Safe Syringe and Needle Use

Demis Russu, SRNA and Robert Wade, SRNA

February 15, 2015

Project Mentor: Douglas Olin, MD JLR Medical Group

Committee Chair: Alescia DeVasher Bethea, PhD, CRNA

Nurse Anesthesia Program, Adventist University of Health Sciences

Table of Contents

Abstract……..3

Introduction……4

Problem……..4

Review of Literature…….5

Project description……12

Evaluation plan……..….....13

Results and Conclusions...…….....13

References…….……16

Appendix A……...18

Appendix B……...20

Abstract

It is the moral duty of anesthetists to provide excellent patient care, while virtually eliminating any hazardous risks. Education is a key component to positive results. An extensive literature review was conducted regarding proper infection control practices among anesthesia providers focusing on safe syringe and needle use. Unfortunately, the findings demonstrate the need for further education on this subject as unsafe practices violating the AANA's standard IX continues to occur. In addition, the education gap between student nurse anesthetist and proper infection control practices was analyzed. The analyzed data demonstrated that there was a significant increase in average scores from pre to post-test evaluations. This suggests that the educational material, which was presented in between pre and post-test evaluations, is a positive tool to increase the knowledge base regarding safe syringe and needle use among SRNA cohorts. Literature containing conflicting evidence concerning the use of single–dose vials for multiple patients does exist. Additionally, it challenges the accuracy of the present infection control guidelines and regulations. Furthermore, it analyzes and describes flaws with the studies used to develop the guidelines and regulations that are currently used as standard of practice. This can further add to the level of confusion to practitioners that practice anesthesia based on evidence. Nevertheless, it is clear that in order to prevent infection and its transmission all healthcare providers must not breach hand hygiene, sterile preparation, or barrier precautions.

Introduction

Anesthesia providers have a professional responsibility to provide safe anesthesia care to patients entrusting their well being in the competent skills of every anesthetist. It is imperative that practitioners of nurse anesthesia perform as described by the American Association of Nurse Anesthetists (AANA), maintaining the Standards for Nurse Anesthesia Practice. Specifically, Standard IX states, "Verify that infection control policies and procedures for personnel and equipment exists within the practice setting. Adhere to infection policies and procedures as established within the practice setting to minimize the risk of infection to the patient, the CRNA, and other healthcare providers" (AANA, 2013).

This project will review the recent literature regarding proper infection control practices among anesthesia providers. The review will add emphasis on acceptable practice regarding the 'one syringe, one needle, one patient policy'. Additionally, this paper will analyze the education gap between student nurse anesthetists (SRNAs) and this policy. The goal of this project is to provide education on safe syringe and needle use to SRNAs with the intent to improve future performance.

Problem

Failure of anesthesia providers to comply with infection control guidelines has negatively impacted hundreds of patients. According to Ford (2013), "Since 1999, 582 patients were infected with either hepatitis B virus (HBV) or hepatitis C virus (HCV) related to absence of compliance with infection control policies which forbid the reuse of IV tubing, needles, or syringes" (p. 38). Proper consideration must be given to the entire spectrum of patient care. Contamination is not only limited to syringes, needles, and IV tubing. Ford (2013) describes, "other causes linked to healthcare-associated transmission of HBV and HCV include preparing

injections in contaminated environments, sharing finger stick devices or glucometers, using insulin pens on multiple patients, failing to wear gloves or perform hand hygiene, failing to properly clean dialysis equipment between patients, and workers abusing drugs" (p. 38).

The costs associated with treatment of these preventable infections are exorbitant. The cost for a lifetime treatment of an individual infected with HBV approaches $80,000, not including the additional costs associated with the notification and testing process, treatment of subsequent organ failure, malpractice claims, legal fees, discipline process, and increased professional liability premiums.

This issue is important to the existing practice of nursing anesthesia because current data suggests a lack of compliance in regard to safe syringe and needle use. This project will review literature regarding recent practice errors and propose the need for ongoing education in this arena. Lastly, this project will also assess current regulations regarding infection control in order to reaffirm proper practice according to existing guidelines.

