

Development of a Cricothyrotomy Education and Training Module: A Delphi Analysis

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Background

- Difficult airway algorithms recommend emergency invasive airway (cricothyrotomy) when clinicians fail to establish adequate oxygenation and ventilation.
- Anesthesia providers infrequently perform cricothyrotomy, potentially leading to patient harm and civil liability.
- There is a lack of effective cricothyrotomy training for anesthesia providers.

Literature Review

- Focused on improvement of anesthesia providers' cricothyrotomy skills with training.
- Blending simulation and non-simulation based training showed the greatest improvement in cricothyrotomy competence.
- Training focused on situation management improved competence.
- Cognitive aids, such as failed airway checklists, should be used to aid decision making.

Purpose and Aims

- Purpose: Gather expert consensus on failed airway and cricothyrotomy pedagogy to create an outline for a cricothyrotomy education module.
- Aim: Strengthen anesthesia providers' training resources and anesthesia provider confidence in failed airway and cricothyrotomy situations.

Methods

- Delphi analysis with invitations to 45 airway experts in Southern California.
- Experts were anesthesia providers with various backgrounds and education and were selected because of their affiliation with Kaiser Permanente school of Anesthesia.
- 1st round: Survey to determine participant experience with cricothyrotomy and related training.
- 2nd round: Survey to determine important concepts to include in the educational module.
- 3rd round: Virtual meeting via zoom to elaborate on themes.
- Creation of an outline for education module based on the Delphi method.

Framework: The Iowa Model

- Chosen for its problem-solving approach that aims to streamline the process of implementing evidence-based practice.
- The Iowa Model provides a structured framework for evidence-based decision-making.
- The Iowa Model and the Delphi technique were used together to create an education and training module outline combining the best available evidence with the expert insights.

Results

Delphi Analysis Round One

- Out of 45 selected participants, 17 completed the survey.

Delphi Analysis Round Two

- Of the 17 participants who participated in round one, 11 participants completed round 2 survey.

Delphi Analysis Round Three

- Four certified registered nurse anesthetists joined the round three zoom meeting.
- Participants reached consensus on module contents.

Themes from Delphi Analysis

Delphi Analysis Question	Most Frequent Answer
Overall theme	Frequent online and simulation training results in providers feeling prepared to perform a cricothyrotomy.
Is Cricothyrotomy education beneficial?	Very beneficial
Which cricothyrotomy technique is preferred?	Wire, Surgical (bougie-assisted), Needle.
How frequently should training occur?	Annually
Best modality for cricothyrotomy education?	Online module; simulation
Barriers to cricothyrotomy education?	Cost, time, access to materials
Include nontechnical skills?	Yes, simulation should include decision point to perform cricothyrotomy.
Include other specialties?	ER Providers

Educational Modules/Outline

1. Introduction to Cricothyrotomy & what to expect from the module
2. Cricothyrotomy Procedure
 1. Decision making process (Difficult Airway Algorithm)
 2. Technique (Needle, Wire-guided, Surgical)
3. Discussion of Variables
 1. Anesthesia Non-Technical Skills: Communication, leadership, and situational awareness of provider and team members
 2. Equipment available in every operating room (scalpel, bougie, ETT)
 3. Training options for hands-on exposure and practice

Discussion

- An annual, online module is the most accessible means of cricothyrotomy training for anesthesia providers
- Providers should be familiar with the equipment available for Cricothyrotomy.
- The stress Anesthesia providers experience when deciding to perform a cricothyrotomy is difficult to replicate.

Limitations

- Small sample Size (n < 30)
- Lacked diversity
 - CRNA-only responses
- Convenience Sampling

Recommendations

- Develop a cricothyrotomy education and training module from the DNP Project Outline.
- Pilot education & training module at a Southern California medical facility.
- Evaluation of education and training module to assess post-intervention efficacy.

References



INTRODUCTION

- Total Knee Arthroplasties (TKAs) are among the most painful surgeries. ¹
- Suboptimal control of postoperative pain during the first 72-hrs may lead to numerous negative consequences including delayed recovery, impaired rehabilitation, immunosuppression, the development of chronic pain, and decreased patient satisfaction. ²
- Opioid analgesia is effective but has serious short-term and long-term complications. ^{3,4} As a result, opioid-sparing multimodal analgesic (MMA) protocols emerged.
- “Single-shot” peripheral nerve blocks (PNBs) and periarticular injections (PAIs) have been established as core components of MMA protocols ^{5,6} but their duration of action are often suboptimal for analgesic control through the critical 72-hr postoperative period. ⁷

METHODS

Research Question: When comparing continuous peripheral nerve blocks (CPNBs) and continuous periarticular local anesthetic infiltrations (CPAIs), which provides the most efficacious and safe postoperative analgesia while minimizing the use of opioids for TKAs?

