not

intended to persuade the audience, but to explain the psychological components of the gun control debate and to provide statistical, scholarly research to support the notion that increasing and strengthening gun control laws will not decrease crime rates or gun ownership.

Faculty Sponsor: Dr. Valerie Hennings

3. **8:30-8:45: Constitutional Interpretations: A Comparison Between Chief Justice Marshall and Chief Justice Roberts**

*Jordan Epp*

My project explores the relationship between the law and constitutional interpretations by different leaders of the U.S. Supreme Court. The early Supreme Court, led by Chief Justice John Marshall, became a strong and influential branch of government through landmark cases. I compare that era of the Court to the changes Chief Justice Roberts has made through his personal background, voting record, and public statements. I question whether it is the era, judge, or the legal question that is most important in how a case will be decided. I conduct a content analysis using opinions in cases such as *Marbury v. Madison*, *McCulloch v. Maryland*, *Snyder v. Phelps* and *Citizens United v. Federal Election Commission*. I hypothesized that era is the determining factor in rulings. In actuality, it is all three with an emphasis in era and judge that determines Supreme Court cases.

Faculty Sponsor: Dr. Valerie Hennings

4. **8:45-9:00: Organ Donation: Systems of Belief**

*Bill Clifford, Kelly Mathison, Adam Hinrichs, Tad Dorsey\**

There is a negative disparity between supply and demand of organs due to the lack of understanding and the global "Systems of Belief" regarding organ donation. We investigated how research and medical advancements are transforming these perceptions. The research analysis revealed that despite these advancements, there are many barriers that donor advocacy organizations face. These barriers include, but are not limited to,

ethical and emotional challenges among healthcare providers, families, and the general public systems of belief based on lack of public health education on this topic. It was also discovered that there are cultural barriers among select populations and religious denominations, which also impact this global system of beliefs. Our analysis concluded that there is a strong need for increased community education and financial support to change these misconceptions and bring about a long-term solution.

Faculty Sponsor: Sima Dabir

*\*these presenters will be joining us from WITCC.*

### **Oral Session III**

**8:00-9:00**

#### **Marketing (Quantitative)**

**LC 105**

1. **8:00-8:15: *Life is Short. Stay Awake for It: Caribou Coffee's Caffeinated Marketing Strategy***

*Elizabeth Kruchten*

This is a mixed-methods presentation highlighting research gathered from both primary and secondary sources on Caribou Coffee's marketing strategy, responses to marketing trends, and consumer perceptions. Caribou's mission of "an experience that makes the day better" creates a homey experience for their customers. Through both market penetration and product development strategies, Caribou has been growing over the past decade. With key strengths including their small size, wide variety of offerings, and emotional tie with customers, they have created their own niche in the coffee company market. Caribou distinguishes themselves from the competition by providing high quality coffee that is environmentally friendly and sustainable. Caribou has worked to stay up-to-date in the wake of social media, allowing their market to expand and become a competitor to coworking spaces. Overall, Caribou is superior to competitors because of their response to the marketing environment.

Faculty Sponsor: Dr. Marilyn Eastman

2. **8:15-8:30: Fueling The Fashion Industry - Diesel's Marketing Analysis**

*Julius Fassbinder*

This mixed-method research consists of gathered data from both primary and secondary sources on Diesel's marketing strategy, strengths, weaknesses, and responses to several trends in the fashion industry. What started out as a simple denim fashion company, has now become a driving force in the luxury fashion market, competing with the likes of Gucci and Prada. This is due to their focus on consistent high-quality products, and most importantly, on innovation. To keep up with the ever-changing fashion industry, Diesel has focused on bringing out new and innovative products. This is supported by the conducted primary research, where 60% of respondents found the brand to be stylish and high quality. In addition, Diesel has found success through cause-related marketing. The brand openly speaks about equality in sexual orientation, and even started marketing campaigns with equality as the main focus.

Faculty Sponsor: Dr. Marilyn Eastman

3. **8:30-8:45: Facing the Future: Too Faced Cosmetics' Marketing Analysis**

*Rachel DeJong*

This mixed-methods presentation includes research and data from both primary and secondary sources regarding Too Faced Cosmetics' marketing strategy, responses to marketing trends, target markets, and consumer perceptions. This presentation will include information from secondary sources, such as annual reports, as well as primary data from a self-conducted market survey. Too Faced Cosmetics is a subsidiary of Estee Lauder Companies that focuses on providing creative and versatile products. Much of the success of both Too Faced Cosmetics and Estee Lauder Companies can be credited to quality products,

durable reputations, successfully reaching target markets, product availability, and reacting to external market trends. As an example, Too Faced Cosmetics has found a strength in making all of their products cruelty-free, as well as a portion of their product line vegan-friendly.

Faculty Sponsor: Dr. Marilyn Eastman

4. **8:45-9:00: Into the DC UNIVERSE: DC Comics Marketing Analysis**

*Iandra Estupinian*

This mixed-method marketing analysis utilizes primary and secondary research to explore the marketing strategies of DC Comics and the technological advancements they have used to adapt to the evolving comic book market. As a world-renowned publisher, DC Comics uses their best product development technologies of animation work, print, and digital publishing to their advantage. Through using product development strategies, DC Comics has been able to compete with rival Marvel Comics, and has succeed in sustaining fan loyalty. Research indicates DC Comics recognizes their strengths and weaknesses and uses this recognition to design innovative products for DC fans' convenience and enjoyment.

Faculty Sponsor: Dr. Marilyn Eastman

**Oral Session IV**

**8:00-9:00**

**Sciences (Quantitative)**

**LC 105**

1. **8:00-8:15: Horror, Gore, and Jump Scares: The Physiological Response to Fear**

*Jessy Huff, Ryan Coyle, Nicole Thill, Alejandra Castillo*

Previous research has shown a well-established relationship between fear and startle response based on types of fear. The present study investigated physiological changes in response to immediate or slow-acting fear including jump scares and suspense. Participants (n=13) were hooked up to a Biopac system, specifically measuring galvanic skin response (GSR) while they

viewed videos that were counterbalanced between neutral, suspenseful, or jump scares. It was hypothesized that participants would be more likely to show an increase in GSR when viewing the jumpscare than when compared to the neutral and suspenseful videos. This can be explained by a person's fight or flight response, which will be prevalent after watching the jump scare. This is indicated by previous research done on the natural fight or flight response that is noticeable in humans.

Faculty Sponsor: Dr. Jessica LaPaglia

2. **8:15-8:30: Feline or Fido?: A Phylogenic and Comparative Analysis of Mesocyon temnodon**

*Riley Custer*

Mesocyon temnodon is an ancient canid species that existed primarily during the Oligocene epoch, approximately 35.4 million years ago. Even though its evolutionary relationships are uncertain, it is known that it is near the base of the canid evolutionary tree. Recent observations of Mesocyon temnodon fossils show that the ancient dog may have some anatomical similarities to feline specimens. The presence of epicondylar fossae and the potential for retractable claws are two points of common morphology with felines. The purpose of this study was to evaluate claws from Mesocyon temnodon specimen NDGS 64 in order to determine the plausibility of retraction. This process was executed utilizing visual comparison to other specimens known to have retractable claws. Using this method, it was found that the observed specimen, NDGS 64, was incapable of claw retraction.

Faculty Sponsor: Dr. Kurt Spearing

3. **8:30-8:45: Yass Queen: An Analysis of Gender Rhetoric and the Predominantly Female Production Team of Broad City**

*Ally Hecht, Engels Perez, Kailyn Robert*

The purpose of our research is to determine the effects of a predominantly female production team on a TV show's gender rhetoric. Specifically, we did a content analysis of three indicators

within the show *Broad City*. First, we looked at the representation of female empowerment through statements of affirmation. Second, we analyzed female friendship through the Bechdel Test. Lastly, we analyzed the prevalence of sex and body positive scenes. In all three situations, we found that *Broad City* exceeds expectations by suggesting that there is a positive influence on the gender rhetoric of the show from its predominantly female-based production team.

Faculty Sponsor: Dr. Barbara Prince

4. **8:45-9:00: Digitization of Democracy**

*Jessica Higgins, Ons Soussi, Artur Borges, Tim Erdmann*

Recent scholarship suggests a decay in democratic institutions around the world. This is evident in the increasing polarization of political parties, which creates difficult governing coalitions. Social media is becoming increasingly important for political processes as activity and membership of these platforms continue to rise globally. To what extent is social media capable of changing people's political sentiments, impacting their freedom of speech, or affecting electoral outcomes? The researchers measure and compare the usage patterns of the most popular social media platforms in the United States and Germany before and after the most recent general elections. This project examines the patterns of social media activity in association with measurements of turnout and polarization, measured by divided government. It then assesses whether or not social media is contributing to a decline in democracy as demonstrated by these indicators.

Faculty Sponsor: Dr. Patrick Mckinlay and Dr. Valerie Hennings

5. **9:00-9:15: Public Opinion and Campaign Messaging: Exploring How Gubernatorial Candidates Relate to Voters**

*Kalynn Manker*

This study builds upon past scholarship that suggests candidates use polling information as part of their efforts to win elective office (Bardes & Oldendick 2012). I consider the extent to which

campaign messages from gubernatorial candidates correlate with what voters perceive as important policy issues as well as elections (Kiouisis, Mitrook, Xu Wu & Seltzer 2006).

