

The Tenth Annual
Ranger Research Day

Friday, November 20, 2015
Student Center Ballroom ~ Alva campus



**LIST OF
ABSTRACTS**

The Tenth Annual

Ranger Research Day

Northwestern Oklahoma State University
Alva, Oklahoma ~ Friday, November 20, 2015
Student Center Ballroom ~ Alva Campus

A B S T R A C T S

Education

3.06 Psychology

3.06.01, “Depression” [Paper]

Michelle Breazzeal (Kaylen Hansen, Sponsor)

No abstract provided.

Liberal Arts

4.02 English

4.02.01, “Lois Lane: A Depiction of the Cultural Evolution of Women” [Paper]

Charlie Wylie (Dr. Kathryn Lane, Sponsor)

Lois Lane is best known as the love interest of Superman, but she is so much more than that. Lois Lane has been through many incarnations over her seventy-seven years of publication history. She has appeared in everything from comic books to big screen movie adaptations. As with women in society, her development and evolution has been a slow but ever-changing one. She starts in her early depictions in the 1940s as a feisty reporter but is also depicted as a damsel in distress. In her more modern appearances, from the 1970s to the current day, she is a confident woman who is successful in her professional and private life. Is Lois Lane just a comic book character? Or could it be that she is a representation of the evolution of women over time?

This paper will take a look at Lois Lane through the decades of the forties, fifties, seventies, nineties, and the contemporary era of Lane’s appearances. Lois Lane’s various portrayals in different mediums will be discussed including the comic book titles *Action Comics* and *Superman’s Girlfriend Lois Lane*. She was portrayed in several television shows such as *Lois & Clark: The New Adventures of Superman* and *Smallville*. The character has appeared in several big screen adaptations, which include from *Superman: The Movie* to the most recent version, *Man of Steel*. Also, the progression of her relationship with the Man of Steel will be discussed. The

paper includes several comic book bloggers' ideas on Lane as well as an interview conducted with Dan Jurgens who wrote *Superman* comics during the 1990s. It will be noted that as Lane changes, women in the real world change as well. Is Lois Lane an everywoman figure?

4.02.02, “Divine and Idolatrous: Blake’s and Shelley’s Conception of Imagination and Reason” [Paper]

Nathan Sacket (Dr. Kathryn Lane, Sponsor)

The Romantic Era poets praised the poetic imagination as a divine power. William Blake declared that, "Eternal Body of Man is The Imagination, that is, God himself, The Divine Body, Jesus: we are his Members." Percy Bysshe Shelley agreed, "Poetry, and the principle of Self, of which money is the visible incarnation, are the God and Mammon of the world." Blake and Shelley exalted the divine imagination while identifying an idolatrous threat to their religious thinking: the mechanical and categorical reasoning of both organized religion and Enlightenment philosophy. In this paper, I will examine Blake's poems "All Religions Are One," "There Is No Natural Religion," "The Marriage of Heaven and Hell," "Visions of the Daughters of Albion," "The Book of Urizen," *The Four Zoas*, "The Laocoön," and Shelley's essay "A Defence of Poetry." A close reading demonstrates these poets' visions of imagination and reason as spiritual powers acting throughout the British Empire and elucidates mechanical reason as a power that threatens the imagination in multiple areas of life. By condemning the destructive powers of Enlightenment reason run amok, the poets established their prophetic stance on behalf of the elusive imagination.

4.02.03, “To love and fear and both at once”: Censorship, Social Control, and Gender Subversion on the English Renaissance Stage” [Paper]

Katrina Henning (Dr. Jennifer Page, Sponsor)

The English Renaissance woman, while having more freedoms and rights than her predecessors, was still expected to fit into a specific gender role, especially if the woman was of high rank. Renaissance revenge drama may have challenged these expectations of submissiveness and decorum, but in the end, through the employment of state-sanctioned censorship, the balance of social powers and rights was restored, demonstrating to female viewers that the consequences of defying their place in society were grim. In Thomas Kyd's *The Spanish Tragedy* and John Webster's *The Duchess of Malfi*, the two female leads not only defy gender obligations but also use the patriarchal expectations placed on them to fulfill their own agendas. Although their actions are bold, the punishment is proportionately severe.