- An extensive literature review was conducted using the following databases: PubMed, Embase, Scopus, and Web of Science.
- **Search Terms:** “Total Knee Arthroplasty”, “Continuous”, “Catheter”, “Indwelling”, “Analgesia”, “Peripheral Nerve Block”, “Periarticular Infiltration”, “Intra-articular Injection”, “Local Infiltration”, and “Wound Infusion”
- **Inclusion Criteria:** Articles published in English, after 2011, which reported on the efficacy and limitations of two indwelling catheter-based methods of postoperative analgesia for TKA in adults aged >18 years old: CPNB and CPAI.
- 78 full-text articles for critical appraisal narrowed to 12 articles included for synthesis of the executive summary of eligible evidence.

RESULTS

1. Continuous PNBs demonstrated lower reported pain scores and opioid consumption compared to the control groups that received opioid medication as needed ^{8,9,10}
2. CPAI infusions with local anesthetics showed significantly decreased pain scores and opioid consumption compared to control groups that received saline CPAI infusions ^{11,12,13}
3. Research comparing CPNB to CPAI had inconclusive results. CPNB was superior in decreasing opioid consumption; CPAI resulted in improved motor function; and CPNB resulted in more frequent catheter associated complications ^{14,15,16}

DISCUSSION

1. **Both CPNB and CPAI** serve as **viable analgesic** options to integrate into MMA protocols in patient populations with contraindications for standard techniques - however:
 - CPNB has superior analgesia and opioid sparing potential but a worse mobility profile – consider for robust patient populations with stronger physical reserve
 - CPAI has comparable analgesia and reduced opioid use but has better mobility profile – consider for patient populations with weaker physical reserve
2. Future research — Zynrelef®
 - Zynrelef® is an extended-release, topical medication containing bupivacaine, a local anesthetic, and low dose meloxicam, an NSAID, which allows for an extended duration of action as well as a needle-free application ¹⁷

CONCLUSION

1. Patient-centered multimodal analgesia protocols require the development of various techniques to meet the needs of diverse patient populations with unique circumstances
2. Inadequately controlled pain-in the immediate postoperative period has been associated with delayed recovery, impaired rehabilitation, immunosuppression, the development of chronic pain, and decreased patient satisfaction ¹⁸
3. Both CPNB and CPAI are effective options to incorporate in MMA protocols to extend analgesic coverage through the critical 72 hour period postoperatively and decrease opioid consumption in the TKA population ^{8,9,10,11,12,13}
4. Evidence shows that CPNB, when compared to CPAI, is marginally more effective in lowering pain scores and decreasing opioid utilization postoperatively ^{14,15,16}
5. CPAI has a lower incidence of quadriceps muscle weakness compared to CPNB, potentially promoting rehabilitation ^{13,14,15,16}
6. Catheter-based techniques present issues for an evolving ambulatory-outpatient-based surgical system. Indwelling catheters being managed outside traditional medical facilities require advanced equipment, exceptional hygiene, additional medical personnel, and diligent patient cooperation for success ¹⁹

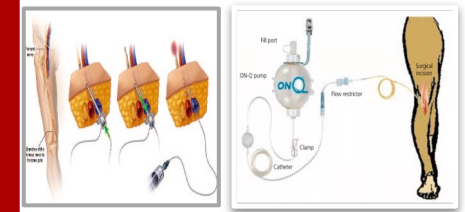
TERMINOLOGY

Continuous Peripheral Nerve Block (CPNB)

Continuous infusion of local anesthetics at peripheral nerves, via indwelling catheter, to prolong anesthetic effects ^{19,20}

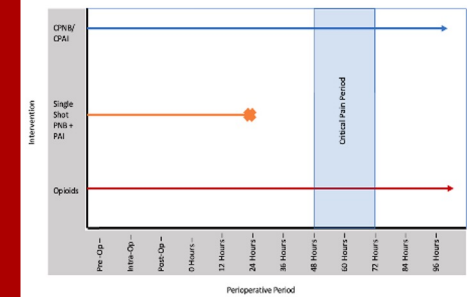
Continuous Periarticular Injection (CPAI)

Continuous infiltration (installation) of a mixture of formulations, through an indwelling catheter, directly into and around the surgical field (articulation) to intercept the generation of pain signals at the source of insult ^{21,22}



(Used with permission, Ifeld, 2011)

(Used with permission, Bedir, et al., 2014)



REFERENCES



“First Contact”: Use of a language tool to increase patient rapport, trust, and visit outcomes

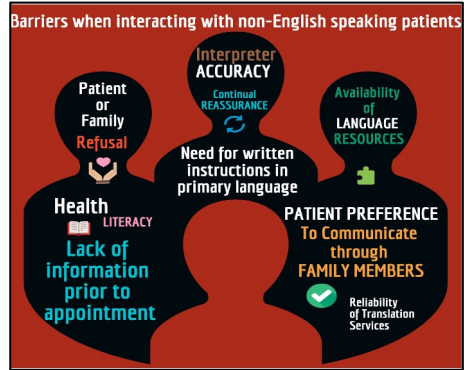
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INTRODUCTION

Rapport, trust, and clinical outcomes improve when patients communicate with their healthcare providers in their preferred language upon first contact. The federal CLAS standards require appropriate and effective communication between patients and providers in all healthcare settings that receive CMS funding.