I analyze the results of the 2018 Morningside Poll based on the intersection of public opinion on issues facing the state of Iowa and how candidates respond in their campaign messaging. To detect campaign messaging in relation to public opinion, I conduct a computer-assisted content analysis of three debates between the two major party candidates, Kim Reynolds and Fred Hubbell, running for the Iowa Governor office. The top issues facing Iowa as seen by the survey respondents are compared to the candidates' responses during the debates. I find mixed results as a conclusion of this analysis.

Faculty Sponsor: Dr. Valerie Hennings

## **Oral Session V**

**9:00-10:00**

### **Humanities II**

**LC 106**

#### **1. 9:00-9:15: Designing Audience Response: A Case Study of Miyazaki's *Howl's Moving Castle***

*Morgan Polenske*

This is a case study on the intentional design behind Hayao Miyazaki's film *Howl's Moving Castle*. This will discuss the design elements of line, color, and texture, as well as character aspects intentionally emphasized by the designers. Miyazaki creates a space for all audiences to address major societal themes. In *Howl's Moving Castle*, one essential theme discussed is the importance vanity holds in society, and how damaging it can be to the inner self. Miyazaki has also been a leader in innovation for film. Most of his protagonists happen to be female, pushing for a shift in gender norms in the media. It is important to consider this film's case study, for every decision the designers made was not accidental. Each aspect of this film was carefully orchestrated to evoke emotion and understanding from the audience.

Faculty Sponsor: Dr. Taylor Clemens

2. **9:15-9:30: Jezebel & #MeToo: Reading a Nasty Woman in Mainline Protestant Tradition**

*Krista Waite*

Christians use the Bible as an authority in their lives. I want to understand how the Bible builds modern stereotypes around women and their sexuality. According to biblical scholar Amy Kalmanofsky, “Sexual assault is common in the Bible, and it is mostly, though not exclusively, against women.” I will interpret the biblical stories of Queen Jezebel (in 1 Kings and Revelation); she was a foreign leader who suffered for her religious practices in Israelite society. She has become a symbol of “nasty women” in the Bible and beyond. Using a social critical method, I will show how her story relates to the #MeToo movement in the modern world. Through detailed readings of scripture, individual experiences and social responses, I will explain how to name and prevent sexual abuse and harassment in mainline Protestant traditions.

Faculty Sponsor: Dr. Elizabeth Coody

3. **9:30-9:45: The Fallacy of Tragic Heroes Among the Marginalized in “Lappin and Lapinova” and *The Goat***

*Amy Jackson*

Taken alongside Edward Albee’s *The Goat, or Who Is Sylvia?* (*Notes Toward a Definition of Tragedy*), Virginia Woolf’s “Lappin and Lapinova” is placed in a new frame of reference: tragedy. Despite this, marginalized individuals still fail to align with the criteria outlined by Aristotle. Rosalind, Woolf’s protagonist, is parallel to Albee’s Martin, yet the introduction of gender prevents Rosalind from serving as an Aristotelian protagonist as Martin does. This bears the question: can the marginalized ever be considered tragic heroes? A close reading of both works and a philosophical approach through G. W. F. Hegel’s concept of the “Self” and the “Other”, combined with French philosopher Simone Beauvoir’s feminist perspective, imply that the two are

incompatible, bearing the conclusion that characters whose tragedy and suffering come as a result of their own marginalization, who are not complicit in said marginalization, cannot be counted as Aristotelian tragic heroes.

Faculty Sponsor: Dr. Leslie Werden

4. **9:45-10:00: Centralizing Executive Power at the Center of the Earth: Hyper-Presidentialism and Delegative Democracy in Turkey**

*Celia McGaffey*

Scholarship suggests that Turkey is in the middle of an authoritarian reversal. The indicator of this event was a referendum held in 2017 that centralized power in the presidency and transformed the regime from a parliamentary system to an executive presidency. This referendum occurred concurrently with a recession. This study looks at scholarship surrounding the centralization of executive powers in a democracy, including hyper-presidentialism and delegative democracy. This study examines if there is a presence of these phenomena in Turkey by qualifying power of the presidency, using a typology developed by Basabe-Serrano that takes into account constitutional powers granted to the executive, and other factors like presidential approval. This study looks at when Turkey experienced a democratic reversal by using data from Polity IV to see if there is an association between the time of reversal and the installation of a delegate democracy, and time of reversal and an economic recession.

Faculty Sponsor: Dr. Patrick McKinlay

**Morning Poster Session**

**10:00-11:00**

**Yockey**

**Business (Quantitative)**

1. **Motivational Drivers of Studying at Small, Private, Liberal Arts Institutions**

*Tim Erdmann*

After years of growth, the international student population in the Midwestern region of the United States has recently started to decline, leaving institutions scrambling for international students to enroll. Understanding the motivations of international students behind making the decision of where to study is of critical importance to institutions in order to attract students. This survey-based study focuses on small, private, liberal arts schools in the Midwest, which are underrepresented in scholarly literature. The most critical influence on the student's choice to study at such an institution was affordability, followed by expected quality of education. Sports were also found to be a significant motivating factor. Differences in relative importance by gender, nationality, and institution were also identified. Potential implications of these findings to similar institutions are discussed.

Faculty Sponsor: Dr. Anne Power

## 2. **Redesigning Morningside College's Study Abroad Communications Strategy**

*Jaclyn Arens*

The objective of this mixed methods research was to determine the best strategies to redesign Morningside College's communication of study abroad programs. Traditionally, other than May Term opportunities, there have been few Morningside students studying abroad for semester or summer programs. The research analyzed best practices from universities with successful study abroad programs. This included abundant information, pictures, and student testimonials on university websites. Focus group research among Morningside students who have studied abroad indicate their key influences to study abroad were student to student communication, presentations on opportunities in classes, and professor input.

Faculty Sponsor: Dr. Marilyn Eastman

3. **The Effects of Nike's Social Celebrity Campaign on Brand Image and Purchase**

*Kayla Inlay*

This senior honors thesis is a mixed method research study analyzing the effects of Nike's social celebrity campaign using Colin Kaepernick on consumers' brand image and purchase intentions of Nike. The purpose of the study was to see if brands who advocate for social issues affect the brand image and purchasing behavior of different individuals. The research compared brand image and purchase intentions among consumers with differences in age, political leanings, gender and race. Despite the methodology of a convenience sample, the researcher was able to find differences among consumer perceptions.

Faculty Sponsor: Dr. Marilyn Eastman

4. **Importance of Unified Branding: The Morningside Mustang Rebrand**

*Timothy Cahoon*

The purpose of this mixed-method research study was to analyze best practices of branding college athletics, determine the brand image of Morningside College athletics among students and supporters, and recommend strategies to unify brand messaging. According to research, a single brand message, when delivered consistently, can lead to increased brand recognition and fan experiences. Because each individual sport is currently responsible for its own social media and advertising, the current branding of Morningside athletics differs by each individual sport, and lacks a unified message. In 2018, Morningside College launched a project to unify the school's athletics' brand elements to be easily recognizable and consistent across all platforms. As part of this effort, research was conducted on how to develop a successful brand, as well as the current perceptions surrounding the current Morningside athletic brand.

Faculty Sponsor: Dr. Marilyn Eastman

## 5. **Influence of Expatriate Experience on Home Cultural Values**

*Sebastian Schoon*

This research offers an insight into how home-culture values of international students studying in the United States are influenced due to their years living in the country. Geert Hofstede's six-dimensional model on cultural values is introduced to gain a better understanding of the concept of cultural values. Data sets from Hofstede's original study on cultural values are used as a baseline for comparison and his Values Survey Module (VSM) has been replicated to analyze cultural values of international soccer players studying in the United States. No significant relationship between the two data sets can be observed as their values differ greatly. Ultimately, future research using a greater sample size is recommended to obtain truly valuable and more accurate findings on the impact of studying abroad on cultural values.

Faculty Sponsor: Mary Zink

## **Biology (Quantitative)**

### 6. **Effects of pre-workout on anaerobic performance in males and females**

*Riley Rischling, Michael Yeradi*

The purpose of this study was to examine whether the acute use of pre-workout drinks had differential effects on skeletal muscle performance in males as compared to females. Male (n=6-7 per group) and female (n=6-7 per group) subjects were randomly assigned into one of the following three groups: pre-workout drink group, placebo group, and a control group (drank nothing). Skeletal muscle performance was assessed following a single use of a pre-workout drink by using a 1 repetition to maximal force production (1RM) in a bicep curl and maximal forearm grip force production using the mean of 3 forearm grip trials. Results showed that acute use of a pre-workout drink had no differential effects on skeletal muscle performance between males and

females for the 1RM bicep curl ( $p>0.05$ ) and forearm grip force production ( $p>0.05$ ). Consumers who use pre-workout drinks should not expect to see performance enhancements following a single use.

