Evidence-Based Policy Toolkit Supporting Prescriptive Authority for Maryland Nurse

Anesthetists

by

Myra N. Njapau-Dove

Under Supervision of

Veronica Amos PhD, CRNA, PHCNS-BC

Second Reader

Margaret Hammersla, PhD, CRNP-A

A DNP Project Manuscript
Submitted in Partial Fulfillment of the Requirements for the
Doctor of Nursing Practice Degree

University of Maryland School of Nursing
May 2020

Abstract

Problem: Current Maryland law does not grant Certified Registered Nurse Anesthetists (CRNAs) prescriptive authority thereby limiting the number of providers able to help combat the opioid crisis. With opioid-related overdose deaths at 29.7 per 100,000, Maryland is above the national average of 13.3 per 100,000 (National Institute on Drug Abuse, 2016). The lack of prescriptive authority also strains an already burdened healthcare system by further limiting access to care and medical services for patients in rural areas. Approximately 47 million people in the United States are considered vulnerable (low-income, Medicare and/or Medicaid recipients) and most of this population resides in areas where CRNAs are the sole anesthesia providers (Liao, Quraishi & Jordan, 2015).

Purpose: The purpose of this project was to develop, implement and evaluate an evidence-based health policy toolkit. The toolkit would be a resource used when meeting with policymakers and petitioning them to support legislation to grant CRNAs prescriptive authority.

Methods: The toolkit and an evaluation survey were sent by email to CRNAs who met the inclusion criteria. Survey responses were anonymous and captured using SurveyMonkey. Results were analyzed via Excel.

Results: Survey results indicated that 57.1% strongly agreed while 28.6% agreed that CRNAs should have prescriptive authority and that the lack of it hinders both the CRNA profession and patient access to care. Results also indicated that 71.4% strongly agreed and 28.6% agreed that the toolkit was needed and would be supported by CRNAs in Maryland.

Conclusions: Data analysis illustrated that the toolkit is a valuable resource and granting CRNAs prescriptive authority would help mitigate the opioid crisis, decrease healthcare costs as well as increase access to healthcare. At this time, the toolkit has won CRNA approval, but it is yet to be utilized.

Introduction

Certified Registered Nurse Anesthetists (CRNA) are Advanced Practice Registered Nurses (APRN) trained in the delivery of anesthesia as well as in acute, chronic, and interventional pain management services. They administer approximately 45 million safe and cost-effective anesthetics each year in a variety of settings (such as hospitals, surgery centers, clinics, and the U.S military) and have done so for more than 150 years (American Association of Nurse Anesthetists (AANA), 2019). In its infancy, anesthesia was provided exclusively by nurses; however, 1986 was a major turning point with an influx of physicians entering the specialty (Dulisse & Cromwell, 2010).

Studies by Needlemand & Minnick (2009) and Dulisse & Cromwell (2010) concluded though physician anesthesiologists receive more education in areas other than anesthesia; anesthesia education between nurse anesthetists and their physician counterparts is comparable. Also, there is no difference in the safety and quality of care provided to patients. Current Maryland law does not grant CRNAs prescriptive authority. Although CRNAs can order medications for patients throughout the perioperative period, they cannot prescribe medications for those patients to be discharged with, nor can they prescribe a take home regimen for a patient treated at a pain clinic.

The National Institute on Drug Abuse (NIDA) data ranks Maryland as one of the top five states with the highest rates of opioid-related overdose deaths (2016). With opioid-related overdose deaths at 29.7 per 100,000, Maryland is above the national average of 13.3 per 100,000 (NIDA, 2016). In 2016, the economic impact of the opioid epidemic in Maryland was over 21.19 billion dollars. Expenditure breakdown was as follows: opioid-related fatalities (19.5 million), health care spending (747 million), addiction treatment (80.8 million), criminal justice (219.3

million), and lost productivity (585.6 million) (Minority Staff, Senate Committee on Health, Education, Labor and Pensions Report, 2017). The current environment in Maryland presents an opportunity for policymakers to support legislation to grant CRNAs prescriptive authority. Maryland's Governor Lawrence Hogan Jr is a supporter of initiatives intended to combat the opioid crisis, and as such he is a potential supporter of legislation to grant CRNAs prescriptive authority.

Granting CRNAs prescriptive authority would help combat the opioid crisis by increasing the number of independent providers able to manage patients and opioid use amid this crisis (AANA, 2019). CRNAs are trained to manage acute and chronic pain using a multimodal approach focusing on treating the source of the pain and not the symptom. This approach uses opioid sparing alternatives and adjuncts such as ketamine, non-steroidal anti-inflammatory drugs, muscle relaxants, antidepressants, and anticonvulsants (AANA, 2019). In addition to non-opioid pharmacologic pain management, CRNAs can avoid the using opioids by implementing interventional therapeutic techniques; such as trigger point injections, peripheral nerve blocks, joint injections, nerve ablation techniques, and epidural steroid injections to treatment chronic pain in outpatient settings (AANA, 2019).

Healthcare costs would be decreased, as independently practicing CRNAs are 25% more cost-effective (Hogan, Seifert, Moore, & Simonson, 2010). Additionally, more practitioners trained in pain management would increase access to services, especially in rural and medically underserved areas where the incidence of opioid-related overdose deaths is highest (Ghertner & Groves, 2018). To date, 32 states (Appendix C) have granted CRNAs prescriptive authority (AANA, 2019), perhaps taking into consideration the Institute of Medicine (IOM) report

recommendations to remove policy barriers hindering APRNs from practicing to the full extent of their education and training (RAND, 2015)

The purpose of this project was to develop, implement, and evaluate an evidence-based health policy toolkit. The toolkit would serve as a resource used when petitioning policymakers to support legislation to grant Maryland CRNAs prescriptive authority. It included: information about the CRNA profession (Appendix C), talking points (Appendix D), a policy brief (Appendix E), a sample letter to policymakers (Appendix F), a table outlining which states have prescriptive authority (Appendix G), an elevator speech (Appendix H), and a sample personal story (Appendix I).

The short-term goal of the project was to gain approval of the evidence-based health policy toolkit from Maryland CRNAs. The long-term goals were to: gain toolkit approval from Maryland Association of Nurse Anesthetists (MANA) leadership, have the toolkit utilized as a resource for CRNAs at legislative meetings with policymakers, and lastly, lobby policymakers to introduce and support prescriptive authority legislation.

Literature Review

The literature review (Appendix A) focused on research evidence highlighting the need for CRNAs to acquire prescriptive authority, and the consequent benefits for combating the opioid crisis, as well as increasing access to care for patients in rural and medically underserved areas. The studies reviewed evaluated CRNA and anesthesiologist practice distribution; examined the relationship between socioeconomic factors and the distribution of anesthesia provider type; and discussed the cost-effectiveness of care when provided by CRNAs compared to anesthesiologists.

A retrospective review, of 35,973 CRNA records, performed by Skillman, Kaplan, Fordyce, McMenamin, and Doescher (2012) analyzed practice distribution and explored the effect of practice autonomy on rural populations. It concluded that CRNAs are more likely to practice in states with the most autonomous practice regulations. The review also found a CRNA distribution of 1.2 urban providers versus 0.9 rural providers per 10,000 individuals.

Liao, Quraishi and Jordan (2015) conducted a literature review highlighting the importance of CRNAs in rural, low-income, and underserved areas. The review examined the relationship between socioeconomic factors (geography and insurance type) and the distribution of anesthesia provider type. Analysis demonstrated a correlation between county median income and anesthesia provider type. Providers in low-income, underserved, or rural communities were predominantly CRNAs; while providers in higher income communities were mostly anesthesiologists (Liao et al., 2015).

Approximately 47 million people in the United States are considered vulnerable (low-income, Medicare and/or Medicaid recipients). Most of this population resides in areas where CRNAs are the sole anesthesia providers (Liao et al., 2015). If granted prescriptive authority, CRNAs would be able to provide both anesthesia and pain management services for this demographic. Cost-effectiveness is of importance in healthcare, especially in rural areas and among vulnerable populations.

Hogan, Seifert, Moore, and Simonson (2010) performed a cost-effectiveness analysis of anesthesia delivery models (anesthesiologist alone, CRNA alone, anesthesiologist/CRNA collaboration). In addition to the cost-effectiveness analysis, researchers sought to determine if the quality of patient care differed with each model. Medical and financial claims data, for 52,636 anesthetics, was reviewed and compared to findings from a Cost-Effectiveness Computer

Simulation Analysis (Hogan et al, 2010). Outcomes revealed that independently practicing CRNAs were more cost effective for both the facility and the service payer. This model would be beneficial for facilities that were not financially sustainable without government subsidies, such as those often found in rural areas or those serving vulnerable populations (Hogan et al., 2010). Additionally, CRNAs practicing independently had no more negative effects on patient outcomes than their counterparts (anesthesiologists).

Ghertner and Groves (2018) examined the relationship between economic opportunity and the prevalence of prescription opioid and substance abuse. Measured indicators included economic opportunity, substance use, and prescription opioid abundance. The researchers analyzed data from 2006 – 2016 from NIDA, Centers for Disease Control (CDC), Centers for Medicare and Medicaid Services (CMS) Prescription Drug Event file, U.S Census Bureau, Bureau of Labor Statistics, and the Drug Enforcement Agency (DEA). The review concluded that lower economic opportunity areas are disproportionately affected by the opioid crisis; and the prevalence of drug overdose deaths and opioid prescription abuse have increased unevenly across the nation with rural areas being the most affected (Ghertner & Groves, 2018).

Results also showed that unemployment rates highly correlated with prescription opioids and substance use. From 2006 to 2016, a one percentage point increase in the country's unemployment rate was associated with a 4.6 percent increase in overdose death rates. This study demonstrated the need for federal and state programs intended to increase access to preventative and supportive treatment services for affected populations (Ghertner & Groves, 2018).

In summary, CRNAs are safe and knowledgeable practitioners who can provide alternative and interventional chronic pain management services (i.e. trigger point injections and peripheral nerve blocks) to vulnerable populations especially rural areas. Moreover, practice

autonomy should be considered by states as a way of recruiting and retaining CRNAs and other APRNs to rural communities (Skillman et al., 2012). Lastly, anesthesia delivery models with CRNAs practicing independently are the most cost-effective (Hogan et al., 2010).

