Student Paper Abstracts

Preoperative Oral Clonidine for the Reduction of General Anesthesia
Laura Nelson SRNA and Deborah Mickley SRNA

Clonidine is a centrally acting alpha-2 agonist that is primarily used for hypertension. Its use as an anesthetic adjunct has not been thoroughly described in the literature. The purpose of this synthesis paper is to evaluate the research and present recommendations for the use of clonidine to reduce anesthetic consumption during general anesthesia. A literature search was conducted using PubMed and EBSCO MegaFile. Fourteen randomized, prospective, peer reviewed articles were evaluated to determine the amount of anesthetic reduction when patients were premedicated with oral clonidine versus placebo. The types of anesthetic studied were total intravenous anesthesia (TIVA) and inhaled anesthesia with either sevoflurane or isoflurane. The propofol consumption was reduced by 20-33%, and the amount of inhaled anesthesia was reduced by 17-47%. A 5mcg/kg dose of oral clonidine was the most effective for the reduction of anesthesia requirements in TIVA and inhaled anesthesia. This finding has the potential to reduce the pharmacological cost of anesthesia.

Is Pain Perception Affected by Naturally Occurring Genetic Mutations of Melanocortin-1 Receptors?
Megan Ahrndt SRNA and McKensie Little SRNA

The melanocortin-1 receptor (MC1R) is most recognized for its role in pigment formation. Nonfunctioning or variant MC1Rs lead to the expression of red hair by regulating the melanocytes to produce more pheomelanin pigments. Recent studies have suggested that variant MC1Rs may play a role in pain perception. A PubMed and ScienceDirect database search was conducted for experimental studies and physiologic information regarding the MC1R. The 5 experimental studies selected evaluated adults 18 to 55 years old and determined whether there was an alteration in pain perception between red-haired and nonred-haired individuals. The research utilized different methods of noxious stimuli, and evaluated the effectiveness of different types of medications on pain perception. The results remain conflicted. Two of the 5 articles selected concluded that red-haired individuals had increased anesthetic requirements, increased sensitivity to thermal pain, and were resistant to the effects of subcutaneous lidocaine. The remaining 3 articles concluded that red-haired individuals were less sensitive to hyperalgesia, and displayed greater analgesia from opioids. Not all of the research included MC1R genotyping. More research is needed to assess the relationship between MC1R variants and their interaction with pain modulation.
Hearing Loss after Postdural Lumbar Neuraxial Anesthesia

Thomas Boostrom SRNA and Clark Hendrickson SRNA

Several instances of transient hearing loss following spinal anesthesia have been reported in the literature. Transient hearing loss is thought to be caused by a decrease in cerebrospinal fluid pressure and cochlear aqueduct changes. We conducted a literature review that yielded ten randomized and controlled experimental trial articles, four case studies, and one integrated review article. Hearing loss has been attributed to age, gender, surgical procedure, intrathecal medication administration, along with needle size and type. Our review indicates a positive correlation between spinal anesthesia and hearing loss. The incidence of hearing loss is markedly decreased with the use of smaller diameter and noncutting needles. Further research should be conducted to determine the etiology of hearing loss following spinal anesthesia and its precipitating factors.

Lumbar Plexus Block for Total Hip Arthroplasty: Effects on Postoperative Pain Influencing Opioid Consumption, Ambulation, and Patient Satisfaction

Lindsay Klein SRNA and Amy Henderson SRNA

Lumbar plexus blockade (LPB) may offer the ability to provide pain relief following surgery for elective total hip arthroplasty (THA). The purpose of this systematic review is to determine whether the use of LPB causes decreased postoperative pain scores resulting in decreased postoperative opioid consumption, shorter time to ambulation, and increased patient satisfaction. A literature review was conducted via the PubMed and ScienceDirect databases. The search produced 8 experimental studies and one quasi-experimental study that focused on LPB, postoperative pain, opioid use, ambulation, and patient satisfaction following elective THA. The results of several studies showed use of LPB reduced postoperative pain scores at rest and with movement which led to low opioid demand. Adequate pain control led to earlier physical independence and increased patient satisfaction. In conclusion, LPB is effective in lowering postoperative pain in a majority of patients who receive them. The use of LBP appears the superior mode of analgesia when compared to IV opioids only, but we cannot state LPB is superior to epidural for postoperative pain control in elective THA.