Faculty Sponsor: Dr. Aaron Bunker

## **7. Male and Female Inter-arm Blood Pressure While Exercising**

*Kayla Scrimpf, Allie Vanek*

The purpose of this study was to examine whether there were interarm blood pressure (BP) differences in male and female subjects during low intensity upper body exercise. Male ( $n=9$ ) and female ( $n=14$ ) subjects all served as their own control in the sense that their right arm was compared to their own left arm. Subjects performed arm crank exercises at 60 revolutions per minute for 3-minute intervals on a cycle ergometer. At the end of each 3-minute interval subjects stopped exercising for 1-minute to allow for recording of BP and heart rate. This continued 2 more times for a total of 3 exercise bouts. Results showed that there were no interarm BP differences, independent of sex; and that the exercise itself did not significantly elevate BP, independent of sex and arm ( $p>0.05$ ). Future studies should consider using a variety of exercise intensities to investigate interarm BP differences.

Faculty Sponsor: Dr. Aaron Bunker

## **8. Contaminant Organisms and Antibiotic Resistance in Holy Water**

*Lynsey Matulka, Sidney Hildhal, Matthew Hermelbracht, Miyu Okada*

The purpose of this project was to determine whether running or standing holy water was more likely to contain contaminant organisms, to determine the levels of antibiotic resistance among these organisms, and to determine the possibility of transferring the antibiotic resistance genes between the different organisms. 56 samples of holy water were collected on Sundays, December through March, from four Catholic churches, two with running

water founts and two with standing water basins. 18% of standing water and 11% of running water tested positive for coliforms. 11% of standing water and 3% of running water samples tested positive for *S. aureus*. Of the eight confirmed *S. aureus* isolates none were resistant to vancomycin and rifampin, one was intermediate for Oxacillin (MIC 8 mg/L), two resistant to penicillin (MIC 64 mg/L), six to Clindamycin (MIC 32 mg/L), and seven to Erythromycin (MIC >300 mg/L).

Faculty Sponsor: Dr. Anni Moore

## **9. Does Styrofoam Spawn Sluggish Superworms?**

*Chad Hiser, Tristan Harris*

Superworms are known to eat and digest styrofoam, but it is still unknown whether it impacts their activity. In this experiment two groups of superworms had their activity tracked: a control group that ate their typical bran food, and the experimental group that ate styrofoam. Initially, and again after after two weeks, they were video-recorded for activity over a five minute time frame. The two diet treatments were compared statistically and it showed that styrofoam does not impact activity levels of superworms compared to bran. The results of no significant difference are consistent with previous results showing no cost to survival. With there being no performance cost, some future plans are to see if the styrofoam is being chemically digested, determining what bacteria is in the superworm gut, and if the gut fauna breaks down the styrofoam outside of the gut.

Faculty Sponsor: Dr. Tim Sesterhenn

## **Psychology (Quantitative)**

### **10. Assessing Adult Heart Rate During Auditory Exposure to Infantile Crying and Laughing**

*Katelyn Miller, Samantha Anderson, Tyler Haberman*

Infantile survival depends on the ability of the infant to beguile the attention of nearby caregivers. In this within-subjects study, participants' heart rates were measured in response to hearing

recordings of infant cries and laughs. After collecting a baseline reading of heart rate, participants listened to a thirty second recording of an infant crying, which was immediately followed by a thirty second recording of an infant laughing. The order in which the recordings were played was randomized for each participant in order to reduce potential confounding variables. Past research exploring the pitch and abnormal pattern of infant cries reveals that these qualities stimulate the sympathetic nervous system, effectively increasing adult heart rate. Considering this research, it was hypothesized that adult heart rate would increase in response to infant cries and decrease in response to infant laughs.

Faculty Sponsor: Dr. Jessica LaPaglia

### **11. Judgment and Decision Making in the Workplace**

*Michal Widjaja, Jaymie Huff, Otto Ducasse*

There are many cognitive processes and steps people use in order to make an ethical decision. Our study looked at the ease in which people make workplace decisions depending on whether their decision affected themselves or others. Participants read two cases in which there was an ethical dilemma. Both cases were work-related decisions that took place in different environments. Participants answered questions about what they would do in these situations and why, as well as how easy or difficult it was to make that decision. We hypothesized that it would be easier to decide what do to do in a given scenario if the decision personally affected the individual.

Faculty Sponsor: Dr. Jessica LaPaglia

### **12. Elaborative Processing and Student Learning**

*Pedro Tostes, Samantha Knight, Yuki Mori, Jaymie Huff*

Previous studies have found promising results about the benefits of elaborative processing in learning. Research has found that retrieval is influenced based on the amount of elaboration on the encoding process (Hannon & Craik, 2001) and that

elaborative-interrogation produces greater memory facts that are difficult to acquire (Pressley, Symons, McDaniel, Snyder & Turnure, (1988). The current study investigated the influence of elaborative rehearsal in learning untranslatable words for the English language. Participants were given three Portuguese and three Japanese words. They were asked to explain to each other half of the words and to copy the definition of the other words. Afterwards, the subjects were tested if they could remember the meaning of the words. The results found that the words explained were remembered better than the ones copied. Participants' performance increased when words were deeply encoded compared to when they were copied.

Faculty Sponsor: Dr. Jessica LaPaglia

### **13. The Bystander Effect: Group Size and Confederate Sex**

*Deborah Crvk*

This observational study used two confederates, one male and one female, while the researcher recorded and observed bystander behavior. A bystander became an unsuspecting participant when they returned the dropped envelope to the confederate of their own accord. I hypothesized that the larger the group size, the less likely bystanders were to intervene. Group size, confederate sex, and participant sex are the object of this study in nonviolent, low risk situation. A logistic regression revealed that there was no significant difference of confederate sex or group size. Thus the results of the study rejected my hypothesis that a larger group size decreases the chance that bystanders will intervene. The significance of this finding applies to contexts such as school bullying.

Faculty Sponsor: Dr. Jessica LaPaglia

### **14. Religiosity, Gender, and College Status in Association with Sexual Attitudes and Behaviors**

*Madison Dotzler*

Researchers have studied sexual attitudes and behaviors in

relation to gender and religion separately, but have failed to evaluate attitudes and behaviors together. The aim of the present research was to fill the gaps in previous research in order to gain a better understanding of the association between these variables. We hypothesized that men would have higher levels of casual, uncommitted sexual behaviors and less conservative sexual attitudes than women, and that higher levels of religious behaviors and attitudes would be associated with lower levels of casual sexual attitudes and behaviors. Data came from an online assessment of 1073 individuals (736 Female). We found that men scored statistically significantly higher than women for sexual attitudes and behaviors. Additionally, correlations between religious behavior, religious attitudes, and sexual behaviors showed that higher religious behaviors and attitudes were associated with lower levels of casual, uncommitted sexual behaviors and attitudes.

Faculty Sponsor: Dr. Shannon Claxton

### **Ag and Food Studies (Quantitative)**

#### **15. Crop Insurance as a Tool: Perceptions of Iowa Farm Bureau Members**

*Nicole Langbein*

Crop insurance is an important risk management tool for Iowa farmers. Agriculture producers face uncertainty due to drought, hail, and disease. These uncertainties create a need for producers to have risk management instruments in place. The primary purpose of the study is to identify how producers in Iowa use crop insurance in their operations. The history of crop insurance, how it is used today in farming operations, and the various types of crop insurance for producers are examined. Participants in the study were Farm Bureau members whose primary farm operations included raising crops such as corn and soybeans. Data was collected using an electronic survey. Farm Bureau members' perceptions regarding crop insurance as a risk management tool will be used to develop conclusions and recommendations for

future implementation in the agriculture insurance industry.  
Faculty Sponsor: Dr. Thomas Paulsen

## **16. Positive Youth Development in 4-H; Leadership Development Impact of Young Adults**

*Summer Beery*

4-H empowers positive youth development through youth-adult partnerships and research-based experiences. Through 4-H programs, youth are provided opportunities for engagement in leadership activities that promote healthy lifestyles. The primary purpose of this study was to determine the perceptions of positive youth development and its impact on leadership in young adults who have participated in 4-H. The valid, reliable, Youth Leadership Life Skills Development Scale (YLLSDS) instrument was modified for use with adults and electronically administered to 4-H Youth Program leaders in a local extension region to determine their perceptions of 4-Hers' attainment of leadership life skills during their time in 4-H. 4-H Program leaders' perceptions were used to develop conclusions and recommendations for future program development.

Faculty Sponsor: Dr. Thomas Paulsen

## **17. The Effect of Generational Differences on Workplace Communication Methods in Agriculture**

*Elizabeth Thies*

Recently, there has been a shift from Baby Boomers and Gen X-dominated workplaces to as many as four or five different generations present in the same workplace. Having different motivations and preferences for communication, there is a need for better understanding of these differences in the agricultural industry. The purpose of this research was to determine different generations' preferred method of communication and its effect on workplace communication in the agricultural sector. We used an electronic questionnaire with the 2018/19 Morningside College Agricultural Externship class and their corresponding supervisors.