4.02.04, “R U sure this txt sounds rite lol!” The Effects of Text Speak on Literacy: Detriment or Opportunity” [Paper]

Haley Smith (Dr. Kathy Earnest, Sponsor)

The purpose of this paper was to identify whether the use of text speak by students has a positive or negative relationship with literacy abilities. After defining literacy and text speak, this paper reviews research that studied students of various ages and took into account their use in text speak. This paper reviews the mediums in which text speak is communicated; however, features such as autocorrect and predictive text were not taken into consideration. The research proved text speak to show positive effects in younger students, negative effects in older students, and the use of text speak has begun to find a way into formal writing. This

paper also discusses positive interventions that integrate the emerging language into education as technology and communication continue to evolve.

4.04 *History*

4.04.01, “The United States: Nuclear Fear” [Poster]

RaLyssa Taylor (Prof. Jana Brown, Sponsor)

Scientists figured out that if two masses of highly sufficient uranium in a form of a sphere and a plug were forced together with speed inside a bomb, then this would create a high intensity explosive that could desolate an entire city and its surroundings. In 1942 President D. Roosevelt set in motion the largest-scale, top-secret effort known as the Manhattan Project to develop a nuclear weapon, and the United States was the first to test it successfully in July 1945. It was not until the Soviet Union created its successful nuclear bomb in 1949 that the fear of nuclear weapons spread throughout America. The American people, who became fearful of nuclear weapons, are categorized in three different groups: scientists, government officials, and civilians, due to the time period in which their fear took over. This research highlights some of the causes and effects of the development of nuclear weapons, more specifically from a global perspectives to local fear.

4.06 *Humanities*

4.06.01, “Individuality, Community, and the Oil Industry” [Paper]

Kasen Crocker (Dr. James Bell, Sponsor)

Oil is a major part of today’s economy. A huge reason for this is the oil field workers. The oil industry provides jobs to many people around the United States and around the world. When the oil industry is doing well, the rest of the population tends to struggle. However, when the oil field is struggling, the rest of the population seems to be more successful. The oil field affects so many people and their families along with the rest of the population. Everyone is affected by gas prices and when they are high, the oil industry is booming. However, when gas prices are down, the oil industry is not doing as well as it could be and can hurt some families, but it is better for other people. I think this presents a great example of the conflict between individuality and community.

4.08 *Political Science*

4.08.01, “International Relations between Ghana and the United States” [Paper]

Edom Attor (Dr. Aaron Mason, Sponsor)

Every country in the world has at least one other country that they have good relations with and are on good standing with. Some have this with countries that have equal standing with them and some with a higher or lower economic status than them. The United States is one country that has many allies all over the world, especially because of their economic standing. One of its many allies is Ghana. Ghana and the United States have been on good standing for most of the time since Ghana’s independence in 1957. Ghana is located in West Africa, Sub-Saharan Africa. It has a population of about 25 million and its GDP as of 2013 was \$48.14 billion. It also has a high GDP per capita, making it one of the highest in Africa. This paper seeks to look into the history of Ghana, look at why Ghana and the United States

have been such good allies, and explore the ways in which this already thriving relationship can be improved.

4.08.02, “Religion and Law: The Everlasting Battle between the Individual and Community” [Paper]

Riley Pearce (Dr. James Bell, Sponsor)

This paper consists of research from scholarly reports, websites, journals, and laws pertaining to the contest between individual rights and community rights as they relate to religious practice. There are several instances in which the topic of religion has created confusion with courts due to the conflicts between the rights of the individual and those belonging to the community as a whole. Specifically, religious rights in the workplace have been a struggle for those deciding whether or not the individual’s freedom trumps state and national laws. I will discuss a case where a citizen refused to serve same-sex couples as well as others relating to noncompliance in the workplace, where the citizens demanded protection of their stances because of the religious foundations.

Of those cases, Kim Davis’ case will be the main focus. Title VII of the Civil Rights Act of 1964 and the Free Exercise Clause of the First Amendment will also be briefly discussed and analyzed in relation to the Kim Davis case. The obscurities will be reviewed along with the laws to draw conclusions for a potential ruling of this ongoing case. The research collected throughout the writing process suggests that there is no definite answer as to which side is “correct” or “fair” about the right of religious expression as justification for actions in the workplace; however, there are laws that prove interesting points of discussion that could potentially sway the public to either side of this controversial debate.