Anesthetic Implications for the Patient with Epidermolysis Bullosa

Joseph Sanchez SRNA

Epidermolysis bullosa (EB) is a rare genetically inherited skin disorder characterized by painful subcutaneous blisters, which results in scarring and deformities. Safe and effective management of anesthesia presents a significant challenge for the anesthesia provider. The purpose of this article is to review and evaluate current literature regarding anesthetic considerations in patients with EB. Academic Search Premier, EBSCOMegaFILE, Google Scholar, PubMed/Medline, and Science Direct were searched for literature reviews and case studies regarding EB. Most of the literature used to assess the anesthetic implications was derived from case studies. The literature was examined to determine what was the safest and most effective way to provide anesthesia to patients with EB. Although this topic is under-researched due to the relatively low incidence of the disorder, case studies provided several common themes of anesthetic management. The primary concerns during anesthesia are safe airway management, maintenance of skin integrity, prevention of heat and fluid loss, infection prevention, and pain management. A better understanding of the disease and perioperative outcomes will assist anesthesia providers to implement a patient-specific anesthetic plan and minimize anesthetic complications.
Anesthetic Implications for the Patient with Epidermolysis Bullosa
Joseph Sanchez SRNA

Anesthetic Considerations for Patients with Moyamoya Disease.
Felix Karikari SRNA and Edna Kemboi SRNA.

Is Pain Perception Affected by Naturally Occurring Genetic Mutations of Melanocortin-1 Receptors?
Megan Ahrndt SRNA and McKensie Little SRNA

Does Ketofol Offer an Alternative Approach to Sedation Regimens? A Review and Comparison of Ketamine-Propofol to Fentanyl-Propofol.
Brandon Allen SRNA and Myca Kleepsie SRNA

Pulmonary Protective Ventilation Strategies Utilizing the Open Lung Concept and FiO2 Control During General Anesthesia in Patients Without Existing Pulmonary Disease.
Jesse D. Paulus SRNA and Eric J. Arndt SRNA

Anesthetic Implications for the Adult Patient with Pseudocholinesterase Deficiency
Mark Retz SRNA and Rob Olson SRNA

Lindsay Klein SRNA and Amy Henderson SRNA

Time to Peak Effect of Propofol is Determined by Age and Weight in Pediatric Patients.
George Bergh SRNA and Tuyen Nguyen SRNA

The Role of Intraoperative Glucose Control in Patients Undergoing Coronary Artery Bypass Graft Surgery.
Angela Guden SRNA and Rebecca Kohegyi SRNA

Hearing Loss after Postdural Lumbar Neuraxial Anesthesia.
Thomas Boostrom SRNA and Clark Hendrickson SRNA

Preoperative Oral Clonidine for the Reduction of General Anesthesia.
Laura Nelson SRNA and Deborah Mickley SRNA

Rebecca Schermerhorn SRNA and Kate Menne SRNA

Learning Direct Laryngoscopic Endotracheal Intubation: To Determine the Time Frame to Achieve 95 Percent Proficiency.
Kimi L. Brouhard SRNA and Susan M. Kohn SRNA

Does a FloTrac/Vigileo Monitor Provide Accurate Cardiac Output Measurement During Cardiac Surgery?
Thomas Lewison SRNA and James Robinson SRNA

Effects of Intraoperative Positive End-Expiratory Pressure on Postoperative Atelectasis and Pulmonary Inflammation.
Eric Zellner SRNA and Kurt Rayhorn SRNA

Anesthetic Implications of Laryngeal Amyloidosis
Brian Kvanme SRNA and Jarad Sampson SRNA
Learning Direct Laryngoscopic Endotracheal Intubation: To Determine the Time Frame to Achieve 95 Percent Proficiency.
Kimi L. Brouhard SRNA and Susan M. Kohn SRNA

**Context:** Learning to become proficient in laryngoscopic endotracheal intubation (LEI) requires a combination of clinical expertise and motor skills. Research regarding proficiency rates for novice learners is inconsistent.

**Objective:** To determine the amount of clinical practicum time required to demonstrate 95% proficiency in performing successful LEI by nurse anesthesia students.

**Methods:** Paper surveys were collected from 28 students from a single program for 15 weeks of their clinical practicum experience in a variety of operating room settings. The students reported when they performed a successful LEI and when a more experienced provider performed the LEI. There were no exclusion criteria based on patient physiologic status or airway assessment.

**Participants:** Thirty-one students from an accredited nurse anesthesia masters program volunteered to record their LEI experiences. The study was single blinded; data were collected using anonymous identification numbers. Three participants were excluded for incomplete surveys. Data from 13 females and 15 males were analyzed.

**Results:** The students achieved 97.2% [7.6%] LEI proficiency rate at week 14 of clinical practicum (mean of 79 LEIs per student). When controlled for patients considered to have a difficult airway, the students reached 97% [6.8%] proficiency rate at week 10 of clinical practicum (mean of 40 LEIs per student). Men were no more proficient than women at LEI (P =.22).