The communication preferences identified from different generations were analyzed and used to make recommendations to assist future externs in transitioning to the agricultural workplace.  
Faculty Sponsor: Dr. Thomas Paulsen

### **Math (Quantitative)**

#### **18. Data Analytics of Morningside Men's Basketball**

*Nathan Skrdla*

This research was designed to optimize individual and team performance for Morningside Men's basketball by analyzing data provided by Synergy Sports Tech. Over the course of the study, we compared the team's performance to other teams in the Great Plains Athletic Conference. This allowed exploration of relationships between team statistics by using regression plots to compare one variable's correlation with another. From this, we concluded that turnover percentage has a greater impact on winning percentage than we hypothesized. When analyzing individual performance, comprehensive formulas were used to compute a player's win shares and net ratings. This enabled comparison between each player's performance and quantified an individual's contribution to the team. Also, we monitored the change in the team and individual's advanced numbers over the season in order to understand why there was either an increase or decrease in production. Our results were utilized by the coaches for team evaluation.

Faculty Sponsor: Dr. Eric Canning

### **Psychology (Qualitative)**

#### **19. What's Wrong With Pornography**

*Madison Schueth*

87% of males and 31% of females consume pornography (Poulsen, Busby, & Galovan, 2013). There have been many studies over the effects of pornography, and a multitude of studies show that pornography consumption has associations with aggression for men (Wright, Tokunaga, & Kraus, 2015). This

presentation will review the literature regarding the effects of pornography on men. Among these effects are increased arousal and increased aggression, which can be linked to the likelihood of sexual assault (Davis, & Norris, & George, & Martell, & Heiman, 2006). Overall, this research suggests that pornography consumption has potential negative effects on individuals, and that this may have lasting effects on society as a whole. Unfortunately, the general public remains uninformed about some of these negative effects. This dearth of knowledge leads to insufficient regulation on pornographic sites and irresponsible pornography consumption.

Faculty Sponsor: Dr. Shannon Claxton

## **20. Clinician Biases**

*Jenna Sandgren*

Previous research has shown that clinicians tend to disagree when it comes to diagnosing a mental disorder in an individual who shows the diagnosing symptoms, but some of which may be based on the type of environment. The following research is based on biases in diagnoses of mental health disorders amongst doctoral level and master's level educated clinicians. Participants were given six case vignettes to read and questions to respond to following those vignettes. Data was collected via a survey that was sent to professionals with varying educational backgrounds. Researchers conducting this study wanted to know how education level and type of education played a part in diagnosing a possible condition. Results showed that there was significance between how doctoral level and master's level participants answered questions, particularly when it came to gender and level of dysfunction.

Faculty Sponsor: Dr. Shannon De Clute

## **21. The Advantages of Early Mobilization in Hospitalized Brain Injury Patients**

*Alex Homan*

The purpose of this research is to evaluate and discuss brain injuries along with previous studies that involve the benefits of early mobilization among hospitalized head injury patients. Current studies demonstrate that repeated mobility practice creates new neuron connections that improve patients' mobility over time. Early mobilization after brain injuries forms neural pathways more quickly, and creates visible benefits as well. Since research is finding early mobilization benefits in patients, more hospitals are moving their patients after they are stable. This implies that early mobility is essential. Hospital safety committees are starting to issue guidelines stating that patients need to start moving as soon as possible due to the many benefits of early mobilization. Advantages include the increase of health and mobility, the reduction of muscle atrophy and pressure sores, and lower hospital costs.

Faculty Sponsor: Dr. Shannon De Clute

## **22. Influences on Bullying and School Shootings**

*Ryan Coyle*

The controversial nature of school shootings and bullying has been largely debated as to what factors influence their occurrence in society. Both of these are related to violence which causes devastation to our communities. Previous research has indicated that three primary factors lead to the outcome of bullying and school shootings: rejection, hostility, and a need for attention. Rejection, whether actual or perceived, has many forms, is present in virtually every case of school shootings, and plays a major part in bullying relationships. Hostility is linked with aggressive behaviors that can result in violent actions, such as physical abuse or firing into a crowd of classmates. A need for attention can consequently create a desire to do something violent to become infamous. Many school districts have put in place security measures to prevent school shootings, but still lack highly effective ways to identify and stop threats before shootings occur.

Faculty Sponsor: Dr. Jack Hill

### **Political Science (Qualitative)**

#### **23. Driver Complexes Among Origin, Transit, and Destination Countries in the Case Study of Eritrea**

*Joshua Schanda*

The World Bank estimates that more than 140 million people could be at risk of forced displacement due to climate change, adding to the 70 million people who are already displaced worldwide. Governments in the developed world, as well as international institutions, are increasingly under pressure to respond to those challenges. Using the case of Eritrea illustrates how drivers of migration are often misperceived and misrepresented across the developed world, resulting in counterproductive policies and partnerships among origin, transit, and destination countries. Applying an analytical framework by Van Hear et al. (2017), this paper helps refine our understanding of what drives excessive migration by distinguishing between predisposing, proximate, precipitating, and mediating drivers. The author finds that proximate drivers, such as the indefinite military conscription, and mediating drivers, such as EU-deals with origin and transit countries, offer the greatest potential for intervention.

Faculty Sponsor: Dr. Patrick McKinlay

### **Business (Qualitative)**

#### **24. Business Plan: NM Rentals**

*Nic Madsen*

The goal of this research project is to develop a business plan for a new real estate investment company, called NM Rentals. This is an entrepreneurial venture that the author plans to start after graduation from Morningside College. The investment strategy is made up of three phases, which are foreclosed single-family homes, single-family properties, and multifamily properties. For the purpose of this business plan, the author will address phase one, purchasing foreclosed single family homes. A literature

review was performed to examine the necessary steps of purchasing a foreclosed property, as well as the advantages and disadvantages associated with each step. The research findings produced valuable information that the author implemented into the business plan.

Faculty Sponsor: Dr. Anne Power

## **25. SportFam: A Business Plan**

*Filipe Wolff*

There is a widespread expressed need for athletes and other sports fanatics to engage in sports. Because of the alarming lack of this opportunity, this research project tries to meet that need by developing a business plan to describe a new sport application called SportFam. This application is a virtual platform that enhances the accessibility of sports to users. Thus, SportFam's goal is to provide this market with a tool that enables all users to visualize available sportive activities in the area, in a timely and effective manner, and to choose the most preferred. Therefore, this business plan serves as an introduction for SportFam's business model. It includes pertinent aspects of the company such as mission and vision statements, main and specific objectives, industry analyses, and financial assumptions and statements.

Faculty Sponsor: Dr. Ngamboko (Lawrence) Muzinga

## **26. Taxability of Sexual Harassment Settlements Post Tax Cuts and Jobs Act of 2017**

*Gabrielle Roe*

Sexual harassment settlements have been a frequent topic in the news over the last year, starting in October 2017 when many women began using the phrase "MeToo" to show they are survivors of sexual harassment. Shortly thereafter, in December 2017, President Trump's Administration passed the Tax Cuts and Jobs Act of 2017 (TCJA). The TCJA includes a provision regarding the deductibility of expenses related to sexual harassment settlements if those settlements include a

non-disclosure agreement. This research analyzes the evolution of the treatment of sexual harassment as well as the new law and the implications of it, specifically towards settlements in the “MeToo” era.

Faculty Sponsor: Mark Nielsen

## **Biology (Qualitative)**

### **27. Survival of Deep-Sea Organisms**

*Darian Lisle*

There are plenty of fish in the sea, but a large percentage of them live in the deep, dark, and cold parts of the ocean that we do not actually know much about. These conditions cause trouble for scientists who are trying to study creatures that live within these habitats, such as not being able to find these organisms, and if brought to the surface, sometimes the organisms demonstrate lethargy, regurgitation of swim bladders, and even death due to warmer temperatures. We focused on existing information concerning two main components of life in these organisms: finding a mate and finding food. Through qualitative literature reviews, it was found that there are many adaptations to these challenges, and that one of the most common adaptations is bioluminescence, a chemical reaction that produces light. In conclusion, marine organisms have adapted and overcome these challenges, and can thrive with the help of bioluminescence.

Faculty Sponsor: Dr. Tim Sesterhenn

## **CIC Presentations I**

## **UPS Auditorium**

### **1. 8:00-8:15 How Video Games Affect Empathy**

*Justin Flowers*

Violent video games are most often seen as violent and aggressive, and those who don't play video games assume that these games will be the downfall of our society. However, gaming is shown to improve creative abilities, manage stress for those who are in high-stress jobs and situations, and improve social abilities while

still building connections. The benefit that will be discussed in this presentation is the ability of video games to grow empathy.

Faculty Sponsor: Shelley Molland

2. **8:15-8:30 Life of a College Athlete**

*Gerald Smith*

Balancing college academics and college sports can often feel like the judgement of Solomon. College athletes feel that they are facing the sword when it comes to pleasing both the professor and the coach. Is there a way to find an understanding and allow the athlete to be successful in both academics and sports?

