

# Local Anesthetic Systemic Toxicity: Perioperative Nurse Education Program for LAST

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## Background and Introduction

- Local anesthetic systemic toxicity (LAST) is rare and potentially life-threatening event which can occur following the routine administration of local anesthetics
- LAST events are reported in 0.04 to 1.8/1,000 of peripheral nerve blocks and thought to be grossly underreported
- Local anesthetic (LA) drugs continue to be extensively used in the perioperative setting especially with increased reliance on multimodal anesthesia
- Despite advances in prevention, detection, and treatment, LAST remains a serious adverse event which can occur following the administration of local anesthetic drugs
- Identified gap in LAST knowledge in perioperative nurses internationally
- Need for education and LAST competence for perioperative nurses has been widely identified, yet a lack of uniform approach to training exists

## Methods

- Design:** Quantitative project with pre/post-test
  - Post-test immediately following intervention
  - Post-test 4 weeks after intervention
- Setting:** Private not-for-profit hospital in the New England region, which is part of a six-hospital comprehensive and integrated academic health system.
- Sample:** 22 Perioperative Registered Nurses
- Intervention:** 10 minute narrated PowerPoint presentation
- Measurements:** PACU Knowledge Measurement Tool for LAST

## Results: Demographics

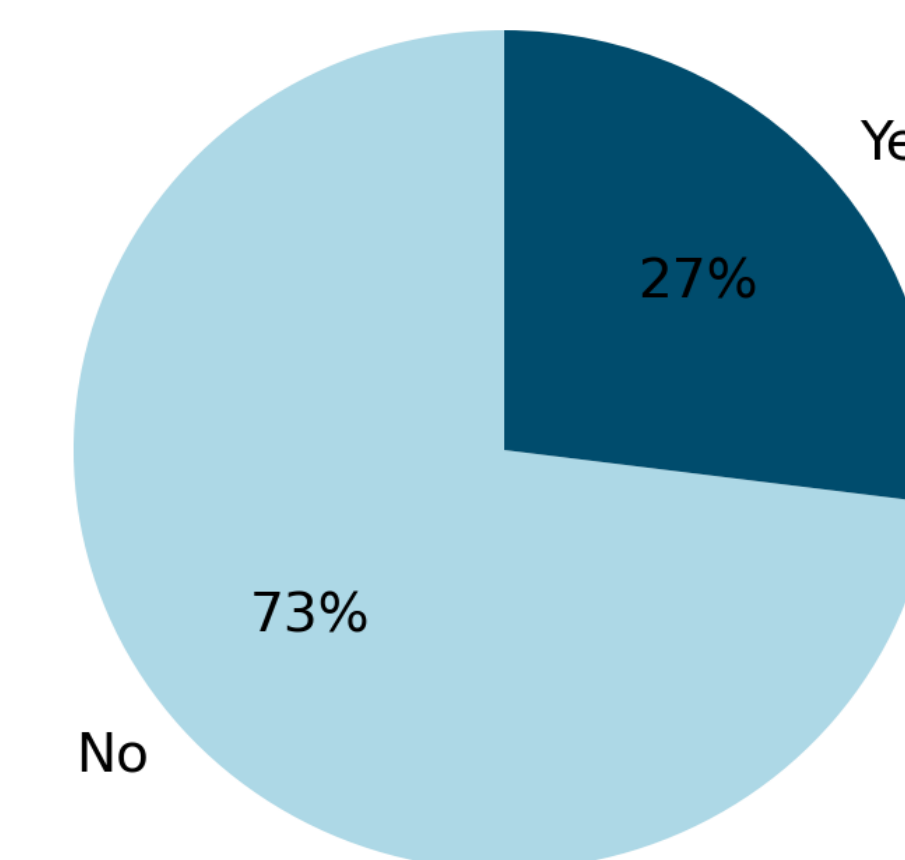
### Years as Perioperative Nurse

- 0-3: 58%
- 4-6: 14%
- 7-10: 9%
- 10-15: 0%
- 16-20: 5%
- >20: 14%

### Department

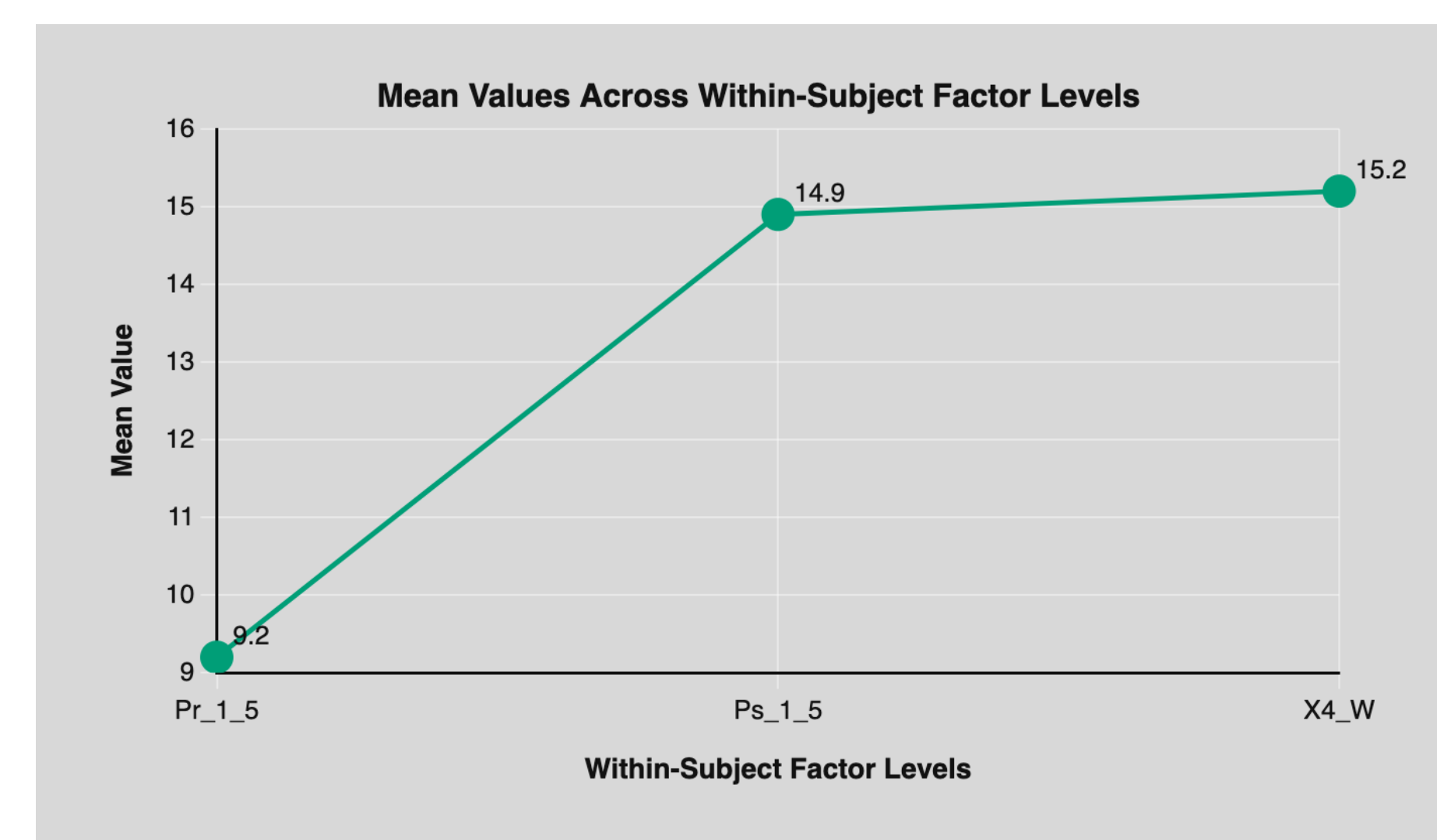
- PACU: 64%
- Endoscopy: 18%
- OR: 14%
- Other: 4%