Math & Science

6.01 Biology

6.01.01, “The Antimicrobial Effectiveness of Bothrops Moojeni Venom on Selected Bacteria.” [Poster]

Timothy E. Legg (Dr. Aaron Place, Sponsor)

The evolution of venom in snakes has resulted in an amazingly complex, multi-functional cocktail of proteins, enzymes, and catalysts. One of the hypothesized purposes of venom is to decrease the likelihood of bolus putrefaction, which is a lethal side effect of the slow digestive system typical of ectotherms. Considering the medicinal importance of antibiotics that can function in the human gastrointestinal tract, I studied the antimicrobial effectiveness of the whole venom of the Brazilian Lancehead, *Bothrops moojeni*, against six species of medically significant bacteria: *Pseudomonas aeruginosa*, *Proteus mirabilis*, *Escherichia coli*, *Salmonella typhi*, *Streptococcus pyogenes*, and *Staphylococcus aureus*. My study used two methods to determine the venom’s effectiveness: a disc diffusion test (DDT) on Mueller Hinton agar plates and a minimum inhibitory concentration (MIC) test in nutrient broth. Effectiveness was measured in the DDT by measuring the size of exclusion zone around 6 mm discs infused with venom. In the MIC test, effectiveness was determined by measuring the broth turbidity of test tube cultures inoculated with five different concentration of venom. All diffusion discs in the DDT had discernible exclusion zones and the MIC test showed decreased turbidity in the envenomated cultures. Further study to determine and

isolate the antimicrobial venom components (L-amino acid oxidase is a leading candidate) may provide pharmacologists with a new weapon in the war against pathogens. In an age with bacteria resistant to all current therapies, it is vital that we seek solutions from organisms that have been waging the evolutionary war far longer than we have. Snake venom's vast complexity make it an excellent source of those solutions.

6.01.02, “Resistivity of Endospores to UV Rays and Heat Exposure”

[Poster]

Rachelle Keene (Dr. Venkata Moorthy, Sponsor)

Several types of bacteria are known to produce endospores when faced with harsh conditions. Endospores are found in soil and water and are the main source of contamination and food born illness. In this experiment, four types of endospore forming bacteria, *Bacillus megaterium*, *Bacillus cereus*, *Bacillus subtilis*, and *Bacillus polymyxa* were used to test the resistivity of the endospores to heat and UV exposure. Results show that *Bacillus megaterium*, *Bacillus cereus*, *Bacillus subtilis*, and *Bacillus polymyxa* growth was decreased as exposure to UV Rays and heat exposure was increased. However, the amount of bacterial growth was dependent on the length of time exposed and the temperature the spores were exposed to. These processes diminished bacterial growth; however, they did not eliminate the growth of the spores completely.

6.01.03, “The Effects of Familiar and Unfamiliar Music on the Heart Rates of Human Subjects” [Poster]

Sadik Malik (Dr. Steven Thompson, Sponsor)

The University of Colorado (#1) determined that music has a physiological effect on the heart rate of humans. Researchers determined that music with slow beats will decrease heart rate significantly and music with fast beats will increase heart rate. This project tests the effects of familiar music and unfamiliar music on the heart rates of six different human subjects; 3 males and 3 females, all of college age, but of different lifestyles (some play sports while others are sedentary). This experiment was carried out in 24 trials in which a trial is where the resting heart rate of an experimental subject is recorded and then measured again while listening to a particular music type with head phones for two minutes. Each of the 6 subjects listened to 4 different types of music in a sitting with a 2-3 minutes break between each music piece. This study's results were inconclusive (90-95% confidence interval for T-test). This may have been due to a small sample size. A possible beneficial outcome of this study may recommend playing one of these types of music (familiar or unfamiliar) in the background to keep heart rate lower in stressful situations that typically increase heart rate (ex. waiting rooms in hospitals, police stations, emergency rooms, courts, etc.).

6.01.04, “Equine Magnetic Sheets: Do They Work?”

[Poster—For Display Only]

Karly Kile (Dr. Cynthia Pfeifer-Hill, Sponsor)

Sheet coverings with magnets have been commercially touted as reducing “muscle soreness” in horses. This study measured electrical muscle activity in four horses by electromyography (EMG). Portable EMG units (Biopac) were used in 2 mares and 2 gelding horses to measure EMG activity in the trapezius muscle in comparable outdoor stall conditions. Three coverings were placed on the horse – heavy winter blanket, non-magnetic sheet, and a

magnetic sheet (magnets sewn in) with one week separation between covering trials. EMG activity was measured before a covering was placed over the horse and 30 minutes after a covering was placed and presented as a % change in EMG activity. (An increase in muscle “soreness” was assumed to be indicated by an increase in electrical activity and a decrease in soreness by a decrease or “flattening” of the EMG signal.) All four horses showed a decrease in localized muscle activity after placement of the magnetic sheet, which appeared to be a greater decrease than the winter blanket or non-magnetic sheet. Initial results would support that magnetic sheets do reduce muscle activity or “soreness” in horses. Future studies may include isolating different muscles of the horse, using different brands of magnetic sheets and testing more horses.