**Conclusions:** This information can be used as a guide for clinical anesthesia educators to evaluate the clinical practicum experience and enhance student education.

Time to Peak Effect of Propofol is Determined by Age and Weight in Pediatric Patients
George Bergh SRNA and Tuyen Nguyen SRNA

**Purpose:** Propofol is less frequently used in pediatric patients because of unpredictable effects attributed to maturational pharmacokinetic (PK) variability. Time to peak effect (T peak) is a pharmacodynamic (PD) parameter that may be independent of PK parameters. This review of the literature investigated whether the T peak of propofol is affected by age and weight in pediatric patients.

**Methods:** EBSCO, PubMed, Google Scholar, and Academic Search Premier were searched for studies pertaining to T peak as a function of short-term infusions and boluses of propofol in pediatric patients.

**Results:** Two studies found that T peak increases as age increases, but is not affected by weight. One study found that T peak decreases as age increases, and is affected by weight. And one study was unable to make any conclusions about T peak, age, and weight because of widely varying results.

**Conclusion:** T peak may be a more accurate means to calculate doses of propofol in pediatric patients. This review has determined that there is not enough evidence to accept or reject T peak as a means to determine the action of propofol in pediatric patients. More scientific studies that focus on age, weight, and T peak are necessary.
Anesthetic Considerations for Patients with Moyamoya Disease
Edna Kemboi SRNA and Felix Karikari SRNA

Moyamoya disease is a cerebrovascular condition characterized by progressive stenosis of the carotid arteries and the branches of the circle of Willis, resulting in an ischemic or hemorrhagic cerebral event. The most common location for infarction is within the anterior, middle, and posterior cerebral arteries. Research studies have reported that the enhanced hepatocyte growth factors in the vascular smooth muscle may cause excessive growth of the smooth muscle cells, thus promoting thickening of the intima of the carotid termination. Currently, surgical treatment is the most effective management for moyamoya disease. Approximately 10-15% of moyamoya cases are related to a genetic predisposition. This is known as primary moyamoya syndrome. Secondary moyamoya syndrome is a result of other underlying diseases. Moyamoya disease is prevalent in patients with East Asian ancestry and is common in both children and adults. Patients with moyamoya disease present a challenge to anesthesia providers because of the increase susceptibility for cerebral infarction. The anesthetic goals should focus on perioperative management to maintain adequate cerebral oxygenation, hemodynamic stability, and cerebral perfusion.

Pulmonary Protective Ventilation Strategies Utilizing the Open Lung Concept and FiO2 Control During General Anesthesia in Patients Without Existing Pulmonary Disease
Jesse D. Paulus SRNA and Eric J. Arndt SRNA

Most patients who receive general anesthesia (GA) do not have pre-existing pulmonary disease, however, perioperative alveolar collapse and hypoxemia occur in 90% of these patients. The use of mechanical ventilation during GA is likely responsible and recent studies suggest that mechanisms such as barotrauma, volutrauma, biotrauma, and atelectrauma cause lung injury. Although various preventative measures have been studied, the complex nature of pulmonary physiology may be better managed by multimodal ventilation therapies. This paper investigates individual aspects of mechanical ventilation and their effect on pulmonary mechanics and oxygenation. These facets include tidal volume (VT), positive end expiratory pressure (PEEP), alveolar recruitment maneuvers (RM), and fraction of inspired oxygen (FiO2). Current literature suggests that VT <12 ml/kg should be used in patients to avoid volutrauma and PEEP should be applied at 5-10 cm H2O to maintain patent distal airways. Although holding peak inspiratory pressures of 30-40 cm H2O for up to 40 seconds may only have beneficial effects for 2 hours, RM can improve oxygenation and pulmonary compliance. In addition, using low FiO2 may help to prevent atelectasis and maintain normal pulmonary mechanics. Utilization of these strategies may provide anesthetists a balanced technique to ventilate patients undergoing GA who do not have pre-existing pulmonary disease.

Rebecca Schermerhorn SRNA and Kate Menne SRNA

Regional techniques are popular methods for providing analgesia and anesthesia in the laboring population. Epidurals and combined spinal epidurals are frequently used in this patient population. Loss of resistance is one technique used to identify the epidural space. A controversy exists as to which medium is superior, air or liquid, for determining a loss of resistance.

We conducted a literature search using the Google Scholar, PubMed, ScienceDirect, and Medline databases. The literature chosen included human studies involving the placement of epidurals and combined spinal epidurals in laboring parturients. The data was analyzed by calculating a total percent of significant complications elicited by the different mediums.