Theoretical Framework

The Kingdon Policy Stream Model was used to develop this evidence-based health policy toolkit. This model is widely used to advance policy initiatives and consists of three parts: the problem, the policy, and the political streams. These three parts converge into what is known as a window of opportunity, which offers an environment critical and suitable for policy development or policy change (White, Dudley-Brown, & Terhaar, 2016). The problem stream refers to issues requiring attention or barriers that prevent attainment of a solution for a problem; the policy stream refers to policy changes or amendments to address the problem; and lastly, the political stream describes political factors that influence public and/or legislative support for an agenda (White et al., 2016).

For this project, the lack of prescriptive authority and regulations that prevent CRNAs from attaining it represented the problem stream. The policy stream was the development of the evidence-based health policy toolkit for CRNAs to use when petitioning for prescriptive authority. Employing evidence-based elements and/or strategies from the toolkit to influence policymakers (Maryland General Assembly and Governor Hogan) to grant CRNAs prescriptive authority will represent the political stream. The current environment in Maryland encourages support of this agenda given the ongoing opioid crisis. Alignment of the three streams will create a window of opportunity to put forth legislation and grant CRNAs prescriptive authority.

Methods

Setting, Population, and Implementation Procedures

The project setting was a MANA professional conference which is held biannually and attended by CRNAs. The population sampled consisted of CRNAs in attendance. An oral presentation about the project was given to conference attendees; thereafter, email addresses, retirement status, and practice location information was gathered. The health policy toolkit (Appendices C-I) along with a toolkit evaluation survey (Appendix B) were emailed to participants who met inclusion criteria. Retired practitioners and those who do not practice in Maryland were excluded. Anonymous toolkit evaluation results and feedback from participating CRNAs was collected via SurveyMonkey.

The health policy toolkit (Appendices C- I) sent to the sample population was approved by the project faculty advisor, clinical site representative, policy experts, and MANA officials. Project approval was obtained from the University of Maryland Baltimore (UMB) Institutional Review Board (IRB).

Measures collected

The policy toolkit evaluation survey (Appendix B) was divided into two sections. Section one consisted of three questions and collected descriptive data. This non-identifying information included the respondents' number of years in practice (survey question 1), practice setting (question 2) and practice environment (question 3). Section two of the survey focused on measures specific to the need for prescriptive authority (question 4), and its' impact on patient outcomes (question 5). It also focused on the need, effectiveness, and usefulness of the contents of the toolkit (questions 6 through 10).

The structure assessed during this project was the lack of policy granting CRNAs prescriptive authority in Maryland. Current law grants other APRN disciplines prescriptive privileges yet CRNAs are excluded. The desired state is to enact policy change and grant CRNAs prescriptive authority. The process assessed was patient outcomes, with the current state revealing limited access to care for those in rural and medically underserved areas. The desired state is to increase anesthesia providers and alleviate the burdened healthcare system (RAND corporation, 2015).

Data Analysis

SurveyMonkey was utilized to disseminate the survey as well as collect and compile data. Data analysis was based on the results of a 10-item survey graded on a 5-point Likert scale. The scale ranged from strongly disagree (1) to strongly agree (5). Points assigned to each item ranged from 10 – 50 points. Statistical analysis of results was done using Excel. Descriptive data (practice setting, environment, and number of years in practice) was also compiled and analyzed using Excel.

Results

The toolkit evaluation survey was sent to 30 CRNAs for evaluation via SurveyMonkey. Seven email addresses were undeliverable, consequently the sample size was reduced to 23. The respondent survey completion rate was 30.4%. A key facilitator that impacted the project's outcome was the oral presentation provided to Maryland CRNAs highlighting how the lack of prescriptive authority is a hinderance to professional autotomy. The intricacy and magnitude of the work required to enact change and introduce legislation supporting prescriptive authority were identified as key barriers.

The majority of respondents reported having 6-10 years of experience (42.9%) (Figure 1), practiced in a hospital and/or healthcare facility (85.7%), and practiced in urban area 71.4% (Figure 2). Along with evaluating the effectiveness of the components of the toolkit, CRNAs were asked if there was a need for prescriptive authority. Most of respondents either strongly agreed (57.1%) or agreed (28.6%) that CRNAs should have prescriptive authority (Figure 4). Furthermore, 71.4% of respondents strongly agreed that prescriptive authority would result in improved patient outcomes (Figure 5).

Respondents strongly agreed (57.1%) that the personal story and elevator speech emphasized the resulting human impact caused by limited access to care in rural and medically underserved areas (Figure 8). Survey respondents overwhelmingly agreed (87.7%) that the policy decision brief in the toolkit provided accurate information about the problem and demonstrated the need for policy change (Figure 7). Additionally, 71.4% of respondents found the National Status on Prescriptive Authority for CRNAs table to be helpful in determining the status of policy change taking place across the nation (Figure 9). Lastly, most respondents strongly agreed (43.9%) that the toolkit was clear and informative (Figure 6); and 71.4% of respondents strongly agreed that the toolkit was needed and would be supported by CRNAs in Maryland (Figure 10).

Discussion

The purpose of this scholarly project was to develop, implement, and evaluate an evidence-based health policy toolkit. The toolkit was designed to be a resource for CRNAs to use when petitioning policymakers to support legislation for prescriptive authority. CRNAs believe that there is a need for prescriptive authority as well as a toolkit (Figure 3). Furthermore, survey findings demonstrated that 28.6 % of respondents work in rural areas. This is consistent with

study findings by Liao et al. (2015) which concluded that CRNAs are more likely to be providers in low-income, underserved, and rural communities compared to anesthesiologist.

The IOM report released in October 2010 noted that expanding the role of APRNs in the United States healthcare system would help meet the growing need for healthcare services, such as pain management services. It urged policymakers to remove policy barriers that hindered APRNs from practicing to the full extent of their education and training (RAND, 2015). Based on policy evaluation survey findings, CRNAs want policymakers to recognize that the lack of prescriptive authority is one such barrier. The IOM report concluded by asserting that APRNs are a major part of the solution to the nation's healthcare issues, especially access to care in medically underserved areas.

Most respondents either strongly agree or agree (85.7%) that the personal story and elevator speech in the toolkit emphasize the human impact of the shortfalls resulting from limited access to chronic pain management services (interventional or opioid sparing alternatives). The impact of such shortfalls is evident in opioid-related overdose death reports, complied by organizations like NIDA, showing Maryland as one of the top five states with the highest rates (NIDA, 2016). Per the AANA and the IOM, granting CRNAs prescriptive authority can add to the number of practitioners who can provide alternative and interventional chronic pain management services (i.e. trigger point injections and peripheral nerve blocks) amid this crisis especially in rural areas (AANA, 2019).

Project limitations encountered were a small sample size (N=30, n =23) and a low response rate of 30.4%. In attempts to increase the response rate, emails were sent reminding participants to complete the survey. A larger sample size would have been made possible by an

increased CRNA attendance at the MANA conference. Another limitation met was the lack of information detailing how other states gained their prescriptive authority.

Conclusion

In summary, data analysis illustrates there is a need for the toolkit. Project implications for practice include helping mitigate the opioid crisis, decreasing healthcare costs, increasing access to chronic pain management care, and increasing recruitment and retention of CRNAs to rural areas by expanding practice autonomy. At this time, the toolkit has won CRNA approval but has yet to be utilized.

To ensure the sustainability of the toolkit, reminders in the form of emails and announcements at MANA meetings/conferences would ensure that CRNAs remain aware of its existence. Updates to the toolkit will also be done to align its content with the most current research findings. Future projects should focus on ways to engage CRNAs to participate in policy change and policy making. Additionally, prospective studies should also focus on how to increase CRNA interest in gaining prescriptive authority, as it has been demonstrated that it is a vital component to improving patient outcomes and enhancing professional autonomy.

References

Altman, S., Butler, A.S., & Shern, L. (2010). The Future of Nursing. *Institute of Medicine*

    Report. Retrieved on Feb 5, 2019 from

    http://www.academicprogression.org/resources/docs/Assessing-Progress-on-the-IOM-

    Futue-of-Nursing-Report.pdf

American Association of Nurse Anesthetists (AANA) (2019). Chronic Pain Management

    Guidelines. Retrieved from https://www.aana.com/docs/default-source/practice-aana-

    com-web-documents-(all)/chronic-pain-management-guidelines.pdf?sfvrsn=d40049b1_4

American Association of Nurse Anesthetists (AANA) (2018). *Certified registered nurse*

    anesthetist's fact sheet. Retrieved from https://www.aana.com/membership/become-a-

    crna/crna-fact-sheet

Dulisse, B., & Cromwell, J. (2010). No Harm Found When Nurse Anesthetists Work Without

    Supervision by Physicians. *Health Affairs. 29 (8)* 1469–1475.

Fairman, J. A., Rowe, J.W., Hassmiller, S., & Shalala, D. (2011). Broadening the Scope of

    Nursing Practice. *New England Journal of Medicine, 364 (*3) 193–196.

Ghertner, R. & Groves, L. (2018). The Opioid Crisis and Economic Opportunity: Geographic

    and Economic Trends. *ASPE Research Brief: U.S. Department of Health and Human*

    Services.

    https://aspe.hhs.gov/system/files/pdf/259261/ASPEEconomicOpportunityOpioidCrisis.pd

    f

Gilman*, D.J. & Koslov, T.I. (*2014*).* Policy Perspectives Competition and the Regulation of

    Advanced Practice Nurses. Federal Trade Commission. Retrieved Feb 7, 2019 from

https://www.ftc.gov/reports/policy-perspectives-competition-regulation-advanced-

practice-nurses

Hogan, P. F., Seifert, R. F., Moore, C. S., & Simonson, B. E. (2010). Cost-Effectiveness

Analysis of anesthesia providers. *Nursing Economics, 28*(3), 159-169. Institute of

Medicine. (2010, October). The future of nursing: Leading change, advancing health.

Retrieved from

https://iom.nationalacademies.org/~/media/Files/Report%20Files/2010/The-Future-

Nursing/Future%20of%20Nursing%202010%20Report%20Brief.pdf

Kaplan, L., Brown, M.A., & Simonson, D. (2011). CRNA Prescribing Practices: The

Washington State Experience. *AANA Journal.* Retrieved Feb 2, 2019 from

https://pdfs.semanticscholar.org/de91/0f0ea7330d426d796fed8574f4db203aef44.pdf

Kingdon, J.W. (2010). Agendas, alternatives, and public policy (2nd ed.). New York: NY:

Addison-Wesley Educational Publishers Inc.