RESEARCH QUESTION

During initial contact with exclusively Spanish, Armenian, Cantonese, and Mandarin-speaking patients, do preoperative clinic (POC) providers find a simple, phonetically spelled language communication tool useful in facilitating patient rapport, trust, and visit outcomes?



METHODS

- Project was piloted in the POC of a major academic healthcare system over a six-week period.
- Spanish, Armenian, Cantonese, and Mandarin languages were selected and represented most non-English spoken at the POC.
- A small, printed card was created with two phrases:

“Hello. My name is _”
and
“Mr./Ms. _ for the preoperative clinic”
- Phrases and a phonetic translation were provided in English and the patient’s preferred language.
- Data were collected and compared via pre- and post-intervention satisfaction surveys
- POC provider sociodemographics were also collected.

CONCLUSION

A simple language tool can facilitate cross-cultural communication between non-English-speaking patients and English-speaking clinicians. POC providers are satisfied with the communication instrument and the improvement in patient trust, rapport, and visit outcomes.

DISCUSSION

- At project initiation, POC staff were neither satisfied nor dissatisfied with the communication processes with non-English speaking patients.
- Post-intervention data indicated increased provider satisfaction with communication with non-English speaking patients, increased provider ability to establish trust and rapport, and improved ability to facilitate care.
- The trend from neutrality to positive demonstrates that the tool was valuable and beneficial.
- Provider comfort level with phonetically-spelled language tools may be ameliorated with extended training and audio recordings of the correct pronunciation.

PRACTICE RECOMMENDATIONS

Incorporate

the language tool into POC permanently.

Educate

all providers on cross-cultural communication.

Evaluate

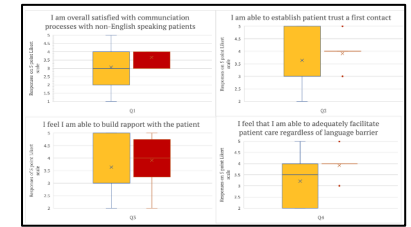
patient satisfaction with the language tool.

Expand

the project with a welcome letter & extended language tool.

RESULTS

- 64% of POC providers completed the pre-intervention survey.
- 54% of POC providers completed the post-intervention survey.
- Median provider satisfaction was higher post-intervention.
- Despite the phonetic translation, some POC providers reported being too shy to use the instrument, particularly the Mandarin & Cantonese versions.



Pre-intervention Median (IQR) score n=14	Post-intervention Median (IQR) scores n=12
Question 1 = 3(2-4)	Question 1 = 4(3-4)
Question 2 = 3(3-4.75)	Question 2 = 4(4-4)
Question 3 = 3(3-4.75)	Question 3 = 4(3.75-4.25)
Question 4 = 3.5(2-4)	Question 4 = 4(4-4)

STRENGTHS

- The project was the first initiative to bridge a language barrier in a busy POC within a large medical center.
- The tool was designed for repeated use and easily integrated into an established workflow.
- The tool is modifiable to include other languages and can be replicated in other clinical settings.
- The project aligns with the CLAS standards for communication in healthcare settings with non-English speaking patients.

LIMITATIONS

- The sample size was smaller than anticipated due to an upsurge in seasonal respiratory illnesses.
- Inferential analysis was not performed due to a coding error, limiting a deeper analysis.
- Some important cultural context may have been lost during the language tool translation.