Faculty Sponsor: Shelly Molland

3. **8:30-8:45 Marching From Military to Morningside**

*Gary Swell*

Transitioning from the military life to the life of college student is anything but easy. Just as IEDs, known to many as roadside bombs, could detonate at any time, veterans who are college students must maneuver through the hidden dangers associated with the new minefield called college success.

Faculty Sponsor: Shelly Molland

4. **8:45-9:00 Could Humans Become Immune to Radiation?**

*Hogan Harmon*

Radiation. The word puts fear into the minds of citizens who connect the word to nuclear war, mutations, or having nuclear power plants near your home. This fear may be alleviated if humans could become immune to radiation. Real or fake news? The research shows that the possibility of radiation immunity might be in our future.

Faculty Sponsor: Shelly Molland

## LUNCH BREAK 11:45-12:30

KEYNOTE SPEAKER: 12:45 in UPS of Lincoln Center

Dr. Rose Krial-Victor - The Reach of the Research Experience

Afternoon Poster Session

2:00–3:00

Yockey

### Nursing (Quantitative)

#### 28. **Relationships Among Maternal Age, BMI, Previous C-sections, and Fetal Birth Weight and Successful Vaginal Birth After Cesarean**

*Kayla Vanderhoff*

To determine the relationship between maternal age, BMI, number of previous cesarean deliveries, and fetal birth and the success of vaginal birth after cesarean (VBAC). **Material and Methods:** A descriptive-correlational study included 43 women who attempted VBAC at a small rural hospital from 2013 through 2018. Results: 43 were included in data analysis. Of those, 36 had successful VBAC, while nine had repeat cesarean delivery. Significant correlations included fetal birth weight and BMI ( $r_s = .35$ ;  $p < .05$ ). A nonsignificant negative relationship was noted suggesting a trend between lower BMI and successful VBAC ( $r_s = -.24$ ;  $p = NS$ ). **Conclusion:** Although not statistically significant, women with lower BMI had higher success rates, therefore providers may consider including pre-pregnancy recommendations for BMI among women who seek reducing risk of repeat cesarean delivery as a general health suggestion. Weight monitoring during pregnancy may be warranted when considering fetal birth weight.

Faculty Sponsor: Dr. Dianna Sorenson

#### 29. **Sedation Vacations: A Descriptive Analysis of Current Practices**

*Trisha Harms*

This presentation identifies a problem that has been found at a twelve-bed intensive care unit (ICU) in Northwest Iowa. Despite the healthcare industry's standard practice, there is no formal process for sedation vacations who require mechanical ventilation. This problem has the potential to negatively impact both patients and the organization. There are tremendous amounts of evidence that show how important it is for a person who requires mechanical ventilation to receive a sedation vacation on a daily basis while intubated. Numerous research studies show that implementing a process of daily sedation vacations decreases the days the patient requires mechanical ventilation and increases positive patient outcomes. The purpose of this descriptive study was to examine the current practice patterns for informal sedation vacations among patients who require mechanical ventilation in the intensive care unit.

Faculty Sponsor: Dr. Dianna Sorenson

**30. Stroke Knowledge Retention; The Relationship of Nursing Units, Experience, and Education on Stroke Knowledge**

*Emily Keim*

A stroke will kill 1 in 20 Americans, making it the leading cause of death according to the CDC. The severity of this problem indicates a need for knowledgeable health care staff that can identify warning signs quickly. The purpose of this exploratory quantitative study is to compare the level of knowledge about strokes among registered nurses at large Midwestern hospital. Participants included 248 nurses who participated in an online questionnaire about their stroke knowledge. These answers were analyzed using descriptive statistics. The total knowledge scores were found to be higher on units with greater stroke volumes. Years of experience did not have a relationship with total knowledge scores however continuing stroke education was associated with greater total knowledge. Overall, these findings suggest nurses with higher exposure to strokes have higher

knowledge. Units with lower stroke volume should implement more education related to strokes.

Faculty Sponsor: Dr. Dianna Sorenson

31. **Prevalence and Perceptions of Nurses' Noncompliance to EBP: Artificial Nails**

*Jeanne Rasmussen*

Practice: Artificial Nails in Direct Patient Care at a Northwestern Iowa Hospital

Problem: Determine reasons why nurses may or may not wear artificial nails when providing direct patient care.

Participants: Female nurses who responded to a questionnaire given to them by their managers at the Iowa hospital regarding artificial nail wear.

Methodology: Anonymous questionnaire via Survey Monkey®.

Findings: 25 of the 250 employed nurses participated in the questionnaire, ages ranging from 18 to 51+ years. Participants were all female nurses with different levels of education, 2 year degree to master's degree.

Conclusions: Over half of the nurses answering the survey have worn artificial nails in the past six months. Infection risk was only a factor for half of the participants to not wear nails, whereas, appearance was a reason to wear artificial nails.

Faculty Sponsor: Dr. Dianna Sorenson

32. **Compassion Fatigue and Collaboration Among Emergency Department Nurses: A Correlational Study**

*Erin Mohr*

Purpose: Compassion fatigue can cause negative symptoms among nurses, which causes decreased patient satisfaction and safety. Several characteristics put healthcare workers at risk for compassion fatigue. Compassion fatigue can be especially prevalent in the emergency department (ED). This study's purpose is to determine the relationship between nurse-nurse collaboration and compassion fatigue among ED nurses.

Participants: Nurses employed at an ED/Trauma center, age 18 years or older.

Methods: Nurses participated in a survey containing a Professional Quality of Life scale and a Nurse-Nurse Collaboration Behavior Scale.

Findings: There was no correlation between compassion fatigue and nurse-nurse collaboration. However, there was a correlation between nurse-nurse collaboration and the age of the nurse.

Conclusion: While compassion fatigue and collaboration were not correlated, this did open further research on younger generation nurses and fostering commitment and teamwork.

Faculty Sponsor: Dr. Dianna Sorenson

### **33. Student Athlete Stress: An Exploration of Student Athlete Stress In/Out of Athletic Season**

*Lauren Fitts*

Student athletes are a special population with unique stressors compared to their non-athlete counterparts. This quantitative study compares the stress student athletes experience when they are in and out of season, and if there are any differences between male and female stress levels. Using the online survey platform Survey Monkey, the student athletes at Morningside College were surveyed to measure their stress. Results were then analyzed for frequency statistics and independent t-tests. Data analysis found that there was a statistically non-significant difference in the stress experienced in student athletes who were in or out of season, or between males and females. Frequencies identified the most common stressors experienced. Implications for future practice are to address the mental health and the resources available to student-athletes to help them manage the identified stressors they battle.

Faculty Sponsor: Dr. Dianna Sorenson

### **34. Social Support and Barriers with Medication Adherence in the Elderly**

*Kelsey Niles*

The purpose of this quantitative correlational study is to determine self-identified problems and/or barriers among individuals 65 years and older who self-administer medications, and who also attend a senior meeting at an 11,000-parishioner church in Omaha, NE. Questionnaires were administered to 45 individuals asking them to answer questions regarding why they did not take their medications from 1-5. Individuals 65 years of age and older who attend the Silvers and Golds meeting were included in the study. The mean total barriers were evaluated in comparison to social support. Findings indicated that there is no correlation between social support and the number of barriers related to medication adherence in the elderly population at this social church event. Other findings were concluded from this study.

Faculty Sponsor: Dr. Dianna Sorenson

**35. Rural Staff Nurses' Education and Experience in Relationship to Knowledge and Attitudes About Pain Management**

*Jenni Sohm*

The purpose of this exploratory quantitative correlation study was to determine nurses' knowledge and attitudes about pain management in relationship to education level. The population of interest in this study included nurses who practice in a 25-bed critical-access hospital in northwest Iowa. Research design will be Descriptive-Correlational. Purposive sampling was used to find the target population included nurses who practice in a 25-bed critical-access hospital in northwest Iowa. Nurses included were: 1) those working full time, and 2) those licensed RN on med/surg unit. This data-gathering took place from January 2019 through March 2019. A 41-item questionnaire was distributed to included staff, and returned to a secure envelope when completed. Box-plot distribution analyses were examined, as well as hand-tallied examination of data. The researcher was unable to answer research question due to the fact that responders to the questionnaire were of the same education level.

Faculty Sponsor: Dr. Dianna Sorenson

**36. Obesity in Nursing**

*Mackenzie Muir, Nicole Oberfoell, Ryan Moore*

Obesity is not a new phenomenon and continues to be one of the leading health problems for the United States population, as well as for other countries (and international communities). Nurses play a major role in the prevention and management of comorbidities influencing obesity, yet nurses can struggle to maintain a healthy weight of their own. Obese nursing professionals in the hospital setting may experience an increased incidence of poor patient outcomes, poor individual outcomes, and financial burden to employers. The following research explores the prevalence of obesity within the nursing profession, the factors and perceptions that increase their risk of becoming obese, and the possible interventions that nurses and their employers could implement to promote healthy behaviors.