Loss of resistance with liquid provided less intravascular catheter placement, dural puncture, difficult catheter placement, supplemental pain medication, and unblocked segments when compared to air. Paresthesias, postdural puncture headache, pneumocephalus, analgesic onset, and pain scores were not statistically significant between the air and liquid groups. Based on the current findings, more research needs to be conducted in order to distinguish which medium results in fewer complications in the laboring population.
NEWS

Class of 2014 Demographics
Thirty students are starting the anesthesia program in May of 2012. Of the 30, 72% are female and 28% are male. The overall science/math grade point average is 3.2 on a 4.0 scale. They all have at least 2 years of ICU experience. These 30 were chosen from a pool of 207 who applied. These students are coming from all over the USA. Home states include Minnesota, Wisconsin, Arizona, Ohio, New Mexico, New Jersey, California, Georgia, North Dakota, Maryland, and Nevada.

Orientation for the new class will take place on May 3rd and 4th. A reception for the new class and their families will take place at 3:00 PM on Friday May 4th. Refreshments will be served.

Chris Wickland CRNA (*11) and son take a celebratory leap after the commencement ceremonies for the Class of 2011.

Program Staff
Merri Moody (612) 728-5133
Program Director
Carol Hunter (612) 238-4544
Assistant Director
Mary Skelley (612) 728-5151
Clinical Director
Wendy Sims (612) 238-4530
Faculty
Veronica Murphy (612) 728-5132
Administrative Assistant

This Semester’s Courses
JUNIORS
• Principles of Anesthesia 2
• Pharmacology
• Anatomy and Physiology 2
• Clinical Practicum 1

SENIORS
• Clinical Practicum 4
• Comprehensive Exams Begin

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Nurse Anesthesia Program
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$30.00 – Students
Application for 5 CE credits is in process

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Assistant Registrar
Saint Mary’s University of MN
2500 Park Avenue
Minneapolis, MN 55404-4403

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In accordance with federal regulation, the student/alumni must give permission for any information to be released by the University. Verifications cannot be done over the phone. Please sign a consent form from your employer or send a request with your signature to:

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Saint Mary’s University of MN
2500 Park Avenue
Minneapolis, MN 55404-4403
FAX: (612) 728-5121

There have been 678 GRADUATES from 1953 through 2011

Website Address
www.smumn.edu/anesthesia

Saint Mary's University - Anesthesia

STUDENT SEMINAR RESERVATION FORM

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Saint Mary’s University of Minnesota
Nurse Anesthesia Program
2500 Park Avenue
Minneapolis, MN 55404
ATTN: Veronica Murphy
The graduating Class of 2011 completed the Nurse Anesthesia Program on August 19, 2011. The program’s administrators, faculty and staff wish them all the best in their new careers.

Saint Mary’s University faculty, students and staff attended National Night Out for the Phillips West Neighborhood in Minneapolis. The kids loved the Cardinal.
Saint Mary's University purchases south Minneapolis landmark

A $2 million anonymous gift helps fund purchase of Harrington Mansion and Events Center, formerly the Zuhrah Shrine property, on Park Avenue

MINNEAPOLIS – Saint Mary’s University of Minnesota announced that it has finalized its purchase of the Harrington Mansion and Events Center, located adjacent to the university’s Schools of Graduate and Professional Programs (SGPP) in Minneapolis. Saint Mary’s University plans to use the property, formerly owned by the Zuhrah Shriners, for expansion of its graduate programs, community outreach, and alumni event venues.

“This is an investment both in our campus and in the Twin Cities community,” said Brother William Mann, president of Saint Mary’s University. “Saint Mary’s is expanding to meet our growth in educational offerings. We see this as an investment to not only provide educational access to those who increasingly are excluded from it, but also a commitment to help revitalize the Phillips West neighborhood.”

A growing university
Saint Mary’s University opened its Minneapolis campus at 2500 Park Avenue South in 1984 to focus primarily on graduate education, as well as meeting the needs of adult students through baccalaureate degree completion programs. Saint Mary’s helped pioneer the accelerated programming format and has experienced significant growth over the past few decades. Today, Saint Mary’s SGPP is enjoying record enrollment, with more than 4,300 students enrolled.

Saint Mary’s latest expansion is the Harrington Mansion and Events Center purchase, which includes the historic mansion, carriage house, modern events center, and 100 parking spaces, encompassing 1.66 acres at 2540 Park Avenue. The mansion and carriage house consist of 30,000 square feet, and the event center has 54,000 square feet. The purchase significantly increases the size of Saint Mary’s campus footprint on Park Avenue.