INTRODUCTION

- Postoperative vision loss (POVL) is a rare postoperative complication that ranges from transient blurring of vision to permanent bilateral blindness in 0.1 - 1% of surgical cases. ^{1,2}
- Risk factors for elevated intraocular pressure (IOP) from steep Trendelenburg position include male patients, preexisting conditions of diabetes mellitus, obesity, patients of younger ages, and those who experience increased estimated blood loss. ^{3,4}
- Intraocular pressure is controlled via autoregulation in the production and outflow of the circulating volume of aqueous humor, a fluid produced in the ciliary bodies. ⁵

METHODS

- An extensive literature utilized the following databases: PubMed, Cochrane Library, SpringerLink, and CINAHL
- **Search terms:** “dexmedetomidine,” postoperative vision loss (“POVL”), “intraocular pressure,” “steep Trendelenburg,” and “robotic-assisted surgeries,” “head down tilt” and “blindness”

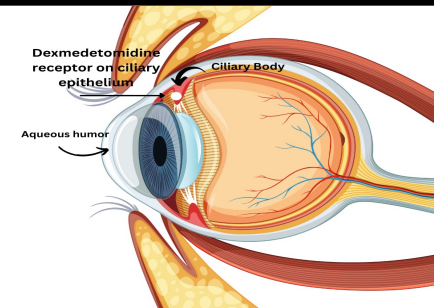
REFERENCES



SUMMARY

1. IOP is increased in steep Trendelenburg due to the cephalad displacement of organs and pneumoperitoneum which facilitates central retinal occlusion, a known causative factor of POVL. ⁶
2. A dexmedetomidine bolus of 0.4 mcg/kg and a low continuous infusion rate of 0.4-0.5 mcg/kg/hour should be administered to minimize intraocular pressure during surgeries in steep Trendelenburg. ⁷

Research question: Is intravenous dexmedetomidine an effective method for preventing a rise in intraocular pressure to reduce the incidence of postoperative vision loss in robotic assisted surgeries employing steep head-down position?

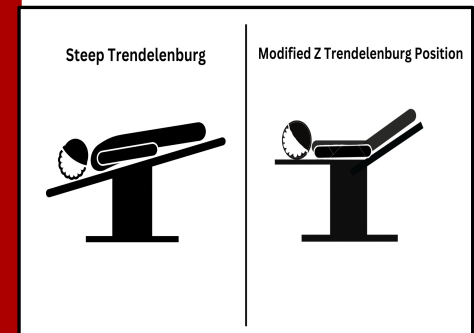


CAUSES OF INCREASED IOP	MECHANISM OF INCREASE	PRACTICE RECOMMENDATIONS
Succinylcholine	Fasciculation of the extraocular muscles result in increased resistance to aqueous humor outflow leading to increases in IOP. ⁸	Bolus dose of 0.4 mcg/kg prior to administration of succinylcholine.
Tracheal intubation	Increases in plasma catecholamines concentration leading to increased blood pressure and ocular blood flow lead to increases in IOP. ^{9, 10, 11}	Bolus dose of 0.4 mcg/kg prior to induction with tracheal intubation.
Positioning	Pneumoperitum associated with steep Trendelburg increases IOP to 30-40mmhg. ^{12, 13}	Apply either the modified Z position or the level supine intervention if clinically appropriate to help minimize the elevation of IOP.

DISCUSSION

- Dexmedetomidine is a non-selective alpha 2 adrenergic agonist with its primary effect being opposition of the sympathetic response.
- Baseline vital signs may preclude some patients from being clinically appropriate for administration due to the increased risk of bradycardia and hypotension over placebo. ¹⁴
- Dexmedetomidine, propofol, and sevoflurane have IOP lowering effects. ¹⁵

POSITIONING TO REDUCE IOP



Psychological Impact of Medical Volunteers Returning From Austere Environments

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INTRODUCTION

- Over 100,000 U.S. healthcare professionals volunteer abroad every year, and most incur significant financial costs, up to \$11,000 per trip.^{1,2}
- Unique challenges are endured, including lack of resources, lack of clean water and supplies, limited access to vital medication, poor sanitation, exposure to preventable death, and corruption in the local systems.^{3,4}
- Volunteers exposed to austere conditions are at an increased risk for developing psychological sequelae such as depression, anxiety, social isolation, Post-Traumatic Stress



BACKGROUND & SIGNIFICANCE

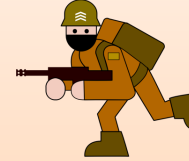
- The global need for short-term medical missions is increasing: up to 5 billion people do not have access to safe, affordable anesthesia and surgical care, and there is a projected shortfall of 18 million healthcare professionals by the year 2030.⁴
- An estimated 143 million surgeries per year are needed in the poorest countries in the world. For comparison, about 19 million surgeries took place in these

CONCLUSION



HUMANITARIAN AID WORKERS

- Positive outcomes of volunteering include increased confidence, leadership skills, clinical skills, communication and teamwork, and productivity.^{7, 8, 9}
- Negative outcomes of volunteering include lack of recognition and support upon returning, depression, PTSD (especially after the first deployment), and anxiety.^{10, 11}
- Successful models of support include individual and group Psychological First Aid, access to mental health support resources, and follow-up upon returning home.^{5, 12, 13}



MILITARY FORCES

- Military service members in the United States are granted protected time off and resources specific to mental wellbeing and support upon returning home from deployment.¹⁴
- After returning home, mental health challenges may occur months after reintegrating into prior roles, and a systematic approach to support is needed to improve outcomes.^{15, 16}
- Helpful interventions includes ongoing, individualized support, especially from someone who has been through similar experiences. This support can lead to increased organization affective

SUMMARY

Medical volunteers have an increased susceptibility to negative psychological consequences from working in austere environments. Some organizations offer psychologically protective care for those returning from these types of areas; no type of support exists for the anesthesia provider.