Faculty Sponsor: Dr. Shar Georgesen

**37. Public Knowledge on Health Insurance/Affordable Care Act**

*Megan Solberg*

Per the literature review of twenty research and online articles, there is a lack of knowledge among the public on health insurance and the Affordable Care Act (ACA). In this study, “Public Knowledge on Health Insurance/Affordable Care Act”, the final sample contained forty-nine participants, all adults in Sioux City, Iowa. A purposive sampling technique was used where the researcher set up a table to attract participants at a tennis league, Sunnybrook Church, and the Morningside Library. Participants were welcomed to complete the printed “Health Insurance Quiz” and “Health Reform Quiz” from the Henry J. Kaiser Family Foundation website. Age had a significant, positive relationship to both the total health insurance and ACA scores, with no significance between gender or insurance type and knowledge scores. This study shows that further education on health

insurance and the Affordable Care Act needs to be directed towards young adults.

Faculty Sponsor: Dr. Dianna Sorenson

### 38. **Stress in Nursing Students**

*Leah DeFea*

Purpose: To evaluate current levels of stress, identify sources of stress, and determine what stress management techniques are being used among nursing students at a small private college in northeastern South Dakota.

Participants: All baccalaureate degree nursing students attending the college during the 2019 spring semester.

Methods: Participants were recruited via an email which provided a link to a series of questionnaires administered via Survey Monkey. The Perceived Stress Scale, Student Nurse Stress Index, and the Ways of Coping Checklist were used.

Findings: Nursing students experience moderate stress levels. Academic load was the highest indicator of stress and “confrontive coping” was the most popular coping mechanism. Findings were also compared by class, with juniors experiencing the highest levels of stress.

Implications: Due to the small sample size, findings cannot be generalized to the population. However, this information can be used to guide further research regarding stress in the nursing student population.

Faculty Sponsor: Dr. Dianna Sorenson

### 39. **Radial Artery Approach versus Femoral Artery Approach: Complications of Left Heart Catheterizations**

*Morgan Troshynski Spielman*

The purpose of this study is to determine the frequency of complications that occur during left heart catheterizations via the radial artery approach versus the femoral artery approach. The concern for the current research is the increased healthcare costs and prolonged hospitalizations that result from arterial access

complications. A retrospective chart review was completed with a total of 70 participants who underwent a left heart catheterization, including 35 femoral artery approaches and 35 radial artery approaches. The study was completed over a six-month period of time at an institution in Northwest Iowa. The results determined that older women (ages 61 to 71 years) in this study have a 4x greater percentage of a complication than males (males = 2.6%; females 12.9%) and are more likely to have more than one complication (males n=0; females n=2). Overall, older women are more likely to develop multiple complications via the femoral artery approach.

Faculty Sponsor: Dr. Dianna Sorenson

#### **40. A Descriptive Correlational Study of Barcode Medication Administration Barriers Among Nurses**

*Anette Hollenbeck*

**Aim:** The purpose of this study was to identify nurses' perceived barriers to barcode medication administration (BCMA) in a 15-bed community hospital.

**Methods:** This study was a quantitative comparative study and the Barcode Medication Administration (BCMA) Questionnaire instrument was used to obtain data for the research. Nurses employed on the medical surgical floor were given the questionnaire. A bivariate correlational analysis was used to measure the magnitude of linear relationships between variables.

**Results:** There were no statistically significant relationships noted between barriers and improved job performance, improved patient care, decrease in medication errors, self-estimate of adherence or comfort with technology. There were moderate positive correlations noted between adherence to BCMA and age as well as years of experience and value levels.

**Conclusion:** Barriers to BCMA at a northeast South Dakota hospital are noted to be minimal. Increased age and years of nursing increases adherence and value of BCMA.

Faculty Sponsor: Dr. Dianna Sorenson

**41. Sustainability of Practice Change Related to Pressure Injury Protocol Implementation**

*Cara Meins*

This study focused on determining whether a pressure injury prevention protocol was sustained one year after protocol implementation. Inclusion criteria included being admitted to the medical/telemetry unit with a Braden score of 18 or less in November 2017 and November 2018. Retrospective chart audits from November 2017 (T2) were provided and chart audits in November 2018 (T3) were collected for the current study to compare compliance rates between the previous (T2) and current (T3). Data from the first 89 patient records from each time period (T2 & T3) were used in the analysis to control for seasonal effects. A Mann Whitney U test revealed a significant difference ( $p=.000$ ) in the protocol compliance between T2 and T3. This concludes that the pressure injury prevention protocol was not sustained and that protocol completion scores were significantly less at T3. Further research is needed to determine how practice changes can be sustained long-term.

Faculty Sponsor: Dr. Dianna Sorenson

**42. Factors Influencing Adherence to a Fall Risk Assessment Tool**

*Nathan Pfeifle*

Falls present a challenging issue for healthcare institutions and governments across the world. In the United States alone, falls in the healthcare setting account for billions of dollars in prolonged hospital stays, patient injury, and poor outcomes. Much of the onus for change has fallen to nurses in both hospitals and nursing homes to decrease falls in their respective settings; however, falls remain a significant issue for modern healthcare. The focus of this quantitative study was on the factors that influence adherence to a fall risk assessment tool. Eight nurses from a northwestern Iowa nursing home were surveyed with 26 questions from four categories of influential factors. Social factors were found to be

the most influential followed closely by organizational factors; interestingly, the fall risk tool itself was found to be the least influential. These findings may help to direct future research and address and guide practice change.

Faculty Sponsor: Dr. Dianna Sorenson

**43. Retrospective Comparison of Symptomatology Prior to and After Regenerative Therapies Among Patients with Knee Osteoarthritis**

*Caleb Greer*

A retrospective chart review was performed (n=34). Changes in subjective WOMAC% scores were tracked as markers of symptomatic and functional change. G\*Power analysis sample size of 34 ( $\alpha=0.05$ ,  $CI=0.95$ ). Significant, positive correlations (Spearman Rho) were found between age and disease severity ( $r_s=.384$ ;  $p < .05$ ); age and the number of procedures ( $r_s=.350$ ;  $p < .05$ ); disease severity and BMI ( $r_s=.447$ ;  $p < .01$ ); disease severity and initial WOMAC% ( $r_s=.420$ ;  $p < .05$ ); and BMI and WOMAC% after procedure 1 ( $r_s=.715$ ;  $p < .01$ ). BMI has a large, negative association with WOMAC%, and increasing age is associated with greater number of procedures. Regenerative techniques may improve physical function, stiffness, and pain as indicated by reduction in reported WOMAC% following treatments. Results have limited generalizability due to small sample.

Faculty Sponsor: Dr. Dianna Sorenson

**44. A Descriptive-Comparative Analysis of Urine Collection Ordering Patterns in the ED**

*Erin Mothershead (Motz)*

The testing and treatment of urinary tract infections in emergency departments is a growing problem due to the high prevalence of unnecessary urine studies. Evidence-based practice guidelines recommend no urinalysis collection in patients with asymptomatic bacteriuria, with exceptions of pregnant women, patients

undergoing urological interventions, and renal transplant patients. Purpose: Analyze the amount of patients who have a urinalysis or urine culture collected when the patient is asymptomatic. A retrospective comparison of data collected from November 1, 2018 to November 30, 2018 was utilized. Methods to collect data on patients who had a urinalysis ordered were through chart review of every other patient. Sample: Adults above age 18. Results: Out of 183 patients who had a urinalysis collected 27% of the patients (n=51) had urinary symptoms present while 70.2% (n=132) were asymptomatic of urinary complaints. In conclusion, it is evident that there are opportunities to decrease urinalysis orders to follow the guidelines to screen for patients with urinary symptoms.

Faculty Sponsor: Dr. Dianna Sorenson

45. **Relationship Between Pain Management Knowledge and Education Level Among Nurses Who Care for Surgical Patients**

*Savannah DeBelts*

This study investigated nurses' knowledge and education related to pain management practices. Knowledge and Attitudes Survey Regarding Pain (KARSP) and demographics questionnaires were distributed to nurses (n=22; response rate = 27%) working in the Perioperative and Recovery Care units in an Upper Midwest specialty hospital in the United States. Spearman's rho test demonstrated a correlation between highest level of education and age ( $r_s = -.813$ ;  $p < .05$ ). There was a second correlation between perceived knowledge level and pain management knowledge ( $r_s = -.587$ ;  $p < .05$ ). The findings revealed that the highest percentage of correct answers obtained from the KARSP questionnaire was 60%. Results are limited due to small sample size. Conclusions indicated there is inadequate pain management knowledge among nurses.

Faculty Sponsor: Dr. Dianna Sorenson

46. **Lateral Violence and Its Correlation with Nursing Professional Satisfaction**

*Brigitte Mann*

Lateral violence is a global problem. Nurses are exposed to verbal and emotional violence, which can have maleficent effects on productivity, practice, and physical and mental health for nurses. The purpose of this study is to determine the relationships among nurse satisfaction, retention, and frequency in which lateral violence occurs within a local Level 2 Trauma Center in the Midwest. The participants include registered nurses who spend 75% or more of their time with direct patient care with no managerial titles. A quantitative descriptive correlational design will be used to analyze data obtained from a modified version of the Lateral Violence in Nursing Survey and peer abuse/bullying. Findings will describe the relationship between lateral violence and professional satisfaction using correlations.