Liao C.J., Quraishi, J.A., & Jordan, L.M. (2015). Geographical Imbalance of Anesthesia

Providers and its Impact on the Uninsured and Vulnerable Populations. *Nurse

Economics, 33*(5):263-270.

http://www.aana.com/resources2/research/Pages/NursingEconomics2015.aspx

National Institute on Drug Abuse (NIDA). (2011). *Topics in Brief: Prescription Drug Abuse.*

Retrieved from http://www.drugabuse.gov/publications/topics-in-brief/prescription-drug-

abuse

Opioid overdose. (n.d.). Center for Disease Control and Prevention. Retrieved from

https://www.cdc.gov/drugoverdose/pdmp/states.html

Opioid overdose. (n.d.). National Institute on Drug Abuse. Retrieved from

      https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-crisis

RAND Corporation. (2015). *Assessment B (Health care capabilities) Appendices E-I.* Retrieved

      from

      https://www.va.gov/opa/choiceact/documents/assessements/Assessment_B_Health_Care

      _Capabilities _Appendices_E-I.pdf

Skillman, S.M., Kaplan, L., Fordyce, M.A., McMenamin, P. D., & Doescher, M.P. (2012).

      Understanding Advanced Practice Registered Nurse Distribution in Urban and Rural

      Areas of the United States Using National Provider Identifier Data. Retrieved February 8,

      2019 from http://depts.washington.edu/uwrhrc/uploads/RHRC_FR137_Skillman.pdf

State Approaches to Scope of Practice. (2015). Arkansas Center for Health Improvement.

      https://achi.net/wp-content/uploads/2018/01/State-Approaches-to-Scope-of-Practice-

      Certified-Registered-Nurse-Anesthetists.pdf

Staff Minority, Senate Committee on Health, Education, Labor, and Pensions (2017). *The*

      Economic Cost of the Opioid Epidemic in Maryland. Retrieved on November 20, 2019

      from

      https://oversight.house.gov/sites/democrats.oversight.house.gov/files/Economic%20Cost

      %20of%20the%20Opioid%20Epidemic%20in%20Maryland.pdf

U.S. Census Bureau QuickFacts. (n.d). Retrieved from

      https://www.census.gov/quickfacts/fact/table/US/PST045217

USDA Economic Research Service (USDA-ERS). (2017). Retrieved on February 10, 2018 from

      https://www.ruralhealthinfo.org/states/maryland

Timeline

- April 2019: Proposal submission to advisor/stakeholders

- June 2019: Stakeholder approval of toolkit

- August 2019: Proposal presentation to committee members and stakeholders

- August 2019: Submit project proposal to UMB and Institutional Review Boards (IRBs)

- September 2019: Launch of On-line education for CRNAs

- October 2019 to December 2019: Project implementation

- Go-live date: October 2019

- October 2019: CRNA survey emailed

- January 2020: Data analyzed, synthesized, and evaluated

- Final scholarly project manuscript submission to committee for review: March 2020.

- Dissemination May 2020.

SURVEY RESULTS

Figure 1 (Survey Question 1)
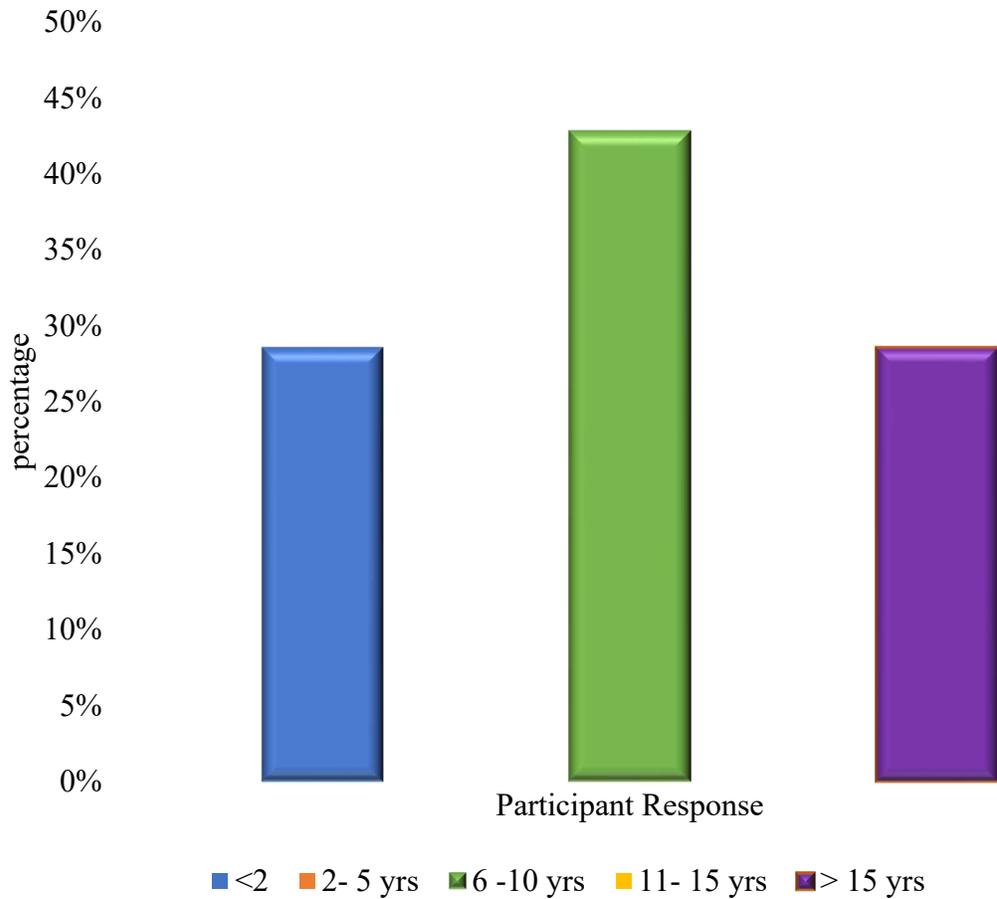
Figure 1: Number of Years in Practice. This figure shows the experience level of surveyed CRNAs. Number of years in practice ranges from less than two years for 28.6% of the respondents to greater than 15 years for the another 28.5% of the respondents. 42.9 % of respondents have been in practice for six to ten years.
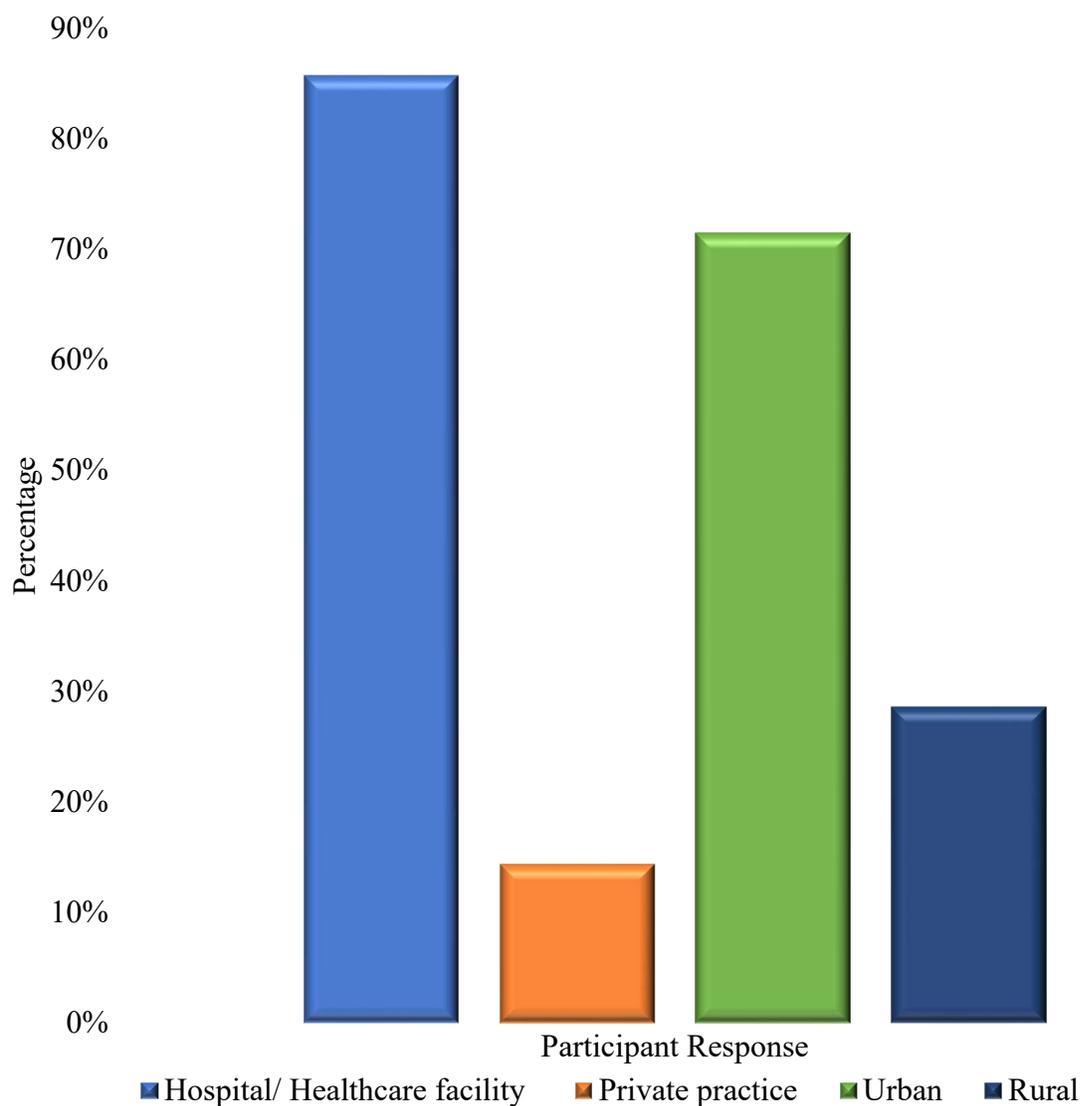
SURVEY RESULTS

Figure 2 (Survey Questions 2 & 3)

Figure 2: Practice Setting and Environment. This figure shows that most respondents (85.7%) work in a hospital and/or healthcare facility, while 14.3% work private practice. It also illustrates that 71.4% of respondents work in urban areas with the remaining 28.6% work in rural areas.