RECOMMENDATIONS

1. Adopt key integrations within the existing structure of the American Association of Nurse Anesthesiology (AANA) to support providers upon return from volunteer work in austere environments.
2. Provide access to educational resources including online modules and training on self-care and preparation, peer support groups, and volunteer recognition.
3. Encourage private organizations to provide protected time off from regular work duty and offer post-deployment briefings with mental health professionals.
4. Fund research analyzing the effectiveness of interventions on the experience of anesthesia providers.

METHODS

- Research Question: What are effective methods for addressing psychological challenges among anesthesia providers returning from practice in austere environments?
- Specific aim: Conduct a literature review examining a) the mental health impact on medical volunteers providing services in austere environments, and b) psychological protective measures previously implemented among humanitarian aid workers and military service members who provide healthcare services in



RESULTS

- There is a need for mental health support, before, during and after volunteering in austere environments.^{7,8,10}
- Educational and organizational support is beneficial in humanitarian aid and military healthcare work and should be extended to medical volunteers working in similar conditions.^{12,13,16,19}
- Further research is needed due to a lack of data pertaining directly to the psychological impacts of anesthesia providers providing care in austere environments.

REFERENCES



INTRODUCTION

- International exchange immerses medical learners in global health concepts and plays a critical role in their ability to develop and integrate global health in their future practice.¹
- There is existing research on various types of medical learners' experiences with global health through international exchange, but nurse anesthesia residents (NARs) are not well represented.
- **Research Question: Can global health learning be achieved among medical learners who participate in international collaboration?**

METHODS

- This literature review explored methods of global health learning among all medical learners to offer recommendations to best achieve global health understanding among NARs. A literature review was performed using PubMed and CINAHL.
- **Search terms:** *global health, global exchange, international exchange, "bidirectional exchange, virtual exchange, international partnerships, nursing exchange, study abroad, nursing, nurse anesthetist, medical student, anesthesiology, and medical learner.*
- **Inclusion criteria:** available in English, focused on global health experiences for medical learners, discussed a partnership involving a physical exchange or virtual exchange, published between 2011 and 2021.
- Five articles were included as exceptions due to their historical content and included to provide background information.
- PubMed returned 852 articles and CINAHL returned 108 articles which were screened for relevance yielding 10 articles for analysis.
- The snowball technique yielded 1 additional sources on PubMed for full-text articles for **EBHCEN** appra **CES**



RECOMMENDATIONS

1. Global health understanding in medical learners is best achieved via bidirectional exchanges which offer the greatest amount of collaboration and global health learning with retained long-term benefits.^{2,3}
2. Virtual exchange offers a cost-effective alternative to in-person bidirectional exchange. Video or phone conferences offer mutual learning for NARs from both sides on topics such as each other's healthcare system, cultures, and determinants of health.⁴
3. IFNA accreditation: The IFNA offers avenues for international collaboration through an accreditation database as well as a world conference for collaboration between international nurse anesthesiologists.⁵

CONCLUSIONS

- Global health understanding in medical learners is best achieved via bidirectional exchanges, offering the greatest amount of collaboration and global health learning with retained long-term benefits.^{2,3}
- Learners who participated in a bidirectional exchange report they are empowered to be agents of change at home, have improved ethical partnerships with their fellow learners, and both sides have improvements in their home institutions' training curriculum.⁶
- Physical exchange programs are shown to be valuable for medical learners, but they can be costly and may limit the international experience to only a handful of students.⁷
- A cross-cultural experience through international videoconferences to discuss best practice recommendations and case studies may be a more viable option.