Faculty Sponsor: Dr. Dianna Sorenson

47. **Relationships Between Anxiety and Readiness for Change within ICU Nurses**

*Samantha Adams*

This exploratory research project was conducted by a one-time, two-part questionnaire to examine the anxiety levels and readiness to change within ICU nurses at a state-funded, public teaching hospital on the east side of the state of Iowa. These two variables were analyzed by descriptive statistics and correlational analyses to determine the relationship between anxiety and readiness for change as a preliminary step to determine the timing of change implementation. The results of this study show a majority of nurses report normative levels of stress, anxiety, and depression with the exception of one outlier in stress, one outlier in anxiety, and one extreme outlier in all three subcategories. Nurses reported moderate resistance to change at the institutional level. It was found through a nonparametric correlation analysis that the more

anxiety one demonstrates, the more resistant to change the individual is likely to be, with a coefficient of 0.298 ( $p < .05$ ).

Faculty Sponsor: Dr. Dianna Sorenson

**48. A Comparative Study Examining a Mentorship Program Using a Job Satisfaction Questionnaire**

*Kecia Keady*

Nurse mentorship programs have been used for years as the progression from novice nurse to competent nurse presents challenging transitions. A comparative research study was conducted using a 36-item questionnaire with nine subscales via Survey Monkey®. The purpose of this research study was to examine if job satisfaction was higher in novice nurses who participated in a mentorship program versus novice nurses who had not participated in a mentorship program at an Iowa regional medical center. Results revealed that nurses who had not utilized a mentorship program ( $n=9$ ) had higher overall job satisfaction scores than those who had utilized a mentorship program ( $n=6$ ); however, both groups had total average scores above 144 indicating satisfaction in their current job. Due to the small sample size, further research is recommended. Results from the nine subscales can further assist leadership in targeting improvement areas to enhance job satisfaction, subsequently increasing nurse retention rates.

Faculty Sponsor: Dr. Dianna Sorenson

**49. Sexual Attitudes and Sexually Transmitted Infection Knowledge Among College Students**

*Jaimie Fast*

Sexually transmitted infections (STIs) have been on the rise in the United States for years. There are 20 million STIs diagnosed each year, costing the United States 16 billion dollars in healthcare costs (Centers for Disease Control, 2013). These infections most commonly affect young people aged 15-24. The purpose of this quantitative study was to determine if knowledge of STIs related

to sexual attitudes among undergraduate students enrolled in a small 4-year college in an upper midwestern state. 88 participants were included in this research study. Data was gathered by a questionnaire that was completed by students to examine knowledge of STIs and sexual attitudes. No statistically-significant correlation was found between STI knowledge and sexual attitudes, but there was a statistically-significant difference between male and female STI knowledge. Further research is necessary to determine the reasoning for knowledge differences between males and females.

Faculty Sponsor: Dr. Dianna Sorenson

### **Nursing (Qualitative)**

#### **50. Coping Mechanisms and Workplace Stress Among Emergency Department Staff**

*Rebecca Farrall*

The purpose of this capstone study was to assess relationships among emergency room staff's age, self-perceived ways of coping with work-related stressors and workplace stress. The sample consisted of 20 qualified nurses, admission personnel, nursing assistants, and medical providers currently employed in an eight-bed emergency room in rural Nebraska. The questionnaires included demographics, a Ways of Coping questionnaire, and a Workplace Stress survey. Variables were examined with descriptive statistics and Spearman's Rho correlation coefficient. Findings indicated ED staff does not report an increase level of stress, nor do specific coping strategies have any discernible relationship to self-perceived stress levels. Study was limited due to size of sample. Data from this qualitative descriptive study expands our knowledge of the possible workplace stressors emergency department staff may experience and describes current coping strategy patterns among emergency room staff.

Faculty Sponsor: Dr. Dianna Sorenson

## **Biology (Quantitative)**

### **51. Prevalence and Likelihood of Contracting Canine Intestinal Parasites During Siouland's Winter Season**

*Katelyn Miller, Aurora Arevalo, Alexis Ropers*

Dogs can contract parasites by sniffing and/or ingesting other dogs' feces. This can happen anywhere that dogs are being walked, such as streets or parks, where the feces are not removed from the ground. The pattern of where people walk their dogs in the summer is somewhat different than where they take their dog in the winter. The purpose of this study was to determine where dogs may be more likely to become infected with parasites during the winter season. Fecal samples were collected from city streets with sidewalks, pedestrian parks, apartment complexes, around veterinary clinics, and dog parks in the Siouland area. A fecal flotation technique, using Sheather's sucrose solution, was used to assess the feces composition and check for the presence of parasites. Hookworm and coccidia were found in 14% of the samples; most of the positive samples originated from apartment complexes and veterinary clinics.

Faculty Sponsor: Dr. Anni Moore

### **52. Assessing the Shelf Life of CHP-Core Microcapsules Stored in Methanol and Octane**

*Samantha Anderson*

The process of microencapsulation aims to increase the shelf life of peroxides by prohibiting reaction over time via protection by a polyurea shell. The shell is composed of a compound containing an isocyanate group and a compound containing an amine group, while a peroxide serves as the protected core material. Three different amine compounds, triethylenetetramine, diethylenetriamine, and tetraethylenepentamine, were combined with Mondur MRS, a compound containing an isocyanate group, in one-to-one ratios to create the polyurea shell around the cumene hydroperoxide core material. The shelf life of each resulting

microcapsule sample was tested in octane, a nonpolar solvent, and methanol, a polar solvent. The magnitude and onset of core material leakage was determined using gas chromatography.

Faculty Sponsor: Dr. Brian McFarland

**53. Microtubule-Associated Protein Tau Amplifies Stress-Induced p38 Signaling in Neuronal Cells**

*Elvis Castro, Joel Katzer, Jake Katzer, Merle Bublitz, Ons Souissi*

The neuronal microtubule-associated protein tau has been shown to enhance MAPK signaling. Over-activation of the MAPK pathways, such as JNK and p38, in response to cellular stressors have been shown to cause significant cell death in Alzheimer's disease. As tau's role in the p38 pathway is still unknown, we aim to investigate its role in cellular response to stressors such as hyperglycemia and hypoxia. Our preliminary evidence suggests tau increases MAPK signaling in response to hypoxia. However, the precise mechanism remains unclear. Here, we have used immunoprecipitations to further understand tau's role in MAPK signaling by measuring p38 activation in PC6-3 neuronal cells. Furthermore, we have used cell viability assays to study tau's effects on hyperglycemic cell death. Our data shows that tau also increases cell death under hyperglycemic conditions. The findings from these experiments will increase our understanding of tau's interactions with the abnormal MAPK signaling in Alzheimer's disease.

Faculty Sponsor: Dr. Chad Leugers

**CIC Presentations II**

**UPS Auditorium**

**1. 2:30-2:45 Bring on the Beer!**

*Yoji Kiriki*

What four letter word is prominent in a college student's world? Team, love, work? No, it is beer! The beer industry has undergone an immense shift in the way consumers look at beer. Millennials are changing the game when it comes to beer consumption. If

college is to prepare us for “real life,” it is important for college students to be well versed in their knowledge of beer.

Faculty Sponsor: Shelly Molland

2. **2:45-3:00 Bring on Games**

*Toru Murakami*

Video games are not going to disappear anytime soon. They are fun, they make money, they have a presence in our culture, they're innovative, and they are communal. By designing video games to improve social emotional skills such as empathy and compassion, companies can tap in on society's enthusiasm to play video games while promoting acceptance and understanding of others.

Faculty Sponsor: Shelly Molland

3. **3:00-3:15 Peter Pan Syndrome: Resisting Adulthood**

*Isaac Johnson*

Peter Pan said; "Give me one reason to why one should become a grown up." This reluctance to joining the "adult" world is prevalent among young adults today. An investigation into the causes and effects of the syndrome will be brought forth in hopes of encouraging the college population that growing up isn't the same as growing old.

Faculty Sponsor: Shelly Molland

**Oral Session VI**

**2:30-3:15**

**Social Sciences (Qualitative)**

**LC 103**

1. **2:30-2:45 A content Analysis of the Sexual Objectification of Women in Music Videos**

*Emily Wubben & Shelby Kingery*

Music videos are one of the most popular types of videos watched on the Internet, especially by adolescents, and allow musical artists to display their creativity. Today music videos can be interactive with virtual reality, discuss pressing issues like racism, and/or present objectification of women. Some artists create music videos where the women's appearance and sexual appeal are the focal

point, which presents a specific cultural message to those who view the video. This study examined sexual objectification of women in music videos. The data for this research were obtained from a content analysis of Billboard's Top 50 R&B/Hip Hop music videos. Results did not support the hypothesis that all R&B/Hip Hop music videos would display sexual objectification of women. Approximately 60 percent of videos contained sexual objectification of women. The findings of this research will be beneficial to individuals who watch music videos, parents, media researchers, and gender scholars.