SURVEY RESULTS
Overall Survey Policy Toolkit Evaluation Results
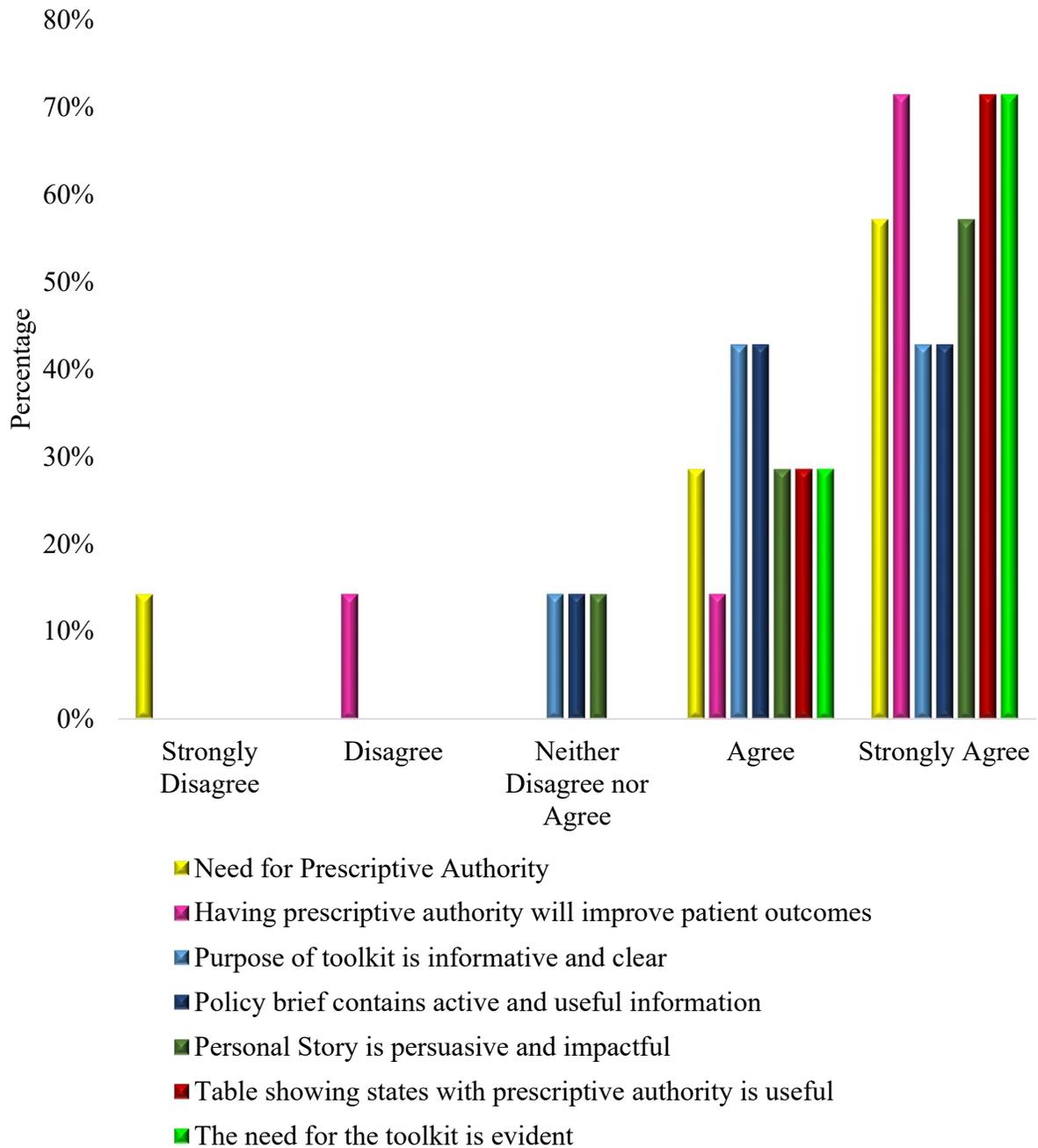
Figure 3

Figure 3: Policy Toolkit Evaluation (1 = Strongly disagree, 5 = Strongly agree). Overall results demonstrate that CRNAs believed that there was a need for a toolkit, and they are willing to support its use.

SURVEY RESULTS

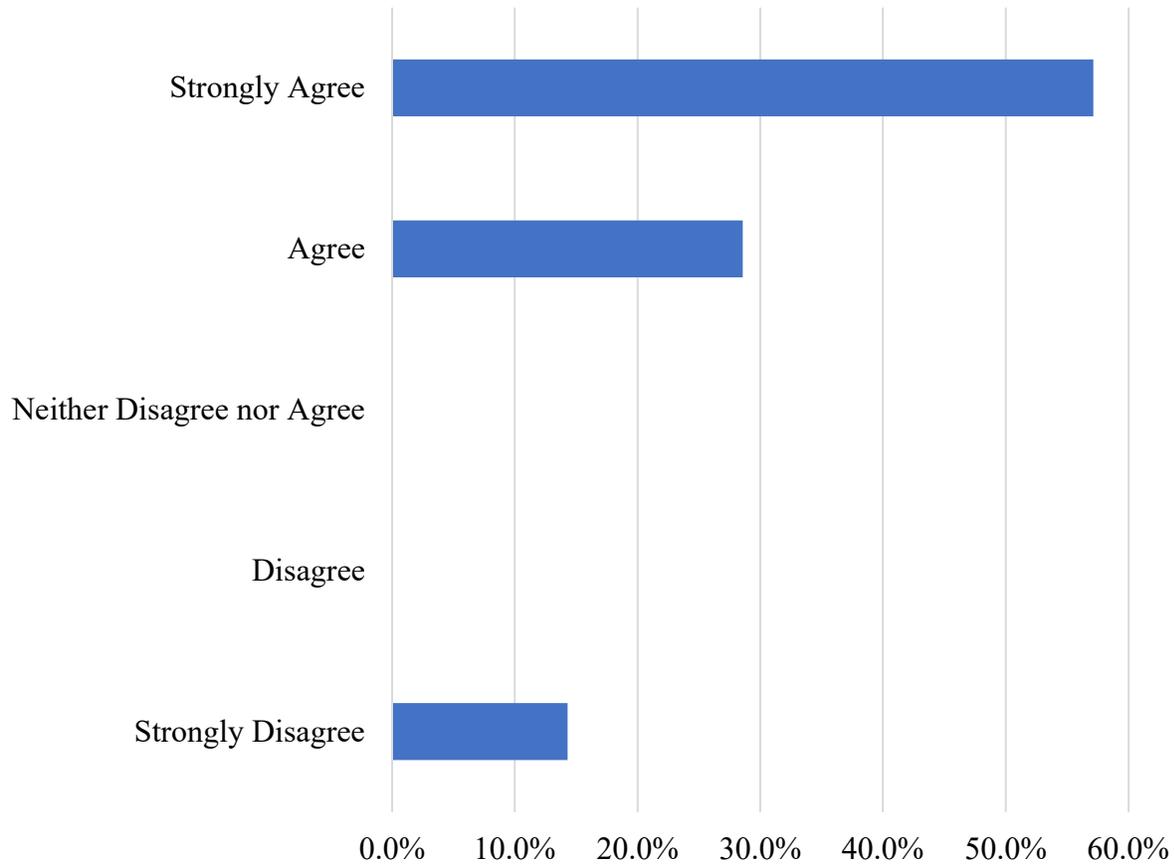**Figure 4 (Survey Question 4)**

Figure 4: Question 4: CRNAs should have prescriptive authority and the lack of prescriptive authority is a hindrance to the advancement of the CRNA profession (1 = Strongly disagree, 5 = Strongly agree). Results indicated that 57.1% strongly agree and 28.6% agree while 14.3% strongly disagreed.

SURVEY RESULTS

Figure 5 (Survey Question 5)

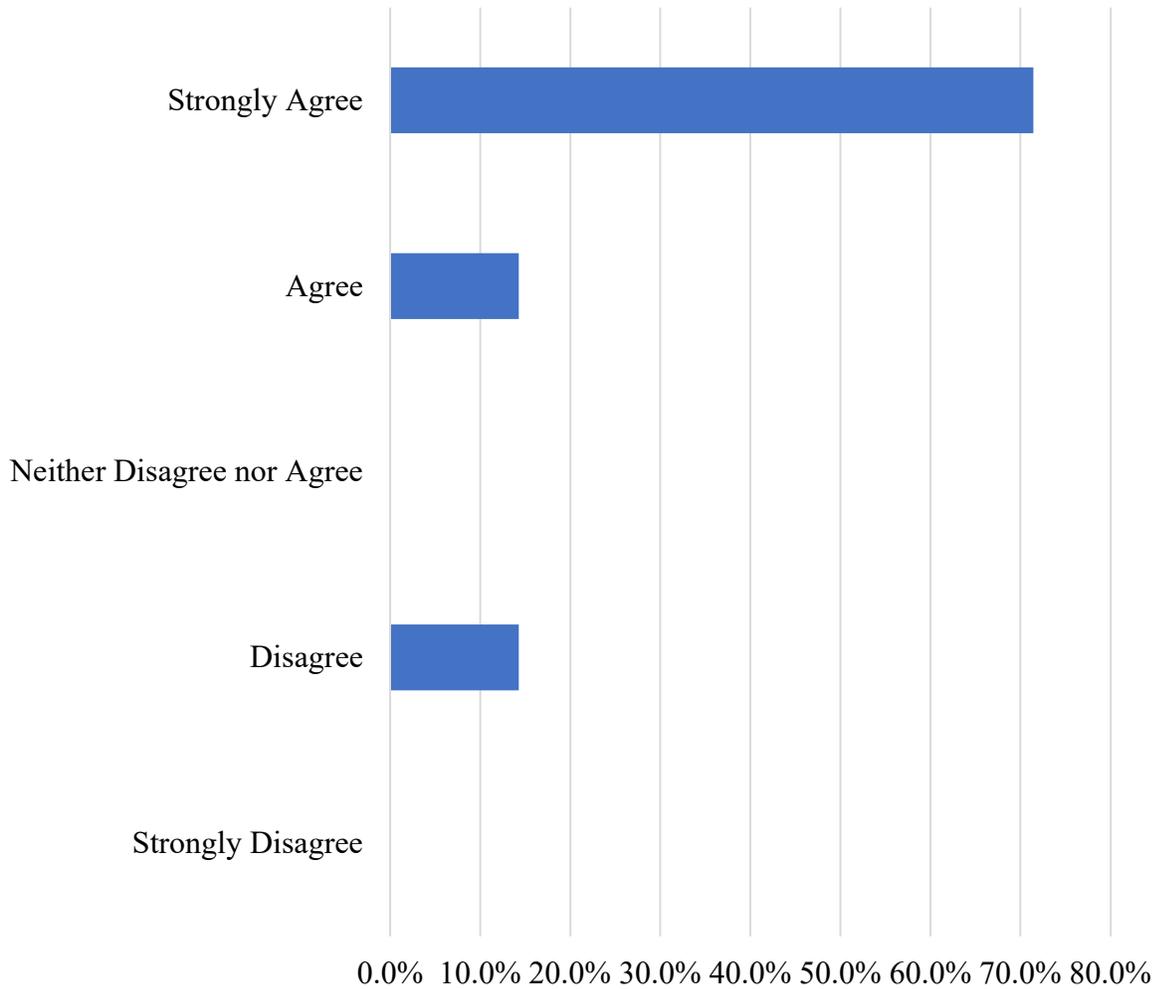0.0% 10.0% 20.0% 30.0% 40.0% 50.0% 60.0% 70.0% 80.0%