Review of Literature

Historical practice decades ago considered the reuse of syringes on multiple patients acceptable as long as the needle was changed. Syringe reuse was common practice until the discovery that microscopic amounts of blood could travel back into a used syringe even if blood had not been aspirated. Ford (2013) set out to determine the number of SRNAs who had been involved in hazardous injection practices. The study was initiated due to a string of unsafe injection practices that led to healthcare related infections. One of the largest recent events occurred in 2008 at an endoscopy center in Las Vegas where 40,000 patients were placed at risk of contracting the Hepatitis C virus (HCV). This occurred due to syringe reuse leading to the

infection of single-dose containers of propofol. In the end, six people contracted HCV due to this unsafe practice (Ford, 2013).

The author gained the data necessary to conduct this study through an eight question online survey using a convenience-sampling method. The subjects had to have had at least three months of clinical experience before being eligible for the study. A total of 325 nurse anesthesia students from various colleges completed the survey, from which the data for this article was attained. The survey showed that about 4% of the subjects had delivered medications to multiple patients using one syringe. The reuse of needles on the same patient occurred in about 18% of the subjects. An astounding 82% had admittedly refilled a used syringe on the same patient. The reuse of infusion lines on multiple patients occurred in 0.6% of the subjects. Twenty-two percent of the subjects had reused a needle or syringe to redraw medication out of a multi-dose vial. Almost half (49%) of the group admitted to re-entering a single dose vial of medication in preparation for several different patients. Interestingly, 81% of the subjects stated that they had witnessed a CRNA participate in at least one out of the six unsafe practices mentioned on the survey, and 58% of the subjects had been asked by a preceptor to perform one of the six unsafe practices listed in the study (Ford, 2013).

The conclusion suggested that further education is needed on the subject, considering that unsafe practices still occur as exhibited by the survey. The author suggests that education should be implemented early in nurse anesthesia programs. Lastly, Ford (2013) suggested that ongoing education be acquired throughout a CRNA's career with yearly competency exams.

Pugliese, Gosnell, and Bartley (2010) set out to assess the injection habits of healthcare professionals in the United States (US). The authors intended to detect negative trends and prospective areas for instruction regarding safe practices. Their method for obtaining the

evidence for the study was conducted through an online survey. The authors used a convenience sampling method by sending surveys to 39,100 subscribers of a public newsletter called Safety Share. Exclusion criteria included those who did not administer parenteral medications directly to patients in their line of work. In the end, a total of 5,446 applicants were used in the study (Pugliese et al., 2010).

Pugliese et al. (2010) showcased a string of specific questions that asked subjects if they had participated in certain injection practices that are considered inappropriate. Six percent of the subjects admitted to using a single dose vial for multiple patients, and some commented that it was a cost saving method due to the large size of some of the vials. One percent of the participants said they had reused a syringe on a second patient after switching a dirty needle for a sterile one.

Seven hundred ninety seven (15%) of the participants admitted to reusing a syringe to attain additional amounts of medication out of the same multi-dose vial. Fifty-one who admitted to the last statement remarked that they saved that multi-dose vial for the next patient, while the other 738 respondents discarded the vial. Of those 51 subjects, 52% worked in the hospital setting while 48% worked in non-hospital settings. The largest departmental segment of the 51 subjects (n=13) worked in surgery or anesthesia (Pugliese et al., 2010).

The study conducted by Pugliese et al. (2010) contained some limitations. One limitation was that the sample was of convenience and not randomized, which could misrepresent some areas of healthcare. Another limitation is that the subjects could have had over-representation of those who use appropriate technique opposed to those who use poor technique. The last limitation is that the subjects were self-reporting their experiences, meaning that some of them could be mendacious.

The authors concluded that further education is needed in the realm of safe syringe and needle use in healthcare. Although the majority of practitioners follow safe practice standards, there is a minority that unfortunately continues to practice unsafe injection administration. Blood borne infection due to unsafe injection practices should be an event that never occurs. Preventing the spread of such pathogens should be a basic expectation in all arenas of healthcare (Pugliese et al., 2010).