The purchase price of the properties is $2.75 million. A $2 million gift from an anonymous donor made the purchase possible for Saint Mary’s. Saint Mary’s will begin a campaign to raise funds for renovations of the buildings.

“We are grateful to the donor for enabling us to make this purchase,” said Brother William. “We are proud to become a part of the rich history of the Harrington Mansion. Saint Mary’s University intends to preserve that history while making the property highly functional for today’s learners and guests.”

The mansion and carriage house will be used for online learning opportunities, office space, gatherings of alumni and friends, and performing and visual arts space. The center will be used for university events and will continue to be available for public rental. The space is ideal for meetings, corporate functions, and receptions.

Harrington Mansion history
The Harrington Mansion is an Italian Renaissance-style home built in 1902 for the family of Charles Harrington, who owned a grain processing and distribution business. The home’s architects were Frederick Kees and Serenus Colburn, who also designed the Minneapolis Grain Exchange Building and the Loring Theater (now the Music Box Theater).
This Semester’s Courses

**FIRST YEAR STUDENTS**
- Anatomy and Physiology 1
- Principles of Anesthesia 1
- Pharmacology for Nurse Anesthetists

**SENIOR STUDENTS**
- Clinical Practicum 3
- Synthesis Paper
- Professional Aspects: Department Management

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**ATTENTION ALUMNI**

**WELCOME:** Bennette Andrew Wottreng
Congratulations to mom Kacie Wottreng (’11)

**WELCOME:** Finnegan Lundy
Congratulations to dad Matthew Lundy (’11)

**IF YOU HAVE NEWS, EVENTS OR ACCOMPLISHMENTS OR NEWS THAT YOU WOULD LIKE TO SHARE WITH YOUR CLASSMATES, PLEASE SEND IT TO:** MERRI MOODY
mmoody@smumn.edu

**NEW FACULTY AND STAFF**

The nurse anesthesia program welcomes Dr. Jen Teske, our new Anatomy and Physiology instructor. Steve Kremer and Amy Swartz are joining the Principles of Anesthesia faculty working with current faculty members Wendy Sims, Mary Skelley, Jason Hoechst and Carol Hunter.

Mary Skelley has taken the role of Clinical Director and Carol Hunter has taken the new role as Assistant Director.

We are truly blessed to have these talented folks working with the nurse anesthesia program.

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Drew Matthews (’75) was recently honored in a news story aired by KARE11 news. Drew’s many years of dedicated work in Honduras is well known by his colleagues. The photo above was part of the news story. Drew is pictured with the Honduran nurse that received treatment at Abbott Northwestern Hospital. To see the entire news story, visit the following link to KARE11.com. [http://www.kare11.com](http://www.kare11.com)
There have been 678 graduates from this program since 1953.

Facebook Update
As of August 23, 2011, 162 students and alumni have joined the Saint Mary’s University Anesthesia Facebook Page. Please join us. The category of the group is Academic Group or Student Group.

Program Staff
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Clinical Director
Carol Hunter (612) 238-4544
Assistant Director
Wendy Sims (612) 728-5530
Faculty
Veronica Murphy (612) 728-5132
Program Coordinator
Thirty-three new students started classes on May 9, 2011. This year’s class consists of 11 men and 22 women. These new scholars hail from Marshfield, WI, Madison, WI, Lincoln, IL, Lansing, IL, Peoria, IL, Rochester, MN, Minneapolis, MN, Saint Paul, MN, Saint Michael, MN, Burnsville, MN, Sartell, MN, Saint Anthony, MN, Roseville, MN, Columbia Heights, MN, Northfield, MN, Gilbert, AZ, Pasadena, CA, Fontana, CA, Ypsilanti, MI, Kentwood, MI, Fargo, ND, Cheyenne, WY, Las Vegas, NV, Havre, MT, Clackamas, OR, Shawnee, KS, and Lake Preston, SD.

Welcome Class of 2013

Anesthesia Implications for Adult Patients with Prader-Willi Syndrome
Liz Hedke, RN, BSN and Kacie Wotrreng, RN, BSN

Purpose. Prader-Willi syndrome is a syndrome associated with many cardio-pulmonary abnormalities, endocrine disorders, and autonomic dysfunction which can create potential anesthetic complications. This paper was created due to the lack of published literature on anesthetic implications for the adult patient with Prader-Willi syndrome.

Methods. A literature review of articles within the past 10 years was conducted through the PubMed and MedLine databases. Key words included the following: anesthesia, Prader-Willi syndrome, obstructive sleep apnea, diabetes, adrenal insufficiency, aspiration, regional anesthesia, endocrine, cardiovascular, vomiting, gastrointestinal, and pain sensation.