DISCUSSION

- Bidirectional exchange is the most beneficial type of exchange. Students who participated in bidirectional exchanges feel more empowered to be agents of change within their home institutions upon return.
- Bidirectional offers benefits to medical learners from both participating institutions, but a major barrier to its implementation is cost and the potential for learning inequity between the participating institutions.
- Unidirectional exchanges offer benefits only to the visiting institution and may increase stress on host institutions, thus we do not include them in our recommendations.
- Virtual exchange via audio and video teleconference can offer a cross-cultural experience through discussions of case studies and best practice recommendations.
- Virtual exchange is a viable alternative for institutions who cannot implement an in-person exchange. It is cost-effective compared to bidirectional, yet the technology requirements could still be limiting for some institutions.
- IFNA can facilitate this interaction by providing information and contact opportunities for programs throughout the world. Future research is needed on the benefits of IFNA accreditation.
- As nurse anesthesia programs begin to form partnerships, future research is needed on the benefits of an accreditation or



Examining the Current Diversity, Equity, and Inclusion Initiatives from Nurse Anesthesia Programs in California to Support Nurse Anesthesia Residents: An Exploratory Observational Study

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INTRODUCTION

There is a lack of diversity in the healthcare profession, which has negatively influenced healthcare disparities amongst minorities.¹

There is a need to support students of minority backgrounds in nurse anesthesia programs to help increase diversity retention.²

METHODS

A literature review was conducted to find retention strategies for minority students in nursing and nurse anesthesia programs utilizing keywords/terms: “diversity,” “equity,” “inclusion,” “graduate students,” “retention,” “nursing,” “nurse,” “SRNA,” and “anesthesia.”

Two survey tools were created with the assistance of a biostatistician, one for NAP students and one for NAP program directors. Each survey looked at subject demographics, in addition to perceived barriers and effectiveness of current DEI initiatives (if any in place).

The data were compiled, and common themes were grouped with the assistance of a biostatistician.

DISCUSSION

Although the data showed no statistically significant difference between nurse anesthesia residents of minority and non-minority backgrounds regarding DEI, this survey was conducted in a more progressive state.

Future studies should analyze the nurse anesthesia residents in more rural and conservative states.

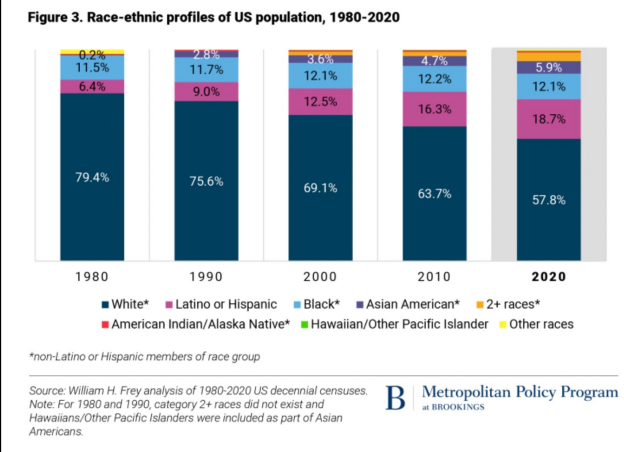
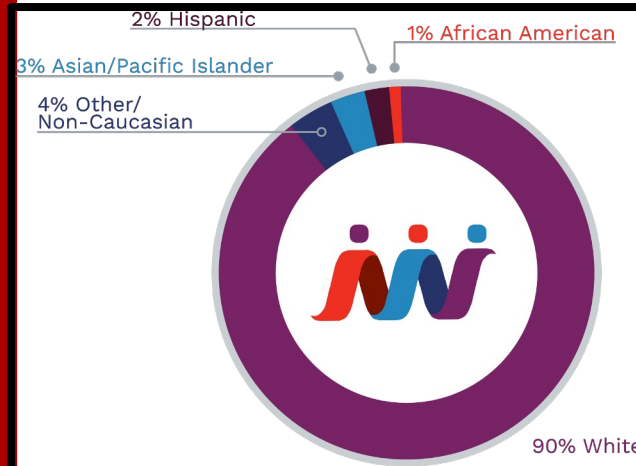
The lack of literature regarding retention strategies in NAPS, restricts the ability to recommend retention strategies.

REFERENCES



SUMMARY

1. The recruitment and retention of a diverse NAR population is necessary for the anesthesia profession to mirror the changing patient population.³
2. Additional research investigating specific gaps in recruitment and retention of nurse anesthesia residents should be considered, in addition to further literature reviews investigating medical schools and businesses for DEI initiatives focused on retention of ethnically diverse minority groups, which could have applicable recommendations for nurse anesthesia programs.
3. While many companies and educational training programs are adopting recruitment initiatives for diverse students,⁴ there is a lack of research on effective retention initiatives for nurse anesthesia students.
4. Larger studies in nurse anesthesia programs including more rural and less diverse communities should be conducted to assess the need for support of students from minority backgrounds enrolled in nurse anesthesia programs.
5. Studies should be conducted to implement and evaluate the effectiveness of educational, financial, and emotional support in assisting minority students. This data should be utilized to by programs adopt a DEI recruitment and retention model of their own, in addition to the university they associate with to prioritize their unique student body’s needs and program requirements.