Faculty Sponsor: Dr. Barbara Prince

2. **2:45-3:00 The Variation of Immigration in the Middle East**

*Tira Hopp*

This paper examines immigration trends in the Middle East. It looks at changes in the flow of immigrants to the country attracting the highest number of people--Qatar--and the one with the most people leaving--Lebanon. The question addressed is: why are people immigrating to Qatar and leaving Lebanon? To answer this question, I analyze multiple variables including each country's immigration laws, the identities of the people immigrating and emigrating, and potential causes of this movement. Due to a great economic boost, Qatar has many people immigrating to get high-paying jobs in business or labor. Lebanon's experience is quite different. Although there was a boost of Syrian refugees immigrating to Lebanon, many have left due to strict immigration laws and social influence from Lebanese people. Using these two case studies, this research strives to explain immigration patterns in the Middle East, which can further our understanding of other similar situations.

Faculty Sponsor: Dr. Valerie Hennings

3. **3:00-3:15 Math Anxiety: Pick Up Your Prescription**

*Alex George*

Many students panic when faced with a math problem. Math instructors must acknowledge student anxiety and find strategies to alleviate this barrier to student learning. Best practices suggest many approaches instructors can implement to support student growth in mathematics.

Faculty Sponsor: Shelly Molland

## **Oral Session VII**

**2:30-3:15**

### **Qualitative (Nursing)**

**LC 104**

#### **1. 2:30-2:45 Implementing Silver Alloy Catheters to Reduce the Incidence of Catheter-Associated Urinary Tract Infections**

*Meghan Miller, Elizabeth Feldmann, Carey Taubert*

Catheter-associated urinary tract infections (CAUTIs) are an expensive and prevalent problem throughout the healthcare field. Silver alloy is one of the most common ways to help reduce bacteriuria related to catheter use and attempt to reduce infection. Silver has bactericidal effects that alter the bacterial respiratory enzyme chain to prevent bacteria production and growth. Four strong academic studies were identified to evaluate the effectiveness that silver alloy catheters have on decreasing the incidence of CAUTIs. Among the studies reviewed, silver alloy-coated catheters reduce CAUTI costs and fight off three specific bacteria types. Overall, it is evident that silver alloy catheters show promising evidence of reducing CAUTIs and costs, specifically among female patients who require a catheter for more than 24 hours.

Faculty Sponsor: Amanda Haverhals

#### **2. 2:45-3:00 Nursing Compliance Related to Precautions**

*Bryanna Mongan, Maurice Blackbird, Lorelee Lopez*

Non-compliance with the standard and isolation precautions in hospitals pose a great risk to nurses as well as to the patients they care for. Nosocomial infections are not limited to patients in hospitals; they develop in healthcare workers (HCW) as well. Infection control methods such as standard and isolation

precautions minimize the spread of these hospital infections. A study was conducted to determine nurses' compliance with standard precautions. According to Powers and colleagues, of the 231 nurses that participated in the study, only 17.4% of the nurses reported compliance to all aspects of standard precautions (2016). The purpose of this presentation is to evaluate nursing compliance in precautions and to revise the protocols to promote compliance.

Faculty Sponsor: Mary Korvarna

3. **3:00-3:15 The Use of Complementary and Alternative Therapies in Pain reduction During Childbirth**

*Carly Johnson, Cassidy Christy*

Many pregnant women have concerns about how they will manage their pain during labor and birth. Typically, pain management is achieved by pharmacological interventions, however, evidence demonstrates that complementary and alternative therapies (CAM) can be beneficial in reducing pain during labor and birth. CAM therapies can be used in conjunction with pharmacological interventions or as stand-alone therapies. The use of CAM therapies is increasing in the United States, and are often low-cost, low-risk interventions. The purpose of this paper is to examine the evidence about the efficacy of three CAM therapies: aromatherapy, acupuncture/acupressure, and hydrotherapy, as interventions for pain management in laboring mothers.

Faculty Sponsor: Dr. Shar Georgensen

**Oral Session VIII**

**2:30-3:30**

**Nursing (Quantitative)**

**LC 105**

1. **2:30-2:45 Cultural Competency: LGBTQ+ Care**

*Veronica Mullen, Jordan Trampe and Benjamin Peterson*

Cultural competence regarding lesbian, gay, bisexual, transgender, and other gender/sexual minorities (LGBTQ+) does not have standardized definitions on which hospitals and nursing programs can base curriculum. This presentation looks at the relationship of LGBTQ+ competency of care by nursing students, nurse educators,

and post-graduate nurses. The purpose is to reach vulnerable populations specifically through building nursing competency for LGBTQ+ community. The presentation explores previous literature, assessments of populations, and practical recommendations. The literature indicates two areas in which improvement to nursing programs and healthcare institutions could be focused. Nursing programs can build LGBTQ+ cultural competency through self assessments regarding readiness to provide care by student nurses and professors. Nursing curriculum can benefit through supplemental information regarding LGBTQ+ health disparities and professor willingness to adapt structured material to accommodate. Healthcare institutions can create an open atmosphere for LGBTQ+ patients and visitors through inclusive mission statements, and staff's not assuming heteronormativity.

Faculty Sponsor: Lauri Sells

2. **2:45-3:00 Early Sepsis Screening**

*Kayla Kirchhoff, Hope Philbrick, Haley Mathes*

This project examined the current research through a literature review on why sepsis screenings that are most often used, may not work as well as once predicted. We identified that increased nursing education relating to the early identification of sepsis has a positive impact on the nursing care and management of treatments for patients. Not only does education of healthcare workers improve early identification of sepsis, but the use of a sepsis care team has strong evidence that if it is implemented, it could also be a positive impact on patient care. We found that the best course of action to improve identification of sepsis would be to provide education and increase knowledge of sepsis management to improve patient care.

Faculty Sponsor: Mary Kovarna

2. **3:00-3:15 Surgical Site Infections**

*Keely Hall, Megan Kroese, Brenna Doeschot*

Surgical site infections (SSI) can be a serious complication of orthopedic surgeries, causing decreased health status, increased hospital stay length, increased costs, and increased rate of rehospitalization. As stated in Schweizer et. al (2015), previous studies have shown that bundled interventions have been associated with lower surgical site infections, primarily from *Staphylococcus aureus* (*S. aureus*). Therefore, multiple interventions should be implemented to further reduce the patient's risk of contracting an infection after surgery. Schweizer et al. (2013) states that surgical site infections increase hospital length of stay, readmission rates, healthcare costs, and mortality rates. The intention of this research presentation is to describe risk factors for postoperative infections, as well as to discuss the nurse's role in the methods of preventing the infections preoperatively and postoperatively.

Faculty Sponsor: Mary Kovarna

## **Oral Session IX**

**2:30-3:30**

### **Quantitative (Nursing)**

**LC 106**

#### **1. 2:30-2:45 Acute Myocardial Infarction Readmissions**

*Bailey Baxter, Danielle Beckmann, Josie Scheer*

The American Heart Association estimates that 720,000 myocardial infarctions occur annually. Following this event, an average of 16% of those patients will be readmitted within 30 days with medical complications. The impact of readmissions is substantial, costing healthcare over \$1 billion. The purpose of this research project is to focus on the impact of incorporating a multi-drug regime, lifestyle change education, cardiac rehab, and tele-medicine in the patient's plan of care upon admission to decrease the risk of readmission following discharge.

Faculty Sponsor: Lauri Sells

2. **2:45-3:00 Reducing Incidence of Clostridium difficile Infection**

*Kendra Van Beek, Tristan Beaulieu, Megan Bush*

The transmission of Clostridium difficile infection seems nearly impossible to eradicate in healthcare facilities in the United States. Research indicates that prevention protocols are lacking updated policies and contribute to this problem. It is recommended that facilities should include primary, secondary, and tertiary prevention methods in their protocols with regards to controlling Clostridium difficile. Primary prevention should include instructions for early recognition of patients at risk. Healthcare worker hand hygiene, patient hand hygiene, and disposable commode pails must be considered for secondary prevention. Tertiary prevention should include the use of ultraviolet light and specific techniques for cleaning. The incidence and/or transmission of Clostridium difficile infection can be further reduced with the addition of these strategies to infection control protocols.

Faculty Sponsor: Lori Doeschot

3. **3:00-3:15 Promoting Diabetic Compliance With Text Messaging**

*Kianna Kamper, Paige Roeder, Alex Mankle*

The purpose of this research was to examine the effect of text message interventions in increasing compliance and disease management among type I and type II diabetics. A literature review was done to look at multiple case studies examining the utilization of Self Management Support for Blood Glucose (SMS4BG) among the diabetic population. Limitations of utilizing SMS4BG include diabetic patients potentially lacking resources needed to access internet, phones, or computers. Additionally, HIPAA may become a limitation if this text messaging system is not secure enough to meet their guidelines. Overall, statistical evidence was found in favor of the utilization of SMS4BG to improve diabetic health management, including a decrease in

fasting glucose levels, increase in outpatient and inpatient compliance, and a net savings of 8.8%. Therefore, using the SMS4BG intervention may improve communication between patients and healthcare providers, reduce diabetes-associated complications, and increase compliance with disease management.  
Faculty Sponsor: Lori Doeschot

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