Results. Seventeen articles were found discussing the various implications facing patients with Prader-Willi syndrome. The literature was reviewed, and the pathophysiology of this syndrome, as well as anesthetic inferences, were provided based on these findings.

Conclusion. This paper provides current guidelines pertaining to the anesthetic implications when caring for the adult patient with Prader-Willi syndrome. Further research specifically examining anesthesia implications for this patient population is recommended.
Saint Mary’s University Welcomes Noted Journalist to the Minneapolis Campus

Saint Mary’s University of Minnesota announced its partnership with the “Under-Told Stories” project, which shares stories from some of the world’s most remote locations through PBS NewsHour and other media organizations. The partnership brings “Under-Told Stories” Director Fred de Sam Lazaro to the university’s Minneapolis campus, provides new learning opportunities to Saint Mary’s students, and is intended to raise awareness for the local ramifications of global issues.

De Sam Lazaro and longtime “Under-Told Stories” producer Nicole See will make their home at Saint Mary’s University of Minnesota, and specifically the university’s Hendrickson Institute on Ethical Leadership, as part of the project’s joint commitment to journalism and teaching. Students in the Schools of Graduate and Professional Programs will have access to hands-on experiences in some of the world’s developing regions “Under-Told Stories” content will also be incorporated into the curricula of numerous Saint Mary’s courses.

“Saint Mary’s and the Hendrickson Institute provide the ideal home for our project at so many levels,” de Sam Lazaro said. “Both foster an engagement with the major global issues of the day, and our journalism is a ‘shoe-leather’ complement to the learning and debate that come from textbooks and seminars, bringing home the relevance of these issues.”

Recent “Under-Told Stories” topics include the election in Southern Sudan, Pakistan’s flood recovery, India’s strained water supply, and Iraqi refugees exiled in neighboring nations. De Sam Lazaro has also covered stories in the United States, including ancient manuscript preservation in Minnesota and technology’s impact on the patient-doctor relationship in American hospitals. “Under-Told Stories” segments are featured regularly on PBS NewsHour nationwide and are available to view anytime at undertoldstories.org.

“Fred’s solutions-oriented stories bring hope out of despair and make issues from half a world away relevant to Americans,” said Lindsay McCabe, executive director of the Hendrickson Institute for Ethical Leadership at Saint Mary’s University. “Under-Told Stories” raises awareness of poverty, while shedding light on the opportunities and lessons to be found in impoverished places. This aligns well with Saint Mary’s commitment to diversity, accessibility, social justice, and ethical stewardship.”

About the Hendrickson Institute for Ethical Leadership

The Hendrickson Institute for Ethical Leadership was created in 1994 at Saint Mary’s University to help support strong morals and ethics among today’s and tomorrow’s leaders, regardless of profession. The Hendrickson Institute provides special events and corporate training for business leaders, as well as the Tomorrow’s Leaders regional high school and university scholarship program. The Hendrickson Institute for Ethical Leadership Forum was established as part of a $2 million anonymous donation in 2007.

About PBS NewsHour

PBS NewsHour is seen five nights a week on more than 315 PBS stations across the country and is also available online, via public radio in select markets, and via podcast. The program is produced by MacNeil/Lehrer Productions, in association with WETA Washington, DC, and wnet.org in New York. The PBS NewsHour television broadcast is seen by an audience of approximately 1.1 million viewers each evening and approximately 200,000 daily online visitors.

The Under-Told Stories Website: http://undertoldstories.org/

To view the reports, go to: http://undertoldstories.org/stories
Saint Mary’s University of Minnesota Student Seminar

Hydroxyethyl Starch 130/0.4 versus Previous Generations of Synthetic Plasma Expansion Colloids: An Analysis of Coagulopathic Potential  
Michael Bump SRNA and J. Chris Wickland SRNA

Systemic Effects and Anesthetic Implication of Lower Extremity Tourniquet Use During General Anesthesia  
Shawn Baker SRNA and Julie Hendricks SRNA

Anesthetic Considerations for the Toluene Inhalant Abuser in the Adolescent Population  
Rebecca J. Armbruster SRNA and Tessa M. Van Overbeke SRNA

Anesthesia Implications for Adult Patients with Prader-Willi Syndrome  
Liz Hedke SRNA and Kacie Wottreng SRNA

Transient Receptor Potential of Vanilloid Subtype 1: From Biochemical Science to Clinical Anesthesia  
Nikki Bonitz SRNA and Sara Rohl SRNA

What is the Effect of Hypnotic Intervention on Perioperative Outcomes?  
Daniel Chow SRNA and Kelly Ekenberg SRNA