### Prior Formal LAST Education

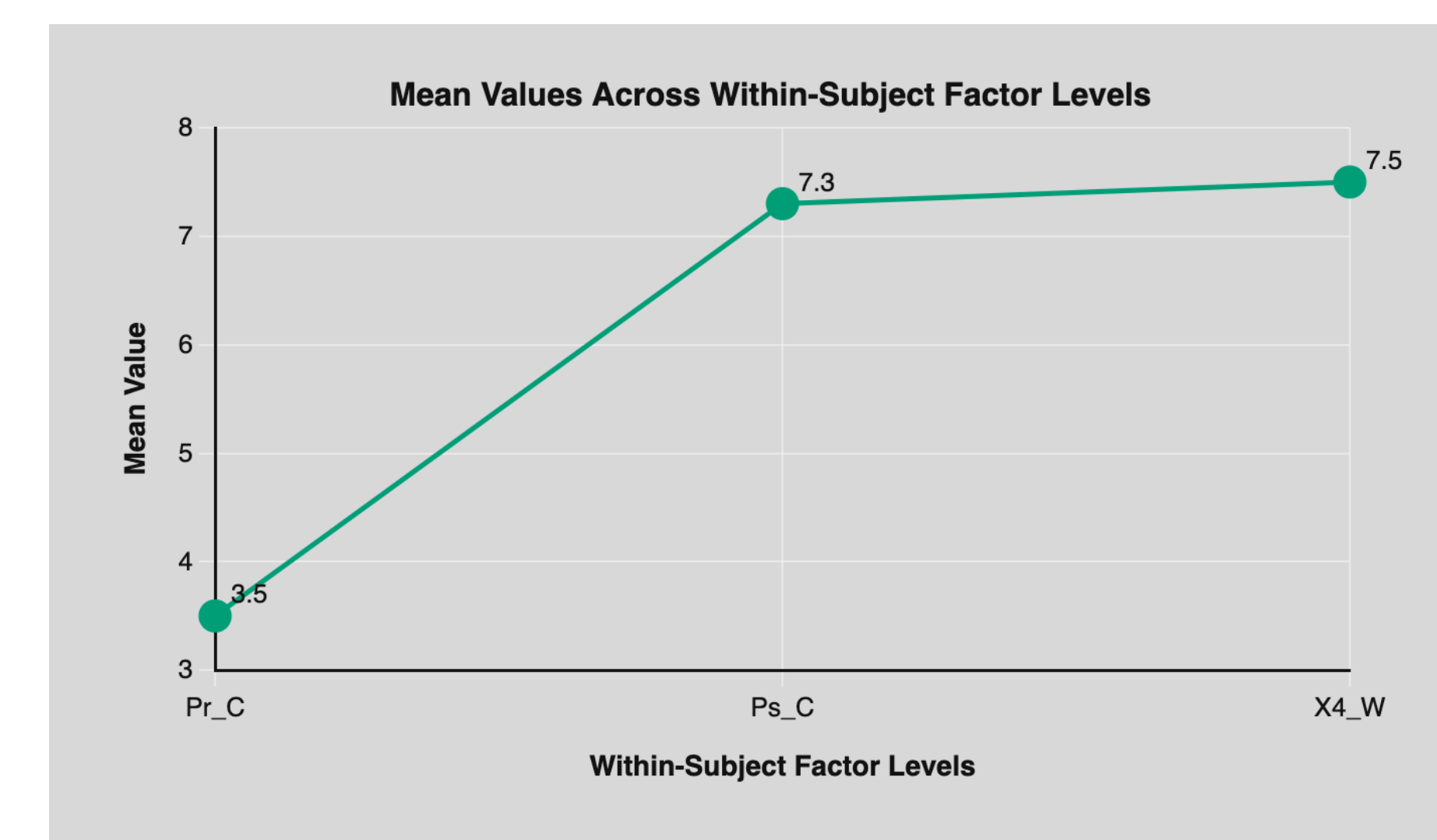


## Results: Intervention Outcomes

### LAST Knowledge Repeated Measures ANOVA



### LAST Confidence Repeated Measures ANOVA



- The intervention had a significant impact on BOTH Knowledge and Confidence related to LAST, as demonstrated by improvements in post-test scores and sustained outcomes at the 4-week follow-up.
- Participants showed enhanced clinical understanding and increased self-assurance in managing LAST events.

### LAST Tool Item Analysis

- Question 4:** Nurses showed significant improvement in identifying clinical signs of LAST (e.g., metallic taste, slurred speech, cardiovascular excitation), emphasizing the importance of training in early symptom recognition ( $p = .046$ ).
- Question 5:** The most substantial gain occurred in knowledge of lipid rescue therapy supply location, with median scores rising from 0 to 6 post-intervention ( $p < .001$ ), reflecting enhanced emergency preparedness.

## Significance

- Nursing:** Encourages a culture of readiness and standardized perioperative education
- Education:** Supports evidence-based education in specialty practice to close gaps in knowledge, preparedness, and clinical competency.
- Leadership:** Empower perioperative nurses in managing LAST and ensuring safe, collaborative practice.
- Research:** Contributes to limited body of literature and encourages further research surrounding perioperative nursing and LAST

## Conclusions

- Standardized LAST education is lacking across medical specialties, especially in nursing
- The intervention successfully strengthened key areas of LAST knowledge and confidence, particularly in symptom identification and logistical preparedness.
- Formal LAST training enhances clinical preparedness and supports better patient outcomes

## References