Woodbury et al. (2014) set out to compare safe syringe and injection practices among five different hospitals in the Atlanta, Georgia area. The objective of the study was to assess the uniformity of syringe and injection safety among the hospitals, and what factors led to non-compliance. The design used to gain the data for this article was a sample of convenience obtained through an online anonymous survey. A total of 319 surveys were directed to anesthesia personnel working in the five various Atlanta-based hospitals. Out of the 319 questionnaires sent, 89 replies were documented. About 60% of the subjects stated that they reused vials in between cases, whereas the rest did not. About 44% of the total subjects stated that they didn't use new vials between cases for cost effectiveness. The other reasons listed for not using new vials between cases included: efficiency/convenience (23%), environment (10%), time constraints (8%), and apathy (2%) (Woodbury et al., 2014).

Woodbury et al. (2014) concluded that syringe and injection safety among the responding anesthesia providers was not uniform. Cost efficiency was the strongest reasoning regarding non-compliance among the respondents. One of the study's limitations could be respondent bias. The rationale for bias being that those who responded to the study might only be providers who are passionate about infection control. This might leave out providers who might be less compliant in this area. Another limitation could be the fact that the study was limited to the

Atlanta area, which may not give an accurate assessment for compliance around the country (Woodbury et al., 2014).

Baniasadi et al. (2013) set out to assess the incidence of microbial corruption of multiple-dose and single-dose vials in a large teaching hospital located in Iran. The methods used to attain the data included pharmacist-guided-monitoring of microbial growth within used multi-dose and single-dose vials from different wards within the hospital. A total of 205 vials were collected for processing during this time. Of the vials collected, 40 were multi-dose vials and 165 were single-dose vials. Around 5% of the vials studied were deemed contaminated. Around 5% of the single-dose specimens were contaminated versus the 7.5% contamination of the multi-dose vials. The study concluded that with repeated vial use, failure to adhere to basic sterility techniques could lead to microbial contamination of medications delivered to patients. The authors of the study deemed that the study lacked any conflicts of interest (Baniasadi et al., 2013).

AANA position statement

The AANA has taken a strong stance regarding infection control guidelines. In 2009, the AANA released the following guidelines describing safe practices for needle and syringe use:

- Never administer medications from the same syringe to multiple patients, even if the needle is changed.
- Never reuse a needle, even on the same patient.
- Never refill a syringe once it has been used, even for the same patient.
- Never use infusion or intravenous administration sets on more than one patient.
- Never reuse a syringe or needle to withdraw medication from a multidose medication vial.
- Never reenter a single-use medication vial, ampoule or solution.
  (AANA, 2012, p.1-2)

Patients expect anesthesia providers to exercise utmost caution and strict adherence to infection control policies and guidelines. Anesthesia providers have a moral obligation to their

patients to guarantee that the care they provide absolutely minimizes, if not eliminates, the risks from infectious agents.

CDC's position

The Centers for Disease Control and Prevention (CDC) recommends using single-use or single-dose medications exclusively for one patient at a time. Maintaining this standard of practice will prevent cross contaminations between patients. The CDC remains stern regarding its recommendations, despite critics arguing that this practice has the potential to increase health care costs and potentially create drug shortages. The CDC attributes these drug shortages to manufacturing issues and theoretical problems related to shipping. Protecting patients from harm is the main priority of the CDC. Therefore, it strongly recommends for administrators and practitioners to ensure drug shortages are being dealt with from an administrative level rather than at a clinical level where it can negatively impact patient safety.

The CDC lists hazardous practices as: reusing syringes among multiple patients, administering to multiple patients from medication vials labeled as single-use or single-dose, and failing to maintain aseptic technique. Risks associated with single-dose / single-use vials include the absence of an antimicrobial preservative which can have deleterious effects by providing an infection reservoir. The CDC does address those extenuating circumstances when medications may require division among patients. According to the CDC,

> Qualified healthcare personnel may repackage medication from previously unopened single-dose / single-use vial into multiple–use vehicles (e.g., syringes). This should only be performed under ISO Class 5 conditions in accordance with standards in the United States Pharmacopeia General Chapter 797, Pharmaceutical Compounding – Sterile Preparations, as well as the manufacturer's recommendations pertaining to safe storage of that medication outside of its original container (2012, p. 3).