Anesthetic Implications for the Patient with Charcot-Marie-Tooth Disease  
Dawn Konop-Sage SRNA and Brandon K. Martin SRNA

The Effect of a Combined Spinal-Epidural Analgesic Technique on Fetal Heart Rate  
Jason Emde SRNA and Justin Willuweit SRNA

Anesthetic Considerations for Patients with Isaac’s Syndrome  
Larisa Chesner SRNA and Summer Gebauer SRNA

Regional Anesthesia for Laboring Parturients with Platelet Counts Less Than 100 000 MM\(^{-3}\)  
Jill K. Payne SRNA and Joy C. Strand SRNA

Obesity Hypoventilation Syndrome: Perioperative General Anesthetic Concerns  
Aaron Juliar SRNA and Matthew J Lundy SRNA

The Impact of Adverse Event Reporting Systems on Patient Safety  
Jason F. Heuer SRNA and Matthew D. Vincent SRNA

I-gel Synthesis Paper  
Heather Politano SRNA, Kitty Mosher SRNA and Donna Ewanowich SRNA

What are the Anesthetic Implications for a Patient with Leigh’s Disease?  
Sara Kraus SRNA and Robert Warner SRNA

Saturday, May 21, 2011  
0800 – 1600

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Minneapolis, MN 55404

Cost $55.00 – CRNA’s  
$30.00 – Students

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This program received prior approval from the American Association of Nurse Anesthetists  
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For additional information or to register contact: vmurphy@smumn.edu or (612) 728-5133 or Toll free: (866) 437-2788 ext. 132
Anesthetic Considerations for the Toluene Inhalant Abuser in the Adolescent Population
Rebecca J. Armbruster, RN, BSN and Tessa M. Van Overbeke, RN, BSN

Toluene inhalant abuse continues to be a popular drug for the adolescent population due to the ease of accessibility, low cost, and difficult detection. After a thorough literature review, no research has been conducted to understand specific anesthetic considerations of this patient population. The purpose of this study is to investigate the physiologic effects of toluene on the stated body systems and determine if there are specific anesthetic considerations for this patient population. Toluene toxicity negatively affects the central nervous system, respiratory, cardiovascular, renal, musculoskeletal and hepatic systems. The physiologic effects range from euphoria to sudden sniffing death. Our research concluded there are specific physiologic changes caused by toluene toxicity the anesthesia provider must be prepared to manage. This study provides details of physiologic changes characteristic of toluene inhalant abuse and anesthetic considerations to best manage this patient population. Caution must be taken since the anesthetic considerations are based solely on the documented physiologic changes of toluene inhalant abuse. Future studies are needed to supply data to support the proposed anesthetic considerations.

Systemic Effects and Anesthetic Implications of Lower Extremity Tourniquet Use During General Anesthesia
Shawn Baker, RN, BSN and Julie Hendricks, RN, BME

Lower extremity tourniquets are often used during surgery to provide a bloodless surgical field. Tourniquets can, however, cause physiological changes in surgical patients necessitating modifications to the anesthetic plan. This review provides anesthetists with an updated summary of possible physiological changes associated with tourniquet use under general anesthesia. This review highlights the effects of tourniquet inflation and deflation on the cardiovascular, respiratory and hematological systems, and metabolic and core body temperature changes in patients undergoing general anesthesia. Systemic changes associated with lower extremity tourniquet inflation include intravascular volume shifts and increased blood pressure. Blood pressure changes can be attenuated with preoperative clonidine, ketamine or dextromethorphan. Tourniquet deflation leads to decreased blood pressure, PaO₂, arterial pH, and core body temperature, while lactic acid, serum potassium, PaCO₂, and ETCO₂ levels increase. In addition, application of a tourniquet results in venous stasis distal to the tourniquet, which provides a favorable environment for the development of thrombotic events including deep vein thromboses or pulmonary emboli. Physiological consequences associated with lower extremity tourniquet use can put the surgical patient at increased risk for perioperative complications. In order to facilitate positive patient outcomes, anesthetists need to anticipate these changes and respond appropriately.

### STUDENT SEMINAR RESERVATION FORM

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**SMU Anesthesia Students and Alumni Facebook Page Update**

Launched in April, there are now more than 140 members. All members are given administrative status so they can see who is in the group and email other members individually. To join, become a member of Facebook and look for Saint Mary’s Nurse Anesthesia under Student Groups-Academic Groups. Currently, students are looking for jobs and paper ideas.

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**Thank you!**

Thank you to Pete Strube (‘06) for his contribution of new books for the Twin Cities Campus Library. Pete is currently serving as Treasurer for the Wisconsin Association of Nurse Anesthetists.