6.01.05, “The Physiological Effects of Scents” [Poster]

David Gutierrez (Dr. Cynthia Pfeifer-Hill, Sponsor)

This study measured the physiological effects of different scents on the brain and heart. This experiment consisted of two parts. The first part utilized a Portable EEG unit; the Biopacs were used to measure changes in the heart rates and brain waves of participants after they sniffed one of eight different scents. Participants were then asked to close their eyes and sniff continuously for ten seconds. The Biopacs recorded the experiment in real time. For the second part of the experiment, the participants were connected to an ECG, which measured their heart rate. The process was then repeated with the eight ingredients. The data suggests that the scents of lemon and lavender provided a calming sensation in regards to heart rate. Furthermore, blue cheese showed the highest increase in beta waves, while oranges had the greatest decrease in delta waves. Future studies may include increasing the number of participants, limiting the experiment to test for only three to five different scents, and testing for one variable at a time.

6.01.06, “Common Intestinal Flora in Domesticated Animals” [Poster]

Christopher Satterfield (Dr. Venkata Moorthy, Sponsor)

There are several known species of bacteria that are common gastrointestinal flora of different mammals. In this research, the investigation the presence of gut flora of two different species of domesticated mammals: zebras and fainting goats. In addition to examining two different species, flora was inspected from both a male and female of the species. This research found *Serratia*, *Streptococcus*, *Neisseria*, *Enterobacter*, and *Enterococcus* species in both the male and female zebra. In the male goats, we found *Streptococcus*, *Nocardia*, *Staphylococcus*, *Neisseria*, *Escherichia*, and *Proteus* species present. The significance of this research was to depict not only what was common inside different animals, but to examine species of bacteria that could be potentially harmful to humans that work in animal related jobs such as veterinarians.

6.02 Chemistry

6.02.01, “Distribution and Quantity of Iodine in Northwestern Oklahoma Brine Waters” [Poster]

Austin Anderson & Cori Hoffman (Dr. Jason Wickham, Sponsor)

In the late 1970s, it was discovered that the brine waters of northwestern Oklahoma contain significant amounts of Iodine (above 60 ppm). However, the exact amounts and distributions of Iodine throughout this brine water formation were unknown. Currently, the

majority of the world's supply of Iodine comes from mining Iodate minerals in Chile (□ 65%), brine water aquifers in NW Oklahoma (□ 5%) and Japan (□ 25%), and seaweed extraction. With the growing need for Iodine compounds in the medical, agricultural, and technological fields, the demand for Iodine is higher than ever. Thus, Iofina has recruited the aid of Northwestern Oklahoma State University to quantify the Iodine concentrations and distribution throughout the brine aquifer as well as to determine the longevity of these iodine concentrations. Currently, this has resulted in iodine levels that are fluctuating up to 100 ppm. This is a large fluctuation considering our previous study in 2011 which shown fluctuations of up to 10 pmm. However, while investigating the possible causes for this change we noticed that the oilfield drilling practices had changed from vertical to horizontal wells. At this point we are investigating rather the observed fluctuations in iodine concentration is to the inhomogeneity of the brine water aquifer or to the fracking practices associated with horizontal drill. This study has also led to the discovery of new sites within the aquifer that may be of commercial interest and has taken an in-depth look at three of these possible sites.

6.06 *Nursing*

6.06.01, “Hypertension and Exercise” [Poster]

Rebecca Reilly and Tiffany Wilhite (Dr. Leslie Collins, Sponsor)

The health benefits of exercise are well known as are the risks associated with high blood pressure. Patient teaching in both of these areas is an important part of the role of a nurse. The aim of this research project was to examine the relationship between moderate exercise and hypertension. We hypothesized that moderate exercise, as part of a change in lifestyle, lowers systolic and diastolic blood pressure readings. The result of our research showed that physical activity can help patients maintain blood pressure within normal limits. Exercise, in any form, is an important part of a healthy lifestyle that contributes to lowering blood pressure without pharmacological management. In the clinical setting, nurses should be actively involved in educating patients about all of the lifestyle modifications that need to be made to manage hypertension. Physical activity, nutrition, and medication adherence are some of the topics that need to be discussed with all patients diagnosed with hypertension or prehypertension.