Statistics Compiled from the American Nurses Association: CRNAs (2016 AANA Profile Survey)

TABLE 1

		STUDENTS (N=88)	DIRECTORS (N=3)
Ethnicity	Non-Hispanic White	36 (40.9)	3 (100.0)
	Hispanic	15 (17.1)	0 (0.0)
	Black	4 (4.5)	0 (0.0)
	Asian	29 (33.0)	0 (0.0)
	Other	4 (4.5)	0 (0.0)
	Prefer Not to Answer		
Age	21-30	43 (48.9)	0 (0.0)
	31-40	42 (47.7)	0 (0.0)
	41-50	2 (2.3)	2 (66.7)
	51 & Over	0 (0.0)	1 (33.3)
	Prefer Not to Answer	1 (1.1)	0 (0.0)
	Prefer Not to Answer		
Sex	Male	37 (42.0)	3 (100.0)
	Female	50 (56.8)	0 (0.0)
	Prefer Not to Answer	1 (1.1)	0 (0.0)
	Prefer Not to Answer		
Gender Identity	Male	38 (43.2)	3 (100.0)
	Female	50 (56.8)	0 (0.0)
Sexual Orientation	Heterosexual	78 (88.6)	3 (100.0)
	Bisexual	5 (5.7)	0 (0.0)
	Homosexual	4 (4.5)	0 (0.0)
	Other	1 (1.1)	0 (0.0)
	Prefer Not to Answer		
Year in Program	1 st	30 (34.1)	N/A

INSTAGRAM AS AN ENGAGEMENT TOOL FOR AWARENESS OF THE ENVIRONMENTAL IMPACTS OF ANESTHESIA

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INTRODUCTION

- The healthcare industry contributes to 4.4% of global net emissions.¹
- Operating rooms generate significant waste; the lack of education and accountability in green practices leads to improper waste disposal.
- This pilot study evaluates Instagram as an educational tool in disseminating sustainable anesthesia practices.

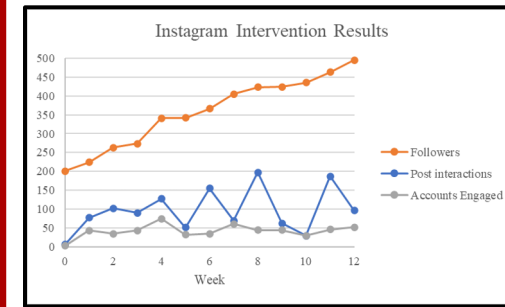
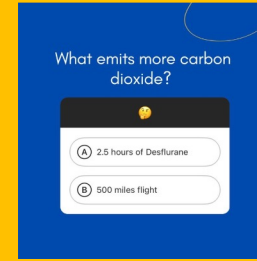
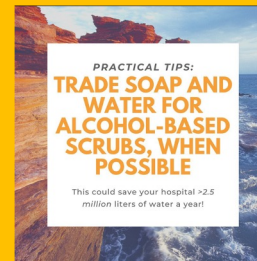
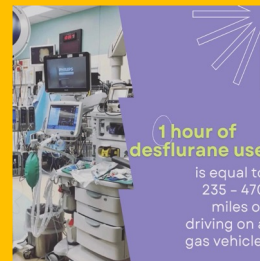
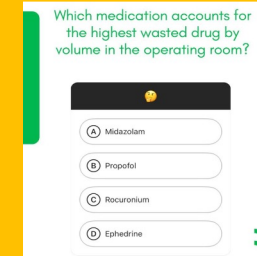
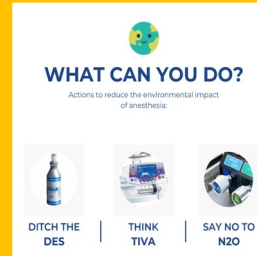


METHODS

- Three Nurse Anesthesia Residents utilized GASP Anaesthesia's Instagram page (@gasp_anaesthesia) to disseminate sustainable anesthesia content using recommendations for frequency of posts, hashtag usage, interaction with other users, and multimodal combination approach of posts, reels, and stories.
- User engagement was calculated with Instagram Insights pre- and post-intervention over 3 months.
- Engagement data was gathered via Instagram Insights using raw data and calculated with an engagement equation.^{2,3,4,5,6}

$$\left(\frac{\sum (\text{Likes} + \text{Comments})}{\# \text{ of posts}} \right) / \left(\frac{\sum \text{ of followers}}{\# \text{ of followers}} \right) \times 100 = \text{Engagement Rate}$$

INSTAGRAM POSTS, STORIES, REELS



CONCLUSION

- The operating room is a top generator of waste, with anesthesia playing a major role through with intravenous medications, inhaled gases, and equipment.
- Two critical components to creating a healthier environment include accountability of good resource stewardship and robust environmental education to those in the field of anesthesia.
- Social media has recently developed in healthcare as a means for professional communication and educational initiatives, with Instagram showing particular promise as a beneficial platform for education on healthcare practices.⁷