Conflicting Evidence Regarding Single Dose Vials

There are no opposing opinions that unsafe and improper injection, infusion or medication administration during health care procedures leads to the transmission of blood borne pathogens. In an effort to protect the public multiple guidelines and regulations have been developed and imposed. According to Manchikanti, Malla, and Wargo (2011) "These guidelines are far from being evidence-based and may be based only on relative risk reduction or many other factors" (p. 426). Furthermore, the authors propose that guidelines and regulations are a byproduct from multiple organizations with individual agendas and conflict of interest that are not based on evidence but rather they are based on single case reports. Manchikanti et al. (2011) further states "The recommendations for infection control, which are applied since January 2010, are based on no evidence, single, few or multiple case-reports, inaccurate and incomplete information, and conjecture" (p. 426). Manchikanti et al. (2011) performed a prospective study in the U.S. in a private interventional pain practice. The study routine included a sanitary environment; proper injection practices free from contamination, while single-dose vials were utilized multiple times for different patients; intravenous fluids were prepared a maximum of four hours in advance; and multi-dose vials were used for one week. At the conclusion of their study Manchikanti et al. (2011) described that 3,200 patients had approximately 18,000 interventional procedures performed without significant incidence of infection. Maintaining simple infection control measures and using proper precautions the authors proved there was no significant risk with the use of single–dose vials for multiple patients and multi-dose vials used over a period of one week.

Manchikanti et al. (2012) conducted an extensive literature reviewed with the intent to critically appraise and synthesize the literature on infection control practices for interventional

techniques, including safe injection and medication vial utilization. A total of 60 studies were included in this meta-analysis. One study established a relationship concerning a single-dose vial utilized for multiple patients. However, it did not clearly identify what actions resulted in unsafe injection practices or if there were compounding factors. The remainder of the studies did not identify a conclusive relationship between single-dose vials used with proper precautions and infections. Manchikanti et al. (2012) concluded, "there was poor evidence that the use of single-dose vials on multiple patients with appropriate infection control practices cause infection in interventional pain management" (p. 573).

Project Description

The goal of this Capstone project was to provide additional education on safe syringe and needle use to SRNAs with the primary intent to improve future performance. The project intervention included a 40-minute comprehensive PowerPoint presentation, which was developed following completion of the literature review. The PowerPoint presentation included subjects such as: objectives, background information, review of literature, AANA position, CDC position, statistical data, and review of common 'single-use only' vials. An in-depth analysis of the significant potential complications related to poor syringe and needle use was included in the PowerPoint presentation to enhance understanding by the audience. The PowerPoint lecture was presented on October 30th, 2014 during the combined MSNA 501 and MSNA 504 courses. This was intended to capture SRNAs from the 2015 and 2016 cohort. A pre and post-presentation evaluation, which consisted of a ten-question quiz, was administered in order to evaluate satisfactory comprehension by the audience (see Appendix A for pre and post ten-question quiz). Time allotted for each quiz was limited to 10 minutes.

Evaluation Plan

As a requirement of the Adventist University of Health Sciences (ADU), all investigators involved in this project were CITI certified on Social & Behavioral Research, Health Information Privacy and Security for Clinical Investigators, Residents, and Fellows (HIPS) and Good Clinical Practice (GCP). The evaluation plan included a convenience sample of 43 SRNAs from the 2015 and 2016 cohorts enrolled at ADU. Informed consent was obtained prior to project commencement from the SRNAs which addressed the purpose of the project, participation involvement, risks and benefits associated with participation, protection of confidentiality and compensation (see Appendix B for ADU NAP Capstone Project – Informed Consent). The instrument was a ten-question quiz that was distributed to the students pre and post lecture. In order to maintain student anonymity, each quiz used numbers for identification in place of student names. Each student was provided with a number that was used for both the pre and post-quizzes. The primary investigators graded the quizzes and transcribed the results collected into a Microsoft Excel Spreadsheet. Data was submitted to a statistician (Dr. Roy Lukman) who performed a test of difference to determine the correlation between information acquired during the lecture and SRNAs' knowledge base, thus determining the efficacy of the lecture.

