

Crisis Preparedness in Anesthesia: Implementation and Integration of the Stanford Emergency Manual into the IPP at Boston Medical Center

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INTRODUCTION

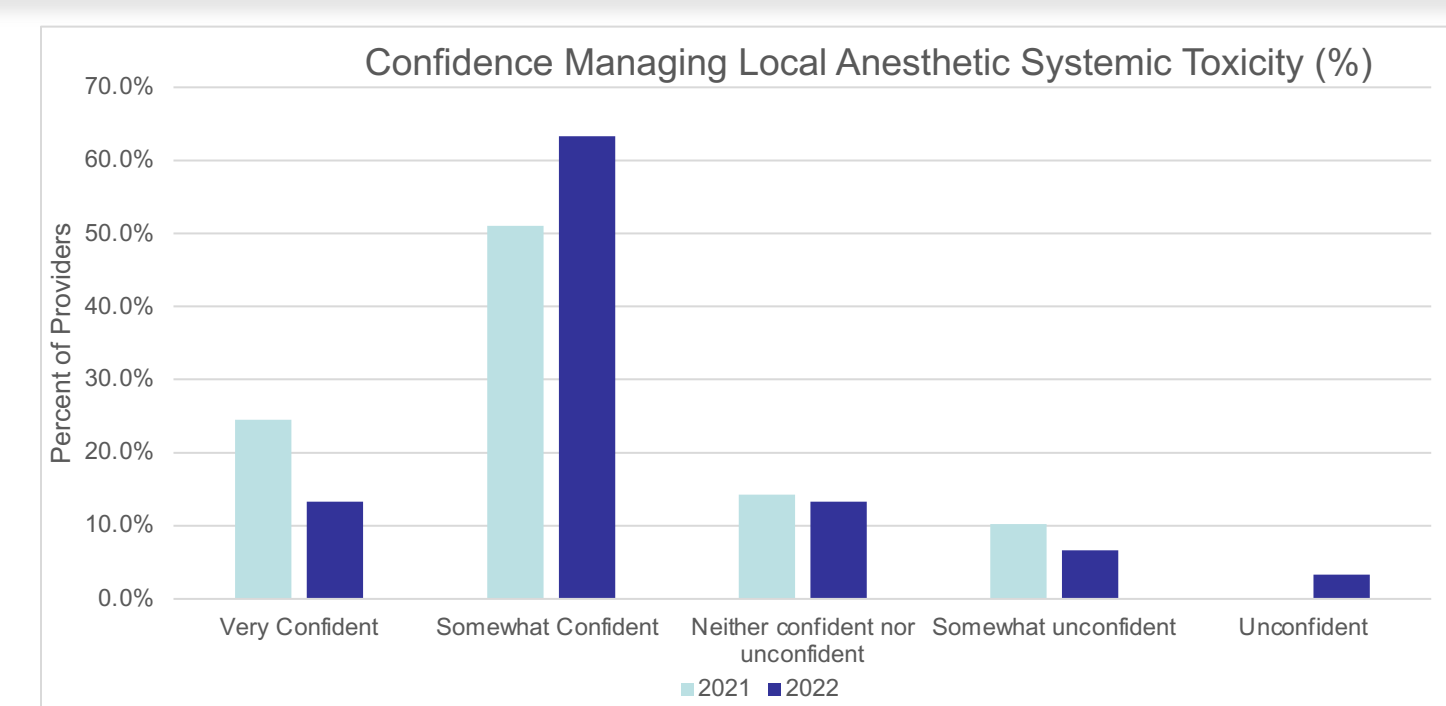
Topic: OR crises are rare but critical events. A systematic review performed by Anderson et al. (2013) found that 14.4% of all surgical patients experienced at least one adverse event during the perioperative period. The use of cognitive aids during perioperative crises reduces the omission of critical treatment/assessment steps and improves provider stress (Arriaga et al., 2013; Hardy et al., 2018; Koers et al., 2020).

Problem: At Boston Medical Center (BMC), the Stanford Emergency Manual has been available for use in the electronic format, yet there has not been any formal training in its use within the last three years. When a patient experiences a crisis event in the operating room, current practice is that providers manage these events from memory alone. This results in inconsistent care that is not always evidence based. A needs-based survey sent to anesthesia providers in July 2021 demonstrated a need and desire for additional crisis resources and training

Aim: To supply clinicians with consistent and reliable access to the Stanford Emergency Manual in all areas where anesthesia is administered and to execute a robust implementation program that includes structured interdisciplinary simulations to create the safest perioperative experience for patients at BMC.