6.06.02, “Pertussis Booster Vaccination” [Poster]

Megan Cansler & Claressa Carter (Dr. Leslie Collins, Sponsor)

Pertussis, also known as whooping cough, is a highly contagious respiratory disease, caused by the bacterium *Bordetella pertussis*. Although preventable by a vaccination we receive in five doses as a child, pertussis causes nearly three hundred thousand deaths in children annually. The authors wanted to find if we completed our vaccinations as a child then why do we need a booster when becoming pregnant or when around small child? The thought process was that like other diseases, such as measles, we receive the vaccinations as a child and are protected throughout adulthood; shouldn't pertussis have the same concept? Our research results suggest that post vaccination duration of immunity ranges from four to twelve years. Researchers are suggesting that adults receive a pertussis booster every ten years.

6.06.03, “Skin to Skin” [Poster]

Laura Haftman & Chasidee Koehn (Dr. Leslie Collins, Sponsor)

The way a newborn comes into the world can have risks and benefits. There is good evidence that newborns who are placed skin to skin with their mother immediately after birth make the transition from fetal to newborn life with better respiratory, temperature, and heart rate with less crying and bonding with mom. Mothers who hold their babies immediately after birth have less breast engorgement and breastfeed for longer duration. Hospital protocol can be initiated for uninterrupted skin to skin contact immediately after birth with vaginal and caesarean births. The first hours after birth are a special time for mother and baby to form a special bond. This process should not be interrupted unless unstable conditions occur. This special time should be honored and protected that will also produce many benefits for mom and baby.

6.06.04, “Poor Oral Health and Pregnancy Complications” [Poster]

Rachel Bailey & Julia Ford (Dr. Leslie Collins, Sponsor)

Preterm and low birthweight babies are a major health concern. These babies have a greater risk of death in the first month of life as well as feeding difficulties, thermal instability, respiratory distress syndrome, jaundice, and delayed brain development. Periodontal infections affect the systemic health and inflammatory response of pregnant women, possibly placing a similar burden on the placenta. Since the increased risk for pregnancy complications has long been associated with maternal infections, it is important to address this issue. Research also suggests that mothers who receive dental treatments for periodontal infections, gingivitis, and restorative procedures during the second trimester of gestation have no increased risk for adverse pregnancy outcomes. Our research indicates a relationship between the poor dental health of the mother and the increased incidence of adverse pregnancy outcomes, specifically preterm and low birthweight newborns.

6.06.05, “Preterm Infants and the Use of Pacifiers” [Poster]

**Joana Kandel, Ayodelee Oke, & Yvonne Meret
(Dr. Leslie Collins, Sponsor)**

Nutrition is one of the priorities nurses are concerned about when it comes to preterm infants. It improves survival and promotes growth and development. The denial of that early introduces malnutrition, which can have both short-and long-term benefits for the infant. It is important that preterm infants start oral feeding as soon as possible to survive and get healthy quickly. Studies have shown that by using external factors, premature babies can move to oral feeding at an earlier period than the 34th gestational week, have increased daily weight gain, and be able to have an early discharged from hospital earlier design. In this study, 90 premature infants were studied with 30 premature infants who were grouped with the pacifier, lullaby groups. This research aimed to determine the effect of giving pacifiers to premature infants and making them listen to lullabies on the transition period to oral feeding, sucking success and their vital signs. These results demonstrate that giving pacifiers to premature infants and making them listen to lullabies (which is one of the non-pacifier methods) has a positive effect on their transition period to oral feeding, their sucking success, and vital signs.

6.06.06, “Skin-to-Skin after C-Sections” [Poster]

**Courtney Adams, Solena Rodriguez, & Tiffany Howard
(Dr. Leslie Collins, Sponsor)**

The immediate initiation of skin to skin contact following birth has many benefits. The focus of this research was to determine the benefit of an increase in the success rate of exclusive breast feeding when skin to skin contact is initiated following a cesarean birth. Traditionally in C-sections, infants were immediately removed from the operating room and taken to the nursery for newborn care. This prolonged the amount of time between birth and initial maternal bonding. Our research suggests initiating skin to skin contact within the first 5 minutes following Cesarean birth greatly improves the overall bond between mother and infant. Creating this bond results in improved breast feeding success rates. Our research also shows that implementing this intervention results in higher LATCH scores for the infant and greater maternal satisfaction overall.