Figure 5: Question 5: CRNAs having prescriptive authority would result in improved patients' outcomes (1 = Strongly disagree, 5 = Strongly agree). 71.4% of respondents also strongly agreed that prescriptive authority would result in improved patient outcomes.

SURVEY RESULTS

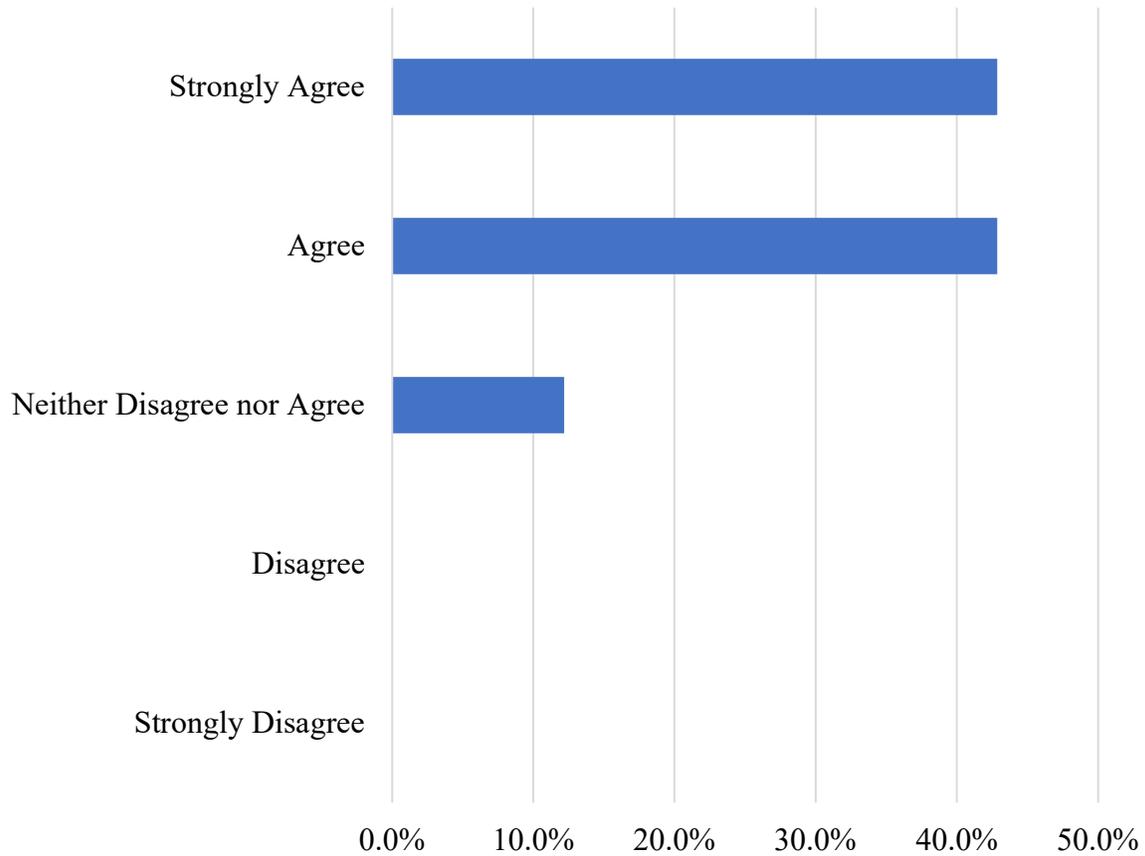**Figure 6 (Survey Question 6)**

Figure 6: Question 6: The purpose for creating the toolkit is clear and the toolkit is informative (1 = Strongly disagree, 5 = Strongly agree). 43.9% strongly agreed and another 43.9% agreed, while the remaining 12.2% neither agree nor disagreed.

SURVEY RESULTS

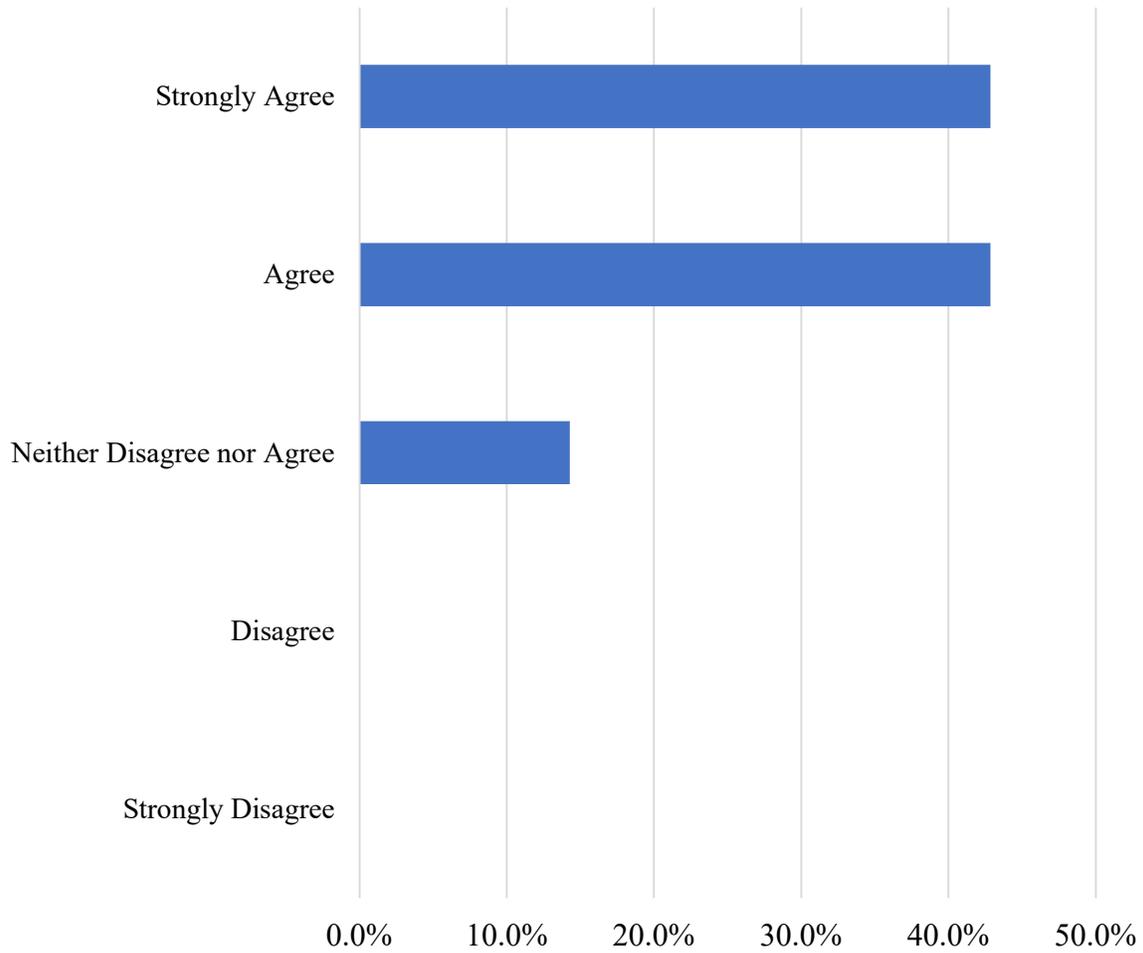**Figure 7 (Survey Question 7)**

Figure 7: Question 7: The policy decision brief in the toolkit provides accurate information about the problem with supporting research data and demonstrates the need for policy change (1 = Strongly disagree, 5 = Strongly agree). 43.9% strongly agreed and another 43.9% agreed, while the remaining 12.2% neither agree nor disagreed.