Objectives:

- To increase anesthesia provider confidence levels when managing an intraoperative crisis by 20% within a year of introduction of the Stanford Emergency Manual into the Boston Medical Center intraprocedural platform.
- Provide education on the implementation and use of the Stanford Emergency manual to 100% of anesthesia providers in the form of grand-rounds lecture or education via email by May 2022.
- To make the Stanford Emergency Manual available in all areas of the IPP either in hard copy or electronic version by January 2022.
- To complete a series of five interdisciplinary simulations utilizing the Stanford Emergency Manual by May 2022.
- To increase anesthesia provider familiarity with and comfort using the Stanford Emergency Manual through the participation in interdisciplinary simulation.



Survey Question: How confident are you in managing adult patients with the following conditions in accordance with best practice guidelines?

METHODS

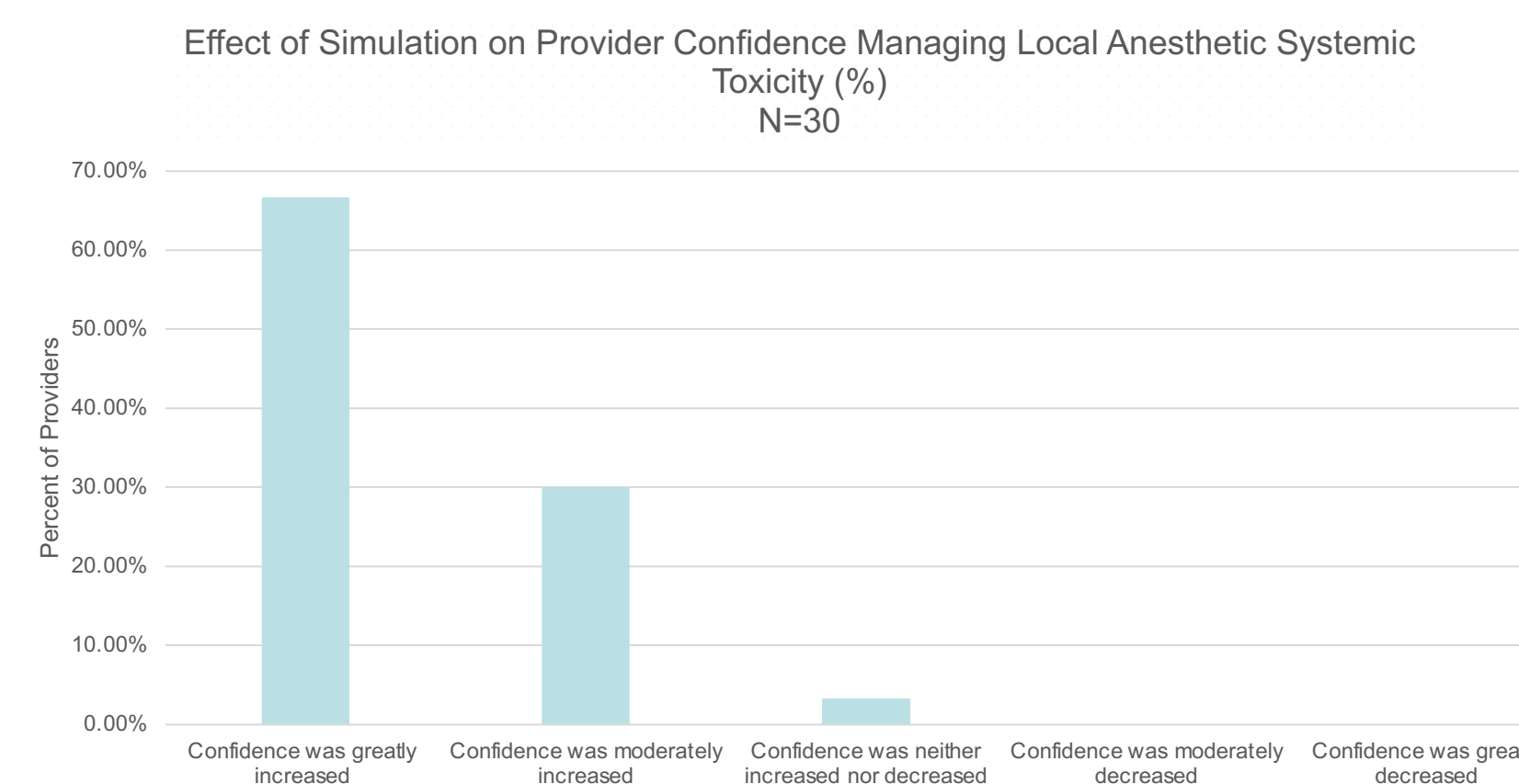
Plan:

- To incorporate the manual into all areas where anesthesia is administered at BMC.
- To educate providers on the use of the manual in the form of grand-rounds presentations, newsletter information and e-mail education
- To complete 5 interdisciplinary high-fidelity simulation sessions to enable providers to practice using the manual during an intraoperative crisis scenario

Do: A needs-based survey was sent out to the anesthesia department in July 2021. The results of the survey were used as a baseline to compare to the results of pre- and post-simulation surveys that were completed by anesthesia providers participating in the interdisciplinary simulation sessions.

Study: Data was analyzed using Microsoft Excel statistical tools. Provider confidence managing Local Anesthetic Systemic Toxicity before and after manual integration and simulation participation was measured using the Likert Scale.

Act: The use of the manual in the IPP will be adapted to include a more robust training program which would include more hands-on simulations. Additionally, quarterly manual reviews, regularly scheduled interdisciplinary simulation sessions, and surveillance surveys are a way the Stanford Emergency Manual implementation project will occur.



Survey Question: Did participation in the interdisciplinary simulation change your confidence when managing adult patients with local anesthetic systemic toxicity in accordance with best practice guidelines?

RESULTS

- The Stanford Emergency Manuals were successfully placed into all areas where anesthesia operates, including the main OR and offsite locations, such as MRI and OB.
- Electronic versions were made available through the EPIC EMR charting system and could be accessed quickly via an integrated OR charting button or on the drop-down resources menu.
- Dynamic QR codes were posted in every area where anesthesia operates as well as on all emergency equipment such as code carts and airway carts. These QR codes linked directly to the manual as well as a list of emergency phone numbers and equipment locations that could be easily updated.
- A total of 5 interdisciplinary simulation sessions were held in April and May of 2022. Sixty participants took part in the sessions, 30 of which were from the anesthesia department.
- When asked on the pre-simulation survey administered April- May 2022, "Have you received information about the use of the Stanford Emergency Manuals at BMC within the last year?" 26.7% of anesthesia participants said "No." The goal of providing education on the manuals to 100% of the department was not met.
- While the 2021 needs-based survey and the 2022 pre-sim survey only showed slight increase in confidence in managing LAST (6.2%), 96.7% of participants reported their confidence managing LAST was moderately-greatly increased after participation in the simulation sessions.

IMPLICATIONS FOR PRACTICE

- Access to the Stanford Emergency Manuals increases patient safety, especially when providers are confronted with low-frequency/ high-stakes emergencies.
- Providing access in multiple formats, including hard-copy, EMR access, and QR-codes, allows providers to be able to easily utilize this valuable resource
- Education in the form of lectures, emails and newsletters were not effective and in-person training should be performed more frequently.
- Training in the form of interdisciplinary simulations increased provider confidence when managing LAST. This could be applied to other intraoperative emergencies to enhance teamwork and patient safety.

REFERENCES

- Anderson, O., Davis, R., Hanna, G. B., & Vincent, C. A. (2013). Surgical adverse events: a systematic review. *Am J Surg*, 206(2), 253-262. <https://doi.org/10.1016/j.amjsurg.2012.11.009>
- Arriaga, A. F., Bader, A. M., Wong, J. M., Lipsitz, S. R., Berry, W. R., Ziewacz, J. E., Hepner, D. L., Boorman, D. J., Pozner, C. N., Smink, D. S., & Gawande, A. A. (2013). Simulation-Based Trial of Surgical-Crisis Checklists. *New England Journal of Medicine*, 368(3), 246-253. <https://doi.org/10.1056/nejmsa1204720>
- Hardy, J.-B., Gouin, A., Damm, C., Compère, V., Veber, B., & Dureuil, B. (2018). The use of a checklist improves anaesthesiologists' technical and non-technical performance for simulated malignant hyperthermia management. *Anaesthesia Critical Care & Pain Medicine*, 37(1), 17-23. <https://doi.org/10.1016/j.accpm.2017.07.009>
- Koers, L., Van Haperen, M., Meijer, C. G. F., Van Wandelen, S. B. E., Waller, E., Dongelmans, D., Boormeester, M. A., Hermanides, J., & Preckel, B. (2020). Effect of Cognitive Aids on Adherence to Best Practice in the Treatment of Deteriorating Surgical Patients. *JAMA Surgery*, 155(1), e194704. <https://doi.org/10.1001/jamasurg.2019.4704>