6.06.07, “Laboring Positions for Maternal Comfort” [Poster]

Merilee Stelling & Chelsea Courcy (Dr. Leslie Collins, Sponsor)

The purpose of this study is to educate expecting mothers of the maternal benefits of choosing different types of laboring positions over the traditional lithotomy position. Laboring mothers engaged in alternate laboring positions (hands and knees, squatting, lateral), followed their body’s natural urge to push, and used replacement means of pain control. Results showed that women who approached the labor and delivery process using the alternative position above had a decrease in perineal trauma and reduction of pain. The mothers were also able to refrain from chemical barriers (i.e. epidural, narcotic pain medication), making it possible for immediate engagement in care of the newborn. This study concluded that changing positions throughout the delivery process provides maximum maternal comfort. It is recommended that nursing staff be educated in the above means of alternate laboring positions and that they encourage laboring mothers to partake in such.

6.06.08, “Foot Assessment on Diabetics on Dialysis” [Poster]

Lakpa Doma Lama & Megan Water (Dr. Leslie Collins, Sponsor)

Diabetes (Type 1 or 2) is the leading cause of renal failure in patients. As a result of this, the degree of nephropathy increases as does the incidence of foot ulcerations and amputation of the lower extremities. In people with diabetes and receiving dialysis treatment the risk of amputation increases tenfold. Our research suggest that no lower extremity assessment or no proper lower extremity care on a diabetic client can lead to foot injury and other major complications. Research has shown that in a diabetic client on dialysis, assessment and management of lower extremity can help prevent foot ulceration and amputation. Clients should be encouraged to perform daily foot inspection by washing and lubricating the feet, as well as performing an accurate visual assessment by checking between the toes, and assessing pedal pulses.

6.06.09, “Water Immersion in First Stages of Labor” [Poster]

Carrie Schanbacher & Kelsey Fly (Dr. Leslie Collins, Sponsor)

Water Immersion can be a healthy alternative to pharmacological measures to relieve pain in the first stages of labor. Water immersion is submersion in a tub of warm water (as if to take a bath). The first stage of labor includes three phases: early, active, and transitional. These

three phases can last anywhere from 6 to 12 hours in length. Water Immersion during these phases has been shown to reduce significantly the length of time a woman in labor spends in the first stage. By reducing this time, a woman has a greater chance of avoiding exhaustion and reducing the risk of pain during the second and third stages. Furthermore, any route of reducing the use of pharmacological measures is favored. Other benefits for women include decreased chance of trauma during the birthing process, warm water and positioning promotes dilation and relaxation, all which have a direct effect on the infant's status. Water Immersion is an effective complimentary therapy in the birthing process.

6.06.10, "How Video Games are Negatively Effecting the Diets of Our Children" [Poster]

Jessica Gulick & Sadie Koehn (Dr. Leslie Collins, Sponsor)

Video games have become popular over past years. Children seem to want to stay inside to play instead of enjoying outside activities. It has been shown that children spend many hours after school in front of a screen, which is called screen time. With increased screen time, the likelihood of consuming non-nutritional food greatly increases. Our research suggests that this is one of many causes of childhood obesity. Limiting screen time, providing healthy meals, and increasing physical play are all ways to decrease the chances of childhood obesity.

6.06.11, "Dynamic Vs. Static Stretching" [Poster]

George Mendoza & Stephanie Gallegos (Dr. Leslie Collins, Sponsor)

Stretching is a big part in preventing the body from injury while performing exercises. Since elementary school, it has been taught to perform a certain stretch for fifteen to thirty seconds then release. According to our article, certain stretches must be performed depending on the type of goal one is trying to achieve. Static and dynamic stretching are two different forms of stretches designed to accomplish two different goals. Research shows that the traditional static stretching, which involves holding a stretch for a certain amount of time and releasing, is more goal oriented to increasing flexibility. If static stretching is performed before some sort of athletic event, research shows that it decreases performance. Dynamic stretching is more goal oriented to increasing performance. Dynamic stretching consists of flexing and extending a muscle slowly and gradually increasing speed until muscles are warmed up. Although both may have their advantages and disadvantages, both play a vital role in staying healthy and fit.