Results and Conclusions

The results for the pre and post-tests are described below as reported by Dr. Roy Lukman,

> The t-test for matched samples was conducted to analyze the data. The obtained t value is -7.069 with an associated p of < .05 which indicates statistical significance. It can be concluded that there is a significant difference between the average pretest and posttest scores. The obtained negative t value indicated that there is a significant increase between the two values (54.3590 % at pretest to 78.9744 % at posttest).

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test Scores (%)	54.3590	39	19.97299	3.19824
	Post-Test Scores (%)	78.9744	39	14.65298	2.34635

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pre-Test Scores (%) - Post-Test Scores (%)	-24.61538	21.74568	3.48210	-31.66452	-17.56625	-7.069	38	.000

The analyzed data demonstrates that there is a significant increase in average scores from pre to post-test evaluations. This suggests that the educational material, which was presented in between pre and post-test evaluations, is a positive tool to increase the knowledge base regarding safe syringe and needle use among SRNA cohorts. This education model may have a positive influence among the way SRNAs practice in the clinical setting, which could lead to an improved performance in safe syringe and needle use.

In conclusion, every anesthesia provider is responsible to maintain an ethical agreement with every patient. Every patient should feel safe in the care of an anesthesia provider. It is the moral duty of anesthetists to provide excellent patient care, while virtually eliminating any hazardous risks. Education is a key component to positive results. SRNAs should be reminded continuously, both didactically and clinically, on the ramifications of breaching any of the six standards put forth by the AANA. CRNAs should be re-educated on proper infection control policies, and again on the importance of upholding the standards of practice set forth by the AANA and the CDC.

Literature containing conflicting evidence concerning the use of single–dose vials for multiple patients does exist. Additionally, it challenges the accuracy of the present infection control guidelines and regulations. Furthermore, it analyzes and describes flaws with the studies used to develop the guidelines and regulations that are currently used as standard of practice. This can further add to the level of confusion to practitioners that practice anesthesia based on evidence. Nevertheless, it is clear that in order to prevent infection and its transmission all healthcare providers must not breach hand hygiene, sterile preparation, or barrier precautions.

It is imperative that the anesthesia community remember the importance of ‘doing no harm’ while managing the anesthetic plan from the very simple to the most complex cases. It is essential that anesthetists provide the care they would expect to receive if they were in the patient role. Excellent patient care needs to be the norm, not the exception.

References

American Association of Nurse Anesthetists. (2012). Safe practices for needle and syringe use. Retrieved from http://www.aana.com

American Association of Nurse Anesthetists. (2013). Standards for nurse anesthesia practice. Retrieved from http://www.aana.com

Baniasadi, S., Dorudinia, A., Mobarhan, M., Gamishan, M.K., Fahimi, F. (2013). Microbial contamination of single- and multiple- dose vials after opening in a pulmonary teaching hospital. *The Brazilian Journal of Infectious Diseases, 17*(1), 69-73. Retrieved from http://dx.doi.org/10.1016/j.bjid.2012.09.005

CDC. (2012). CDC's position - protect patients against preventable harm from improper use of single-dose/single-use vials. (2012). Retrieved from http://www.cdc.gov

Ford, K. (2013). Survey of syringe and needle safety among student registered nurse anesthetists: are we making any progress? *AANA Journal, 81*(1), 37-42. Retrieved from www.aana.com

Manchikanti, L., Falco, F.J., Benyamin, R.M., Caraway, D.L., Helm, S., Wargo, B.W., Hirsch, J.A. (2012). Assessment of infection control practices for interventional techniques: A best evidence synthesis of safe injection practices and use of single-dose medication vials. *Pain Physician Journal, 15,* 573-614. Retrieved from http://www.painphysicianjournal.com

Manchikanti, L., Malla, Y., Wargo, B.W., & Fellows, B. (2011). Infection control practices (Safe injection and medication vial utilization) for interventional techniques: Are they based on relative risk management or evidence? *Pain Physician Journal, 14,* 425-434. Retrieved from http://www.painphysicianjournal.com