SURVEY RESULTS

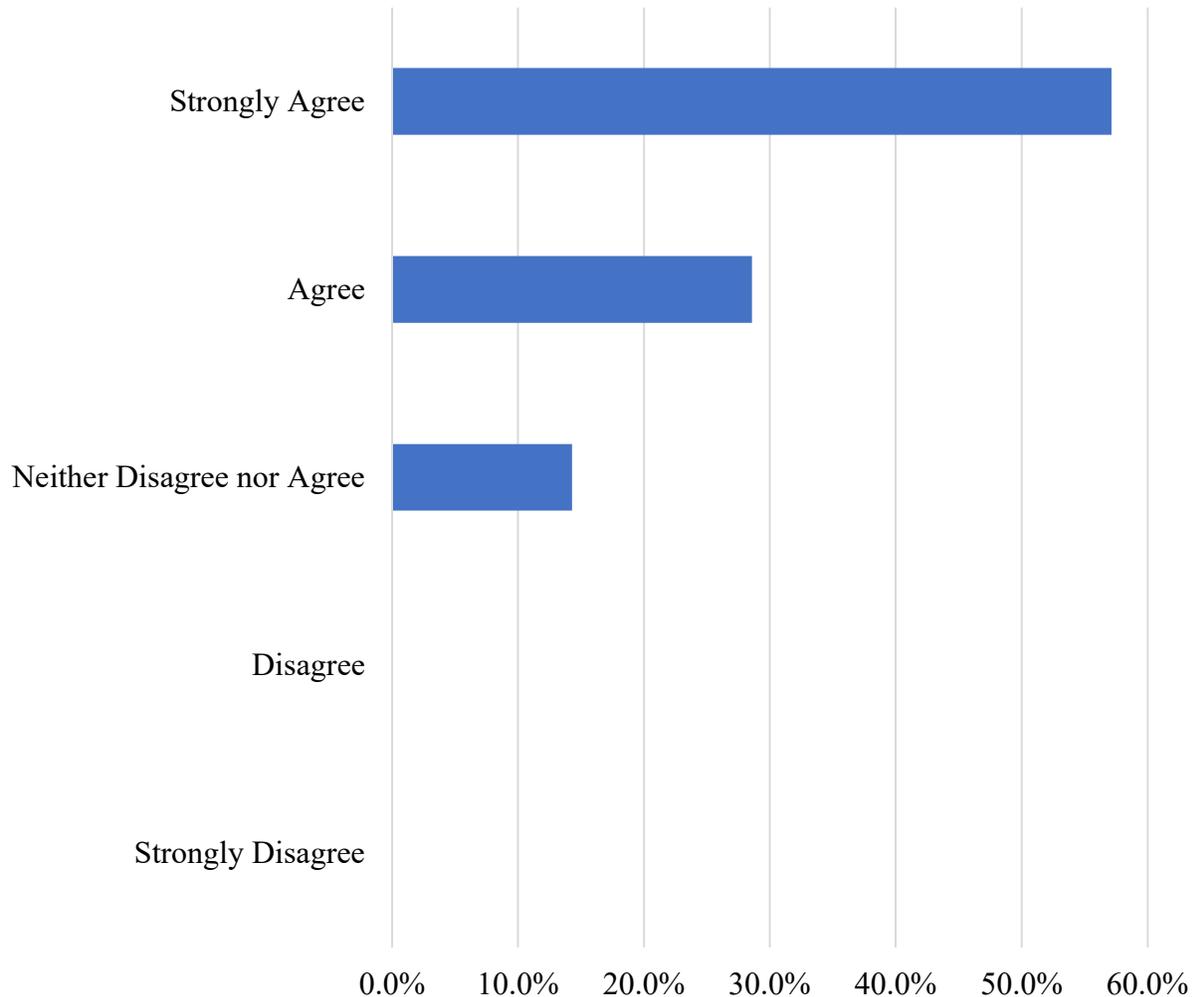**Figure 8 (Survey Question 8)**

Figure 8: Question 8: The personal story and elevator speech are persuasive and emphasize the human impact of the shortfalls resulting from CRNAs lacking prescriptive authority (1 = Strongly disagree, 5 = Strongly agree). 57.1% strongly agreed and 28.6% agreed, while the remaining 14.3% neither agree nor disagreed.

SURVEY RESULTS

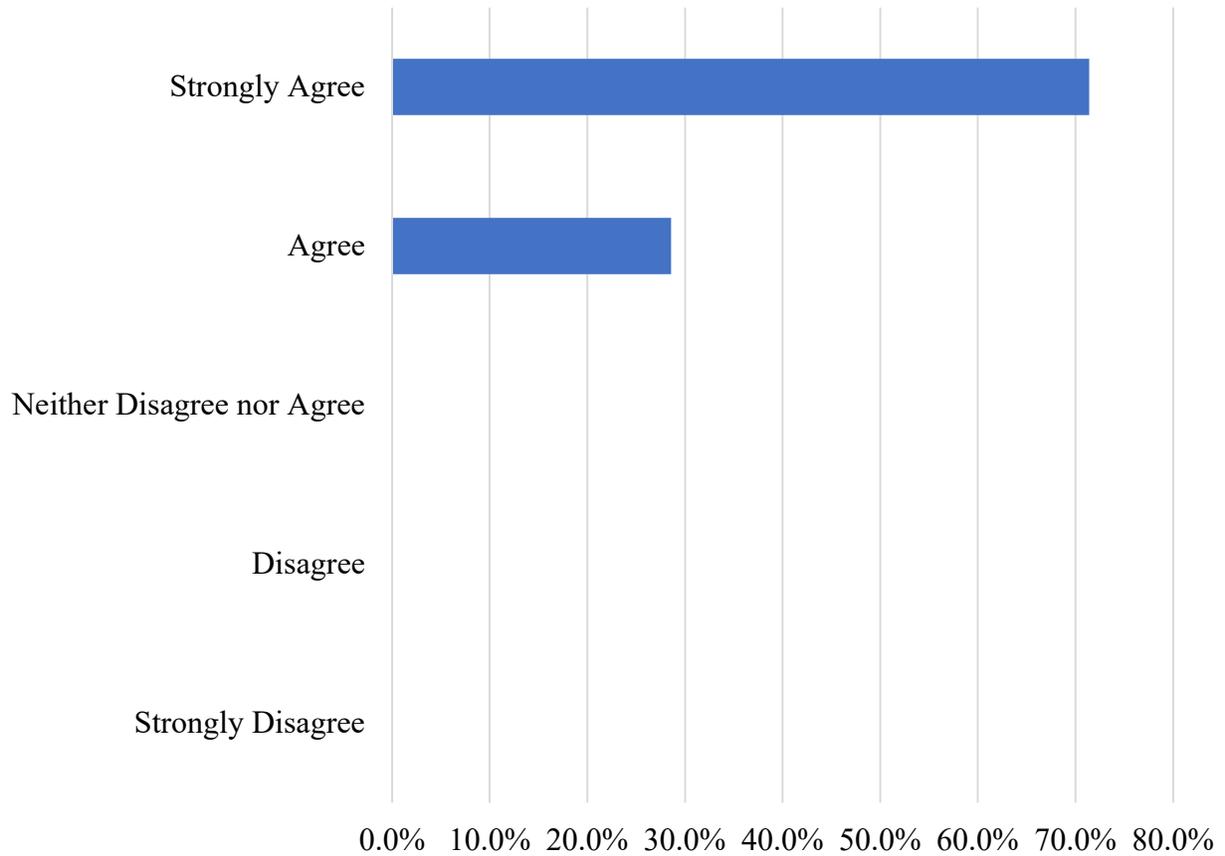**Figure 9 (Survey Question 9)**

Figure 9: Question 9: The table showing states where CRNAs have prescriptive authority is informative and useful in demonstrating the status of policy change taking place across the nation (1 = Strongly disagree, 5 = Strongly agree). 71.4% strongly agreed and 28.6% agreed.

SURVEY RESULTS
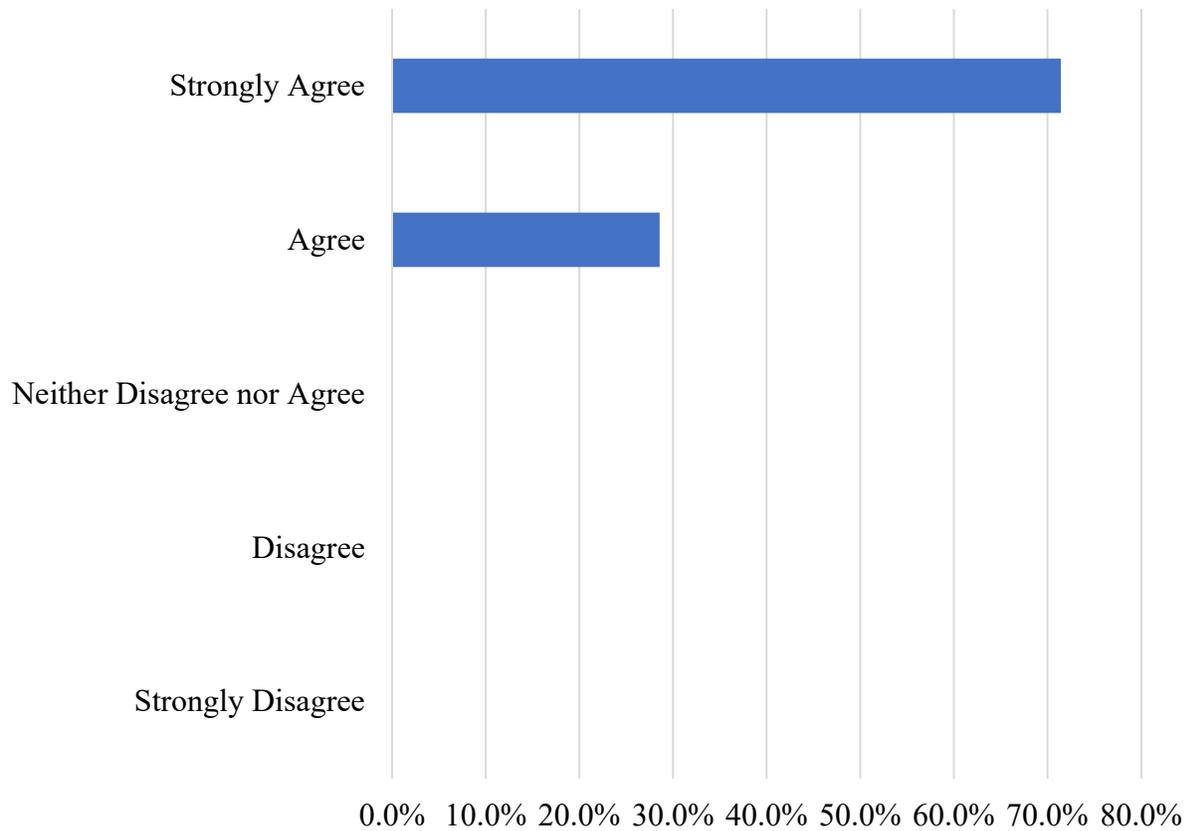
Figure 10 (Survey Question 10)

Figure 10: Question 10: There is a need for this toolkit and the toolkit is likely to be supported by CRNAs in Maryland (1 = Strongly disagree, 5 = Strongly agree). 71.4% strongly agreed and 28.6% agreed.