RESULTS

- @GASPanaesthesia follower count increased 146.27%, from 172 followers pre-intervention to 496 post-intervention.
- Engagement increased significantly by 7.096% between Between January 30, 2022 and April 23, 2022.
- 7,215 accounts were reached during the 12-week intervention.
- Reels generated the highest content reach at 5,930 profiles. Posts generated the second highest reach at 2,184 profiles, followed by videos at 1,193 profiles and stories at 441.
- The majority of @GASPanaesthesia audience was initially from the United Kingdom (79.7%), but transitioned to the United States (52.8%) as the content creators pushed recognition locally.

APPENDIX & REFERENCES



Introduction

- Anesthesia Awareness With Recall (AAWR) phenomenon is a complication of general anesthesia consisting of recollection of operative events³
- 73.7% of patients have a fear of AAWR⁴
- There is a 1 in 20,000 chance of experiencing AAWR²
- 41% of subjects reported moderate to severe long-term psychological sequelae²
- 5% resulted in litigation²
- 75-90% of the reported cases of AAWR were directly caused by factors that could be prevented²

Methods

- Databases: PubMed and CINAHL
- Search terms: *general anesthesia, awareness, recall*
- Inclusion criteria: procedure under general anesthesia and data revealed prevention-related techniques for reducing AAWR; seminal references
- Exclusion criteria: research from developing nations, pediatric-only studies, age <18 years, animal studies, and studies >10 years
- Total articles critically reviewed: 27



Research Question:
What are the current evidence-based recommendations for the following, in regard to AAWR: minimizing the risk, identifying the occurrence, and providing treatment?

Practice Recommendations

Preoperative

- Assess BMI^{2, 3, 21, 22}
- Identify difficult airways^{2, 13}
- Minimize the risk of drug error by avoiding distractions, clearly labeling syringes, and or physically separating syringes^{2, 3, 11, 15, 16, 17, 18}
- Consider benzodiazepines²⁰

Intraoperative

- Use multiple detection and prevention methods^{5, 6, 10, 16}
- If AAWR is suspected, provide verbal reassurance, deepen the anesthetic & provide analgesia. Consider antagonizing the paralytic if appropriate^{1, 2, 9, 24}
- Consider preserving mobility when not surgically indicated^{2, 7}
- Employ audible alerts for ETAC below 0.7 & BIS values greater than 60, use physiological factors as an adjunct^{5, 6, 10, 16}

Postoperative

- If AAWR is suspected, conduct a debrief of events^{2, 3, 11, 15, 16, 17, 18, 24}
- Conduct a Brice interview if AAWR is suspected^{5, 8, 10, 12}
- Utilize the NAP5 awareness support pack²⁴

Induction

- When airway management difficulties become prolonged, additional doses of induction agents should be readily available, and the anesthesia provider should consider awakening the patient^{2, 19}
- Confirm loss of consciousness prior to NMB^{2, 19}
- Ensure adequate dosing when inducing obese patients, especially if RSI is planned^{2, 3, 21, 22}
- When anesthetizing the parturient have caution due to obesity, difficult airway, RSI, and urgency of surgery²³

Emergence

- Antagonize neuromuscular blockade with nerve stimulator guidance for all patients¹¹
- Maintain communication with the surgeon so that the depth of GA and NMB may be maintained or weaned appropriately²
- If an awake extubation is planned, verbally reassure the patient through the extubation process^{1, 2, 9, 24}

Findings

AAWR can trigger psychological symptoms from anxiety to PTSD. Patients report feeling helpless, insomnia, and moments of unexplained panic^{1, 2, 3, 9}

Non-Modifiable Considerations:^{2, 11, 15,}

- Age
- Gender
- Prior Episode of AAWR

Modifiable Considerations:^{2, 3, 6, 7, 14, 20}

- Obesity
- Difficult Airway
- Provider Error
- Pharmacologic Management
- Benzodiazepines
- Neuromuscular Blockade
- Phase of Anesthesia
- Surgery Type Considerations
- Obstetrics
- Cardiothoracic
- Monitoring Devices and Detection
- Minimum Alveolar Concentration (MAC) and Bispectral Index (BIS)

If a patient experiences AAWR, providers must be able to swiftly diagnose the syndrome and provide support^{2, 12, 24}

Discussion

AAWR can exert devastating effects on patients

Modifiable and non-modifiable classifications were selected based on the ability to influence perioperative management

These factors identify high risk patients and improve clinical outcomes through patient-specific modifications.

Managing patient's expectations can mitigate the damaging sequela of AAWR

References