Pugliese, G., Gosnell, C., & Bartley, J. (2010). Injection practices among clinicians in United States health care. *American Journal of Infection Control, 38*(10), 789-798. doi:10.1016/j.ajic.2010.09.003

Woodbury, A., Knight, K., Fry, L., Margolias, G., Lynde, G.C. (2014). A survey of anesthesiologist and anesthetist attitudes toward single-use vials in an academic medical center. *Journal of Clinical Anesthesia, 26,* 125-130. Retrieved from http://dx.doi.org/10.1016/j.jclinane.2013.08.007

Appendix A

Pre and Post Quiz

1. **A patient has received the entire 5 ml of Fentanyl during your case. They require additional doses. It is acceptable practice to draw an additional 5ml into the same syringe in order to deliver to the same patient.**
   True or False

2. **The hospital is experiencing a glycopyrrolate single dose vial shortage and is using multidose vials in the meantime. You have 5 cases today that require intraoperative paralysis with reversal at the procedure's end. You have one multidose vial in your cart. Choose the best answer regarding safe practice.**
   a. Draw up each dose of the medication with the same syringe while using a clean needle for every patient after scrubbing the vial's hub with alcohol
   b. Draw up each dose of the medication for every patient with a clean syringe and needle after scrubbing the vial's hub with alcohol
   c. Draw up each dose of the medication for every patient with the same syringe and needle after scrubbing the vial's hub with alcohol
   d. Draw up the medication with a clean syringe and needle, discard the vial and get a new multidose vial for the next patient.

3. **You have an 80 y/o female for an endoscopy today that weighs 50 kg. You realize that the patient will most likely require less propofol than the average patient for the procedure. You have a 20 ml single dose vial of propofol. (Choose the most appropriate answer for safe practice)**
   a. Draw up 20 ml of propofol and titrate to effect
   b. Draw up two 10 ml syringes of propofol so that you can use the other 10 ml for the next patient
   c. Draw up 10 ml of propofol and save the rest of the medication in the vial for the next patient
   d. A and B are correct

4. **In the morning you notice that you only have one single dose vial of phenylephrine (10mg / 1ml). In order to make emergency syringes of phenylephrine for the day you must (choose all that apply)**
   a. Mix the vial of phenylephrine in a 100 ml bag of normal saline and draw up a clean syringe of the drug for this patient. Keep the bag for further doses throughout the day
   b. Take 0.1 ml from the phenylephrine vial and place it in 10 ml of normal saline to have a 100 mcg/ml concentration and discard the vial
   c. Mix the vial of phenylephrine in a 100 ml bag of normal saline and draw up a clean syringe of the drug from the bag, discard the 100 ml bag at the case's end
   d. Keep the 10 mg / 1ml vial in order to draw up 0.1 ml to mix each individual emergency phenylephrine syringe for the day.

5. **It is appropriate to draw 10 ml of propofol from a 20 ml vial then draw the other 10 ml later in the case for the same patient.**
   True or False

6. **You are scheduled for a busy day of multiple quick laparoscopic hernia repairs. During the first case you notice that you are out of saline flushes and you are in need of some for the remaining cases to mix your vecuronium. In order to set up for the next case you (choose the most appropriate answer)**
   a. Draw up multiple clean syringes of normal saline from a 100 ml bag to administer during cases for the rest of the day
   b. Run by the anesthesia supply room on the way back from dropping off the current patient to pick up vials of saline
   c. Draw up multiple syringes from the maintenance fluid that is attached to the current patient to administer in future cases
   d. A and B are correct

7. **Your next patient is to receive Ancef 2 gm IV for preoperative antibiotics. The Ancef line is clamped and attached to the side port of the patient's maintenance fluids. You realize that the patient has a penicillin allergy. What is the next appropriate step?**
   a. Administer the Ancef slowly and watch for signs of allergic reaction
   b. Disconnect the Ancef and place a red cap on the port in order to save this medication for the next patient
   c. Administer Benadryl IV prior to administering the Ancef
   d. Discard the Ancef and hang the appropriate alternate antibiotic