Appendix A
Evidence Review Table

Author, year	Study objective/intervention or exposures compared	Design	Sample (N)	Outcomes studied (how measured)	Results	*Level and Quality Rating
Skillman, Kaplan, Fordyce, McMenamin, & Doescher, (2012)	To evaluate the practice distribution of CRNAs and explore the effect of CRNA practice autonomy on rural populations.	Retrospective review /study of data records.	35,973 CRNA records (n = 5455 rural locations, n = 30,518)	Data were reviewed to determine employment/practice state and location of the CRNA. Practice regions were designated as rural or urban per state demarcation	The study concluded that rural areas in states with the most autonomous practice regulations are likely to have more CRNAs practicing compared to rural areas without prescriptive authority (P < 0.001). Data records indicate a CRNA distribution of 1.2 urban and 0.9 rural CRNAs per 10, 000 population. In Maryland, the rural CRNA distribution was 0.4/ 10,000. Distribution by male gender 60.9 % rural and 38.5% urban. The study also noted that practice autonomy should be considered by states as a way of encouraging and recruiting more CRNAs and NPs to rural communities.	V B
Liao, Quraishi, & Jordan, (2015)	To highlight the importance of CRNAs in rural, low income and underserved area hospitals. Secondly to determine if there was a relationship between socioeconomic factors related to geography and insurance type and the distribution of anesthesia provider type.	Literature review	N/A	Data from the 2012 Area Resource File was used. Correlation analyses were done to illustrate county median income and anesthesia provider distribution	The results of the study correlate CRNAs with low-income, underserved, or rural communities and anesthesiologist with higher income populations. Per the researchers CRNAs were also more likely to practice in areas with lower median incomes and larger populations of the unemployed, the uninsured and/or Medicaid beneficiaries.	IV B

| Ghertner & Groves, (2018) | To examine the relationships between indicators of economic opportunity and the prevalence of prescription opioids and substance use in the U.S. | Literature Review | N/a | Indicators measured: economic opportunity, substance use and prescription opioid prevalence. Data analyzed from 2006 – 2016 from sources including NIDA, CDC, CMS Prescription Drug Event file, U.S Census Bureau, Bureau of Labor Statistics and DEA. | Research demonstrates a negative correlation between economically disadvantaged counties and substance use and the opioid crisis. Overall counties with the worst economic prospects have higher prevalence of substance use and opioid prescriptions. As of 2016 overdose death rates in rural counties across the nation had surpassed those of non-rural counties, estimated rates were at 18.7 deaths per 100,000 persons, which is 4.8 times larger than it was in 2000. | IV A |
| Hogan, Seifert, Moore, & Simonson (2010) | Given the increasing demand for anesthesia services, this cost effectiveness analysis was performed to determine whether CRNAs are cost effective compared to their counterparts while maintaining quality of care. | Cost-Effectiveness Simulation Analysis | 52, 636 anesthetics | Medical and financial claims data was examined | The analysis concluded that anesthesia delivery models using medical direction increase patients' surgical wait time thus are not as cost effective as CRNAs acting independently. Furthermore, these models often require financial subsides from the government to maintain sustainability. Independently practicing CRNAs provide anesthesia services at the lowest economic cost, decreased costs to private payers and produce the greatest net positive revenues when compared to the medical supervised CRNAs. Additionally, studies find that CRNAs practicing independently do not have negative effects on mortality rates, safety, or effectiveness regarding patient outcomes. | V B |

Evidence strengths were assigned using the Melnyk & Fineout-Overholt (2014) Rating System for Hierarchy of Evidence. Evidence quality ratings were assigned using the Newhouse (2006) Rating Scale for Quality of Evidence.

Appendix B
Policy Toolkit Evaluation Survey

For each item, please select the choice that applies

Section 1: Descriptive Data

No. of Years in practice	◉ <2	◉ 2--5	◉ 6-10	◉ 11-15	◉ 16-20	◉ >20
Practice setting	◉ Hospital/ Health care facility	◉ Pain Clinic	◉ Private practice	◉ Surgical Center	◉ Other	
Environment	◉ Urban	◉ Rural	◉ Other			

Section 2: Toolkit

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
4. CRNAs should have prescriptive authority and the lack of prescriptive authority is a hindrance to the advancement of the CRNA profession.	○	○	○	○	○
5. CRNAs having prescriptive authority would result in improved patients' outcomes.	○	○	○	○	○
6. The purpose for creating the toolkit is clear and the toolkit is informative.	○	○	○	○	○
7. The policy decision brief in the toolkit provides accurate information about the problem with supporting research data and demonstrates the need for policy change.	○	○	○	○	○
8. The personal story and elevator speech are persuasive and emphasize the human impact of the shortfalls resulting from the lack of CRNAs prescriptive authority.	○	○	○	○	○
9. The table showing states where CRNAs have prescriptive authority is informative and useful in demonstrating the status of policy change taking place across the nation	○	○	○	○	○
10. There is a need for this toolkit and the toolkit is likely to be supported by CRNAs in Maryland.	○	○	○	○	○

Appendix C
Information about the CRNA Profession
(Myths Vs. Reality)

Myth: CRNAs are less educated than physicians and therefore should be physician supervised.

Reality: It takes a minimum of seven to eight years of education and experience to prepare a CRNA. There is overwhelming evidence that CRNAs provide exceptional anesthesia care, regardless of whether supervised by a physician or not. No studies indicate that state-mandated supervision requirements improve patient care or quality of practice. The most substantial difference between CRNAs and anesthesiologists is that prior to anesthesia education; anesthesiologist first receive medical education whereas CRNAs first receive nursing education. The anesthesia aspect of the education is very similar for both providers, particularly concerning anesthetic pharmacology and anesthesia techniques.

Education and experience required to become a CRNA include:

- A Bachelor of Science in Nursing (BSN)
- A Current registered nurse (RN) license
- At least one year of full-time or equivalent work experience as a registered nurse in a critical care setting. Average experience of RNs entering nurse anesthesia educational programs is 2.9 years
- Graduate with a minimum of a master's degree from an accredited nurse anesthesia educational program. Programs range from 24-51 months. All programs include clinical training in academic facilities or large community hospitals
- Doctor of Nursing Practice (DNP) is now becoming the standard of education
- Pass the national certification examination

Recertification: Based on eight-year periods comprised of two 4-years cycles. CRNAs must obtain a minimum of 60 hours of approved class A continuing education (CMEs): 40 hours of class B CMEs or professional development activities and pass a comprehensive examination current state licensure and certify that one has not developed conditions that can negatively affect one's ability to practice anesthesia (AANA, 2020).

Myth: CRNAs are educated to practice under the medical direction of anesthesiologists and there, must be physician supervised.

Reality: CRNAs are educated to provide quality anesthesia care, regardless of whether an anesthesiologist is present. All nurse anesthesia educational programs are accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs. To obtain accreditation, programs are required to demonstrate that the "clinical curriculum provides students with opportunities for experiences in the perioperative process that are unrestricted and promote their development as competent safe nurse anesthetist." Anesthesiologist arguments concerning supervision and CRNA practice are similar from state to state. In part, this is because state anesthesiologist societies tend to adapt their materials from American Society of Anesthesiologist (ASA) documents. The ASA's position has very little to do with CRNA

education and training and is primarily designed to protect the turf of physicians practicing anesthesiology. Nurse anesthesia educational programs prepare nurse anesthetists for autonomous practice.

Myth: Anesthesia is the practice of medicine

Reality: Anesthesia practice is neither the exclusive province of medicine nor nursing. CRNAs practice nursing, not delegated medicine. Medicine and nursing can, and often do, share overlapping functions. CRNAs neither practice medicine nor aspire to. The practice of anesthesia is a recognized specialty in both nursing and medicine. The CRNA is the nursing specialist and the anesthesiologist is the physician specialist in this field. Related articles are available at: http://www.aana.com/advocacy/stategovernmentaffairs/Pages/Anesthesia-Practice-of-Nursing-and-Practice-of-Medicine.aspx.

Myth: CRNAs are trained only to perform anesthesia techniques and are therefore only technicians. Unlike physicians, CRNAs are neither licensed nor qualified to make the medical judgments necessary for adequate patient care.

Reality: CRNAs do not purport to be physicians. Rather, they are highly qualified nursing providers who provide the same quality care as their physician counterparts. Nurse anesthesia education programs are two to three years long and include both classroom and clinical experience. The curriculum emphasizes anatomy, physiology, biochemistry, chemistry, and pharmacology as they relate to anesthesia practice. The clinical component provides experience with the full scope of anesthetic experiences and a variety of techniques for all types of surgery and obstetrics. CRNAs are competent anesthesia providers not "technicians." They are no more restricted to learning "basic" anesthesia procedures than are anesthesiologist. CRNAs are educated to be, and in fact are, functionally interchangeable with anesthesiologists concerning anesthesia care.

Retrieved from: https://www.aana.com/membership/become-a-crna/crna-fact-sheet

Appendix D
Talking Points: The Value of CRNAs

1. Certified Registered Nurse Anesthetists (CRNAs) providers more than 43 million anesthetics each year in the United States and have done so for more than 150 years. Nurses first provided anesthesia to soldiers in the Civil War. CRNAs play a critical role in ensuring a high standard of patient care (AANA, 2019).

2. CRNAs have been providing anesthesia for years prior to physicians joining the specialty (Malina & Izlar, 2014).

3. CRNAs are the primary providers of anesthesia care in rural America, allowing healthcare facilities in medically underserved areas to offer obstetrical, surgical, and trauma stabilization services. In some states, CRNAs are the sole providers in nearly 100 percent of rural hospitals.

4. A landmark national study conducted by RTI International and published in the August 2010 issue of Health Affairs concluded that there were no differences in patient outcomes when anesthesia services were provided by CRNAs, physicians anesthesiologists, or CRNAs supervised by physicians.

5. The "No Harm Found When Nurse Anesthetists Work Without Supervision by Physicians," examined approximately 500,000 individual cases and confirmed what previous studies had already shown which was that CRNAs provide safe, high-quality care.

6. Findings from the Institute of Medicine (IOM) released in October 2010 claimed that expanding the role of nurses in the United States healthcare system would help meet the growing need for healthcare services. The IOM report urged policymakers to remove policy barriers that hindered nurses from practicing to the full extent of their education and training. The report "The Future of Nursing: Leading Change, Advancing Health," offered evidence that advanced practice registered nurses should be a major part of the solution to the nation's healthcare issues, especially access to care in medically underserved areas.

7. Nurse anesthetists have been providers of anesthesia care to United States military personnel since the Civil War and in more recent conflicts in the Middle East.