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**This Semester’s Courses**

**NEW STUDENTS**
- (NA640) Chemistry & Physics
- (NA635) Professional Writing for Nurse Anesthetists
- (NA630) Professional Aspects of Nurse Anesthesia
- (NA606) Research Design & Statistical Analysis

**JUNIORS**
- (NA781) Synthesis Paper Proposal
- (NA780) Clinical Integration
- (NA771) Clinical Practicum II

**SENIORS**
- (NA774) Clinical Practicum V
- (NA783) Synthesis Paper Presentation

**OTHER EVENTS**
- Student Seminar Saturday May 21
- Class of 2011 program completion date: August 20, 2011

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**Welcome New Faculty**

Saint Mary’s is pleased to welcome new faculty to the nurse anesthesia program. Dr. Michael Yoes will be teaching Research Design and Statistical Analysis; Dr. Lisa Brauer will be teaching Professional Writing for Nurse Anesthetists; Amy Swartz CRNA and Michael Lien CRNA are teaching Professional Aspects of Nurse Anesthesia; Dr. Mary Foss and Steven Kremer CRNA will be teaching Chemistry and Physics; Dr. Jen Teske, will be teaching Anatomy and Physiology I and II during the fall and spring semesters and Gwen Riedel will teach Department Management during the fall semester. Scott Schaus will continue as an adjunct faculty member and advisor for student synthesis papers.

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**What is the Effect of Hypnotic Intervention on Perioperative Outcomes?**

Daniel Chow, RN, BSN and Kelly Ekenberg, RN, BSN

The purpose of this article is to review and evaluate current literature regarding the effects of hypnotic intervention on perioperative outcomes. A PubMed and Medline search was conducted to identify studies addressing the effects of hypnosis on perioperative outcomes. The literature was examined to determine if the application of hypnosis affected the outcomes of patients during the perioperative period. Our review indicates that hypnosis has an effect on perioperative anxiety and distress, pain, narcotic and anesthesia administration, nausea and vomiting, fatigue, wound healing, cost of care, and patient satisfaction. Based on our review of the literature, hypnosis is useful in treating the surgical patient and in enhancing traditional treatment modalities. However, current published research has predominately been conducted on patients undergoing breast surgeries. More studies that include diverse surgical procedures are needed to determine the efficacy and benefits of hypnosis on perioperative outcomes for the general population.

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**Applications for the Class Starting in 2012**

The process for reviewing applications and selecting the next class began in April. Out of 206 applications, 85 candidates will be invited to interview. Five candidates will join the class from the waiting list.

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**ATTENTION ALUMNI**

IF YOU HAVE NEWS, EVENTS OR ACCOMPLISHMENTS THAT YOU WOULD LIKE YOUR CLASSMATES TO SEE, PLEASE SEND IT TO:

Merri Moody at: mmoody@smumn.edu
We’re on the web!
www.smumn.edu/anesthesia

Commencement Ceremony: Class of 2011

Please join us on Sunday, June 5 at 12:30 PM for the graduation ceremony for the Class of 2011. The ceremony is being held at the Zuhrah Shrine Center Auditorium, 2540 Park Avenue, Minneapolis. Parking is available on the street or in the parking lots behind the university. If you are an academic or clinical faculty member and would like to participate in the processional, please contact Veronica Murphy at (612) 728-5132.

Though the students will not finish until August 20, this is one of the last times they will be together as a group before they start their new careers. The commencement exercises are followed by a reception. Please plan to attend and help our students celebrate!

There have been 650 GRADUATES from 1952 through 2010.

TRANSCRIPTS
To get your transcript please send a request to the Assistant Registrar of the Twin Cities Campus. Please include your name, student ID number, the years of attendance, the number of transcripts needed, where you want them sent, and your signature. There is a $3 charge per transcript. We do not have copies of diplomas.

Assistant Registrar
Saint Mary’s University of MN
2500 Park Avenue
Minneapolis, MN 55404-4403

VERIFICATION OF EDUCATION FOR EMPLOYERS
In accordance with federal regulation, the student/alumni must give permission for any information to be released by the college. Verifications cannot be done over the phone. Please sign a consent form from your employer or send a request with your signature to:

Program Director/Graduate Nurse Anesthesia
Saint Mary’s University of MN
2500 Park Avenue
Minneapolis, MN 55404-4403
FAX: 612-728-5121

Program Staff
Merri Moody
Program Director

Wendy Sims
Faculty

Carol Hunter
Faculty

Mary Skelley
Faculty

Veronica Murphy
Program Coordinator

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