8. **You have given a dose of Fentanyl and realize that you will need to give more but the syringe is empty. When you open the supply cart you realize that you are out of needles to draw up a new dose. It is not appropriate to draw more Fentanyl using a clean syringe with the same needle that drew up the first dose of Fentanyl.**
   True or False

9. **You are about to induce a patient for a myocardial revascularization. You decide to give Etomidate for one of your induction agents. As you hook the Etomidate to the patient's port your CRNA states that they would rather you give low dose Propofol. You have not injected or aspirated with this syringe of Etomidate. What is the most appropriate action to take at this time?**
   a. Discard the Etomidate and draw up the Propofol
   b. Place a red cap on the Etomidate and save it for the next patient
   c. Give the Etomidate and pretend like you didn't hear the CRNA
   d. A and B are correct

10. **You have a 50 ml vial of Propofol in the morning before you start endoscopy cases. It is appropriate to insert a vented spike with an access port to draw multiple syringes of Propofol throughout the day as long as it is discarded within 6 hours.**
    True or False

Appendix B

ADU NAP CAPSTONE PROJECT – INFORMED CONSENT

Our names are Demis Russu and Robby Wade, and we are MSNA students in the Nurse Anesthesia Program (NAP) at Adventist University of Health Sciences (ADU). We are doing a Capstone Project called *Safe Syringe and Needle Use.* This project is being supervised by Alescia DeVasher Bethea, PhD, CRNA. We would like to invite you to participate in this project. The main purpose of this form is to provide information about the project so you can make a decision about whether you want to participate.

WHAT IS THE PROJECT ABOUT?

The purpose of this project is to provide education on safe syringe and needle use to SRNAs with the intent to improve future performance.

WHAT DOES PARTICIPATION IN THIS PROJECT INVOLVE?

If you decide to participate in this project, you will be asked to complete an anonymous pre-assessment, attend a classroom presentation, and then complete an anonymous post-assessment. The assessment will determine the correlation between information acquired during the lecture and SRNAs' knowledge base, thus determining the efficacy of the lecture. Your participation by attendance at the presentation and completion of the survey is anticipated to take approximately 60 minutes.

WHY ARE YOU BEING ASKED TO PARTICIPATE?

You have been invited to participate as part of a convenience sample of students currently enrolled in the ADU NAP. Participation in this project is voluntary. If you choose not to participate or to withdraw from the project, you may do so at any time.

WHAT ARE THE RISKS INVOLVED IN THIS PROJECT?

Although no project is completely risk-free, we don't anticipate that you will be harmed or distressed by participating in this project.

ARE THERE ANY BENEFITS TO PARTICIPATION?

We don't expect any direct benefits to you from participation in this project. The possible indirect benefit of participation in the project is the opportunity to gain additional knowledge about safe syringe and needle use, and review the recommendations of the AANA and the CDC on the subject.

HOW WILL THE INVESTIGATORS PROTECT PARTICIPANTS' CONFEDENTIALITY?

The results of the project will be published, but your name or identity will not be revealed. To maintain confidentiality of assessments, the investigators will conduct this project in such a way to ensure that information is submitted without participants' identification. In order to maintain student anonymity, each quiz will use numbers for identification in place of student names. Each

student will be provided with a number that will be used for both the pre and post-quizzes. Thus, the investigators will not have access to any participants' identities.

WILL IT COST ANYTHING OR WILL I GET PAID TO PARTICIPATE IN THE PROJECT?

Your participation will cost approximately 60 minutes of your time, but will require no monetary cost on your part. You will not be paid to participate.

VOLUNTARY CONSENT

By signing this form, you are saying that you have read this form, you understand the risks and benefits of this project, and you know what you are being asked to do. The investigators will be happy to answer any questions you have about the project. If you have any questions, please feel free to contact Demis Russu at demisrussu@gmail.com and Robby Wade at robwadejr@gmail.com. If you have concerns about the project process or the investigators, please contact the Nurse Anesthesia Program at (407) 303-9331.

_____ _____

Participant Signature **Date**

_____

Participant Name (PRINTED LEGIBLY)