6.06.12, "Blood Circulation & Umbilical Cord Clamping in Newborns" [Poster]

Andrea Thompson & Katelyn Waugh (Dr. Leslie Collins, Sponsor)

This research was conducted on whether it is more beneficial to have early umbilical cord clamping or delayed umbilical cord clamping for blood circulation purposes. Early umbilical cord clamping is beneficial because it reduces the risks for jaundice. The time range for this would be 15-25 seconds after birth. Delayed umbilical cord clamping is beneficial because it reduces the risks for intraventricular hemorrhage. The time range for this would be 30 seconds to 5 minutes after birth. Some studies support delayed umbilical cord clamping because there are interventions to treat jaundice. Both options show reasonable benefits and risks. Regardless of what the research suggests, the decision of which method to use is the

mother's. If the mother is unable to make the decision due to the circumstances, the doctor will proceed with his/her professional opinion.

6.06.13, "Chlorhexidine vs. Nonchlorhexidine" [Poster]

Anna Looper, Deanna Westerman, & Carol Medina

(Dr. Leslie Collins, Sponsor)

Central line associated blood stream infections (CLABSI) are an issue in many hospitals today. A blood stream infection that is present 48 hours after the placement of a central line is defined as a central line blood stream infection. These types of infections can include methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococcus (VRE), gram-positive bacteria, and surgical site infections (SSI's). If not controlled or prevented, patients with a central line associated blood stream infection will not have a good prognosis. Our research suggests that if nurses implement the use of 2% or 4% Chlorhexidine Gluconate before and after insertion of a central line, you can reduce the incidence of infection. In addition to the reduction of CLASBI's, studies have shown that implementation of a Chlorhexidine Gluconate protocol can be more cost effective.

6.06.14, "Wound Healing with Hyperbaric Oxygen Therapy" [Poster]

Tandi Moyer and Chelsea Harmon (Dr. Leslie Collins, Sponsor)

Hyperbaric oxygen therapy is a continued delivery of oxygen with an increased atmospheric pressure. The research is compelling and has shown positive response for those using the hyperbaric oxygen therapy for wound healing. Diabetic patients have seen increased drastic wound healing times with the use of the hyperbaric oxygen chamber. Vascular disease, diabetes, radiation necrosis, mixed soft tissue infections, refractory osteomyelitis, and some traumatic wounds are all types of wounds seen when using hyperbaric oxygen chamber. Patients should be told the contraindications of hyperbaric oxygen therapy. They include chemotherapy, claustrophobia, febrile disorders, sinus surgery, and seizures. The outcomes are remarkable in wound healing, showing twenty treatments with various wounds shows new tissue growth and the edges of the wound show new granulation and approximation. Evidence supports the use of hyperbaric oxygen therapy.

6.06.15, "Nurse to Patient Ratio" [Poster]

Jessica Nielsen, Cortney Wheeler, & Amy Wreath

(Dr. Leslie Collins, Sponsor)

The nurse to patient ratio is an important aspect to the quality of care a patient receives during a hospital stay. Our research shows that the more patients a single nurse is responsible for at a given time, the higher the risk for medication administration errors, patient injuries, insufficient charting, stress on the nurse, and stress on the patient. On the other hand, a lower nurse to patient ratio enhances the quality of care by creating a more relaxed environment for the patients and the nurse, helps provide the nurse enough time to chart effectively, administer medications correctly, and allows the nurse the appropriate time to assess the patients and provide comfort and therapeutic talk to them. A lower nurse to patient ratio is beneficial to both the patients and the nurses by enhancing the atmosphere and experience overall.

6.06.16, “Alternating Pressure Mattress vs. Overlays” [Poster]**Michael Calhoun & Charisse Al-ag (Dr. Leslie Collins, Sponsor)**

Pressure sores or ulcers are damages to the skin and underlying tissues from pressure on the skin for a long period of time. If not prevented, it can result in more injury leading to infection. Our research proposes that proper interventions like repositioning and the use of appropriate mattresses and overlays can decrease the risk of the development of a pressure sore. However, if the client is not turned properly, without the use of a turning sheet, a friction sore may appear, leading to a pressure sore. Overlays for clients not anticipating to be, in this case, ventilated for longer than 14 days suggests it is a better choice. However, studies show that if the client is to be ventilated for a longer period of time, an alternating pressure mattress is highly recommended.