Retrieved from: https://www.aana.com/membership/become-a-crna/crna-fact-sheet

Appendix E
Policy Brief

To:
From:
Re: **Asking you to support legislation to grant certified registered nurse anesthetists (CRNAs) in the state of Maryland prescriptive authority**

Issue Summary: Current law in the state of Maryland does not grant CRNAs prescriptive authority with or without physician supervision although it is within the scope of practice and well within their education and training (AANA, 2018). 32 other states have already granted CRNAs prescriptive authority and evidence demonstrates positive outcomes as well as improved patient outcomes (AANA, 2019).

Background:

- CRNAs are educated and trained to provide acute, chronic, and interventional pain management services. CRNAs use a multimodal pain management approach which involves the use of adjunctive pain medications to minimize the use of opioids (AANA, 2018).
- Maryland ranks among the top five states with the highest rates of opioid-related deaths. The death rate in Maryland is 1.5 to 3 times above the national average with the highest prevalence seen in rural areas (NIDA, 2016).
- Of the 24 counties in Maryland, 18 are considered rural and face issues with lack of access to hospitals and health clinics (HRSA, 2018). CRNAs provide anesthesia and other services in a variety of settings, and in some states are the sole anesthesia providers in nearly 100 % of their rural hospitals (Liao, Quraishi, & Jordan, 2015). Furthermore, evidence shows that it is advantageous to utilize CRNAs independently (Hogan, Seifert, Moore & Simonson, 2010; Institute of Medicine, 2010).
- Cost effective analysis show that the independently practicing CRNA was the most cost-effective anesthesia delivery model, reducing anesthesia cost by 25 percent (Hogan et al., 2010).

Alternatives

1. Independent prescribing authority: Permits CRNAs to prescribe without written collaborative agreement or supervision of a physician. Current practice in 15 states (AANA, 2019).

> **Advantages:** Increased number of providers, increased access to care for patients in rural underserved areas and cost effective.
> **Disadvantages:** None

2. Supervised prescribing authority: Permits CRNAs to prescribe with written collaborative agreement or supervision of a physician. Current practice in 17 states (AANA, 2019).

> **Advantages:** Increased number of providers and increased access to care for patients.
> **Disadvantages:** Costly

Recommendations: Implementation of alternative number one which supports legislation to grant CRNAs in the state of Maryland independent prescriptive authority. Evidence demonstrates that this alternative allows CRNAs to practice to the full extent of their education and licensure in efforts to ensure improved access and cost-effective care for rural and the underserved populations as well as assist in combating the opioid crisis (Dulisse & Cromwell, 2010; Hogan, Seifert, Moore, & Simonson, 2010; Liao, Quraishi, and Jordan, 2015).

Appendix F
Sample Letter

Date:

[Enter and Address]:

Dear:

As a Certified Registered Nurse Anesthetist (CRNA) in your district, I am contacting you in

support of [Enter bill number].

Our state took steps to authorize all other Advanced Practice Registered Nurses (APRNs) to prescribe except CRNAs. Unfortunately, some unintended consequences from that legislation created new workforce challenges and bottlenecks. [Enter Bill number] aims to correct those issues. The bill would allow CRNA prescriptive authority upon graduation and passage of the certification examination.

The bill would:

- Bring Maryland into closer alignment on prescriptive authority requirements with our neighboring states, and the recommendations of the National Council of State Boards of Nursing and the Institute of Medicine.
- Better position Maryland to competitively recruit CRNAs and other advanced practice nurses.
- Reduce the regulatory process challenges that new graduates and CRNAs relocating, from states with prescriptive authority, to the state have encountered.
- Enable better geographic distribution, recruitment, and retention of the CRNA workforce.
- Capture the full benefits for the advanced practice nursing workforce with a more efficient and effective regulatory model.
- This bill would not change the scope of practice for CRNAs as scope has been and will continue to be defined by education, training, and national certification.

Marylanders, especially those in underserved and rural areas, will be better served by adopting this bill.

I request your support for this bill. On behalf of myself and my patients, thank you in advance for your consideration and support of [Enter bill number].

[signature]

Appendix G
National Status on Prescriptive Authority for CRNAs

State	Prescriptive Authority	Independent (without physician involvement), and includes all controlled substances	Physician supervision, excluding Controlled substances, or both
Alabama	No		
Alaska	Yes	X	
Arizona	Yes		X
Arkansas	Yes		X
California	No		
Colorado	Yes		X
Connecticut	Yes		X
Delaware	Yes	X	
District of Columbia	Yes	X	
Florida	Yes		X
Georgia	No		
Hawaii	Yes	X	
Idaho	Yes	X	
Illinois	Yes		X
Indiana	No		
Iowa	Yes	X	
Kansas	No		
Kentucky	Yes		X
Louisiana	Yes		X
Maine	Yes		X
Maryland	No		
Massachusetts	Yes	X	
Michigan	No		
Minnesota	Yes	X	
Mississippi	No		
Missouri	Yes		X
Montana	Yes	X	
Nebraska	No		
Nevada	No		
New Hampshire	Yes	X	
New Jersey	No		
New Mexico	Yes		X
New York	No		
North Carolina	No		
North Dakota	Yes	X	
Ohio	No		
Oklahoma	Yes		X
Oregon	Yes	X	
Pennsylvania	No		
Rhode Island	No		
South Carolina	No		
South Dakota	No		
Tennessee	Yes		X
Texas	Yes		X
Utah	No		
Vermont	Yes	X	
Virginia	No		

Washington	Yes	X	
West Virginia	Yes		X
Wisconsin	Yes		X
Wyoming	Yes	X	
Totals:	**Y - 32: N - 19**	**15**	**17**

Data retrieved from the AANA prescriptive authority map, 2019

Appendix H
Elevator Speech

Good Morning Maryland general assembly, I am here to ask you support legislation to grant Certified Registered Nurse Anesthetists (CRNA) in the state of Maryland prescriptive authority. I would like to begin by thanking you all for allowing me the opportunity to speak. Imagine suffering from chronic pain as a result of a car accident, a disease, or a procedure, taking opioids and more opioids without any relief. Imagine taking 20 to 30 opioid pills a day to deal with your pain and avoid withdrawal. Unfortunately, this is the reality for some Marylanders.

Maryland ranks among the top five states with the highest rates of opioid-related deaths. The death rate in Maryland is 1.5 to 3 times above the national average. There are many contributors to both the problem and solution regarding the opioid crisis. One such contributor to the problem is poor pain management with opioids by healthcare providers. Granting CRNAs prescriptive authority and allowing them to utilize their education and training can contribute to the solution.

In addition to providing anesthesia, CRNAs are also educated and trained to provide acute, chronic, and interventional pain management services. CRNAs use a multimodal pain management approach which involves the use of adjunctive pain medications to minimize the use of opioids. Granted prescriptive authority, CRNAs can add to the number of healthcare providers with the ability to prescribe, manage patients and opioid use amid this crisis.

32 other states have already granted CRNAs prescriptive authority and evidence demonstrates positive outcomes as well as improved patient outcomes. Once again, I propose that you support legislation to grant CRNAs in the state of Maryland prescriptive authority. I welcome any follow questions. Thank you for your time.

Appendix I
Personal Story

Good Morning Maryland general assembly, I would like to begin by thanking you all for allowing me the opportunity to speak. I am here to ask you support legislation to grant Certified Registered Nurse Anesthetists (CRNA) prescriptive authority. The National Institute on Drug Abuse (NIDA) reports that Maryland ranks among the top five states with the highest rates of opioid-related overdose deaths. As of 2016, opioid overdose death rate in Maryland was 30 deaths per 100, 000 persons well over the national average of 13.3 per 100, 000 (NIDA, 2016).

These statistics are just that for many of us, however for many of our fellow Marylanders they are more than just numbers on a page, this is their reality. This is true for A.M who lost her 22-year-old son C.M to a prescription opioid overdose. At age 20, C. M was involved in a car accident which left him with back pain. He was prescribed opioids for the back pain, but it quickly became evident the C.M's tolerance was increasing and he was requiring more pills per day to relieve his back pain, soon he was seeking out providers to prescribe him more opioids.

At the peak of his addiction, C.M was taking 25 pills a day. The once gifted athlete had changed, he lost interest in everything, he had trouble sleeping, and he became defensive and combative. After many failed attempts at rehabilitation, C. M's addiction intensified and within two short years he was dead from a prescription opioid overdose. Unfortunately, stories like this are becoming all too common. CRNAs are trained to provide a multimodal pain treatment approach and are qualified to assist in the eradication of the opioid crisis that is afflicting our nation (AANA, 2019).

Multimodal pain management involves the use of adjunctive pain control methods such as nonsteroidal anti-inflammatory drugs, cyclooxygenase type-2 (COX-2) inhibitors, and neuropathic pain inhibitors (Gabapentin) to minimize the use of opioids and when used opioids

like Tramadol are used as they are less potent and have a lower potential for addiction and withdrawal (AANA, 2019). With prescriptive authority, CRNAs can provide their services in pain clinics and other outpatient settings (AANA, 2019).

Certified Registered Nurse Anesthetists (CRNAs) provide anesthesia in a variety of settings, and in some states are the sole anesthesia providers in nearly 100 % of rural hospitals and clinics (Liao, Quraishi, & Jordan, 2015). However, administering anesthesia during surgery is not all that CRNAs do; CRNAs are also educated and trained to provide acute, chronic, and interventional pain management services (American Nurse Association, 2019).

CRNAs play an essential role in ensuring access to anesthesia and pain management services in rural America and it is in rural America that we find the highest incidences of prescription opioid overdoses (Skillman, Kaplan, Fordyce, McMenamin, and Doescher, 2012). 18 of our 24 counties in Maryland are considered rural and many face issues with the lack of access to hospitals and health clinics (HRSA, 2018). Prescriptive Authority is the ability of advanced practice registered nurses (APRNs) to prescribe, without limitation, legend (prescription) and controlled drugs, devices, adjunct health/medical services, durable medical goods, and other equipment and supplies (AANA, 2019).

Once again, there is evidence showing that granting CRNAs prescriptive authority can assist in combating the opioid crisis (Dulisse & Cromwell, 2010; Hogan, Seifert, Moore, & Simonson, 2010; Liao, Quraishi, and Jordan, 2015). It is for C.M and mothers like A.M and countless other victims and their families that I implore you to support legislation that would grant prescriptive authority to Certified Registered Nurse Anesthetists (CRNA).