

## **Project Deliverable**

### **Summary & Findings**

Opioid administration throughout the perioperative setting is correlated with several undesirable side effects leading to fiscal strain and patient morbidity. Moreover, the ongoing opioid crisis in the United States has prompted interventions from across health care specialties. Emerging literature has called for contemporary anesthesia practice to incorporate medications such as dexmedetomidine as part of multi-modal analgesic sparing approaches to practice. This study investigated the obstacles perceived by Nurse Anesthesia providers affiliated with the New York State Association of Nurse Anesthetists (NYSANA) regarding the routine use of dexmedetomidine in anesthesia care plans. Findings revealed that most respondents were familiar with dexmedetomidine, were comfortable administering it, and believed it provides a direct patient benefit. Dispelling the initially hypothesized barrier that education and comfort levels impacted routine usage. Challenges to its routine inclusion were multifaceted, stemming from cultural, logistical, and fiscal aspects.

### **Future Implications and Recommendations**

There are several areas for future implications and recommendations regarding research on the use of dexmedetomidine throughout the perioperative setting. Subsequent research might consider excluding student anesthesia providers, student anesthesia providers possess unique circumstances, as their autonomy is both encouraged and limited. The dynamic of the preceptor-student relationship may influence decision-making and in turn, skew collected feedback. Given dexmedetomidine's longer half-life compared to short acting opioids like fentanyl, it is essential to investigate whether specific types of practice setting, be it ambulatory or hospital based, plays

a role in a provider's decision to routinely utilize dexmedetomidine. Expanding the diversity of the sample size to include Physician Anesthesia providers, and Anesthesiologist Assistants would offer a broader perspective beyond the exclusive viewpoint of Nurse Anesthesia providers. Furthermore, there may be underlying circumstances dictated by New York State Regulations for CRNAs and SRNAs that were not captured in this survey. Therefore, including Anesthesia providers from national-level organizations would provide a more comprehensive perspective. Further exploration of anesthetic care team models versus independent care models should also be examined due to the limited number of independent Nurse Anesthesia provider respondents. Variation was noted among respondents regarding concentration on-hand as a barrier to routine utilization. Future research should incorporate subset options to determine if specific concentrations (such as prefilled syringes verse double dilution) influence the decision to utilize dexmedetomidine. Over a quarter of respondents agreed that cost was a direct barrier to utilization, thus determining methods to decreasing costs associated with dexmedetomidine should be further investigated. Similarly, the aspect of relative availability should explore whether Anesthesia providers have dexmedetomidine accessible to them preoperative, intraoperative, and postoperative areas.

**Table 1***Participant Demographics*

|                                   | <b>n</b> | <b>%</b> |
|-----------------------------------|----------|----------|
| <b><i>Age</i></b>                 |          |          |
| Under 30                          | 14       | 11.3     |
| 30-40                             | 56       | 45.2     |
| 41-50                             | 23       | 18.5     |
| 51-60                             | 16       | 12.9     |
| >61                               | 15       | 12.1     |
|                                   | <b>n</b> | <b>%</b> |
| <b><i>Gender</i></b>              |          |          |
| Male                              | 46       | 37.1     |
| Female                            | 78       | 62.9     |
|                                   | <b>n</b> | <b>%</b> |
| <b><i>Education</i></b>           |          |          |
| Degree/Certificate                | 3        | 2.4      |
| Bachelors                         | 20       | 16.1     |
| Masters                           | 52       | 41.9     |
| Doctorate                         | 49       | 39.5     |
|                                   | <b>n</b> | <b>%</b> |
| <b><i>Years of Experience</i></b> |          |          |
| <1                                | 11       | 8.9      |
| 1-3 Yrs.                          | 30       | 24.2     |
| 3-5 Yrs.                          | 16       | 12.9     |
| 5-10 Yrs.                         | 19       | 15.3     |
| >10 Yrs.                          | 48       | 38.7     |
|                                   | <b>n</b> | <b>%</b> |
| <b><i>CRNA or SRNA</i></b>        |          |          |
| CRNA                              | 106      | 85.5     |
| SRNA                              | 18       | 14.5     |

**Table 2**

*Chi-Square Test- Number of years in Anesthesia Practice/ Clinical Experience and Comfort Level Administering Dexmedetomidine to Population Routinely Cared For*

|                                 | Value               | df | Asymptotic Significance<br>(2-sided) |
|---------------------------------|---------------------|----|--------------------------------------|
| Pearson Chi-Square              | 15.993 <sup>a</sup> | 8  | .042                                 |
| Likelihood Ratio                | 18.075              | 8  | .021                                 |
| Linear-by-Linear<br>Association | .697                | 1  | .404                                 |
| N of Valid Cases                | 124                 |    |                                      |

**Table 3**

*Chi-Square Test- Anesthesia Model and Cultural Influence on Routine Inclusion of Dexmedetomidine*

|                                 | Value              | df | Asymptotic Significance<br>(2-sided) |
|---------------------------------|--------------------|----|--------------------------------------|
| Pearson Chi-Square              | 5.852 <sup>a</sup> | 4  | .210                                 |
| Likelihood Ratio                | 6.009              | 4  | .119                                 |
| Linear-by-Linear<br>Association | 4.976              | 1  | .026                                 |
| N of Valid Cases                | 124                |    |                                      |