

**Postoperative Delirium,
An Interactive Learning Experience
Facilitator's Manual**

Developed by

Jennifer Gabbard, MD

Stefan David, MD

This work was supported by a Donald W Reynolds Foundation Grant to Improve
Physician Training in Geriatric Medicine

INDEX OF MAJOR SECTIONS

Title page
Index
Resource description
Purpose, goals, and objectives
Intended audience(s)
Prerequisites
Instructor qualifications
Materials
Procedures for implementation
Assessment
Evaluation
Relationship to other educational materials
List of References

Resource Description

Delirium, in particular, is of great importance to surgeons since it is associated with high rates of complications following surgery. Perioperative delirium is associated with increased cost, length of stay, poor recovery, institutionalization, and mortality. Health care cost attributed to development of delirium is estimated at \$165 billion annually. Thus development of perioperative delirium is of great importance to surgeons. Those 65 and older are expected to account for almost 20% of the U.S. population by 2030. Thus physicians need to know how to care for geriatric patients regardless of their scope of practice.

This session is designed to create active learning groups involving surgical residents and focuses on the common problem of Delirium. The delivery method includes a pre-quiz and an online module through the Surgical council of resident education (SCORE) website, and post-module quiz that the residents will need to complete the night prior to the day of the workshop. The workshop will include interactive learning groups and is delivered in the context of a one hour workshop. There will be an introductory presentation on how to perform a 4AT assessment tool along with a 5 video showing a patient with delirium followed by discussion within smaller groups of learners (4 residents per group). Each group will review a case and answer and review questions as the case progresses. Then the whole group of learners will review the information and conclusions of each group through a discussion facilitated by a faculty member. They will have 40 minutes to review the case. Then there will be closing remarks along with a post-quiz and a feedback form to complete. The post-quiz will be completed online after the session.

Purpose, Goals and Objectives

Purpose: To establish a formalized geriatric surgical curriculum with a foundation consisting of delirium prevention, assessment and management to improve surgeon's daily practice regarding the surgical care of older adults.

Goal: Improve the knowledge, skills, attitude, and behavior of surgery residents regarding perioperative delirium in surgical older adults

By the end of this curriculum, the surgical resident will be able to:

- 1) List preoperative, intraoperative, and postoperative risk factors.
- 2) Know how to calculate a delirium risk assessment score.
- 3) List treatment strategies for postoperative delirium
- 4) Correctly employed a 4AT assessment tool to diagnose postoperative delirium in non-ICU older confused surgical patient.
- 5) Calculated the correct delirium risk assessment score for a case scenario.
- 6) Proposed strategies for mitigating preoperative, intraoperative, and postoperative risk factors for a common general surgery case scenario.
- 7) Identified "best-practice" non-pharmacologic and pharmacologic treatment strategies to manage postoperative delirium given a case scenario.
- 8) As a result of the curriculum, surgical residents will rate as important that surgeons should know:
 - i) Treatment strategies for postoperative delirium.
 - ii) How to screen for postoperative delirium using a validated assessment tool (e.g. 4AT)
 - iii) Strategies to prevent postoperative delirium.
- 9) List at least the 7 main key effects that postoperative delirium has on surgical outcomes (e.g. increased 30 day mortality, increased complication rates, increased length of stay, increased costs of care, increased readmission rates, decreased patient satisfaction, and decreased functional status leading to increased rates of institutionalization).

Intended Audience(s)

Surgical Residents PGY1-PGY5

Prerequisites

Residents must perform the pre-test along with complete the online postoperative delirium module and post-module quiz prior to the start of the workshop.

Instructor Qualifications and Responsibilities

Physicians trained in Geriatrics, who have good small-group facilitation skills. Instructors must have reviewed and understood the content. A general knowledge of delirium is helpful. They must also be capable of highlighting key teaching points, thereby making it a rewarding learning experience for the residents. The instructor must work to make the session very interactive, encouraging participation by most of the residents. The instructor must be careful to begin by giving the residents only the case

guide and the questions, and only handout the answer key when the session is over. Learners should not view the answer key prior to the end of session.

Required Resources

Online module, Case guide, Questions and Answer sheet, Answer key, pre-post test, pocket card, 4AT form, mini-cex, and feedback form.

Procedures for Implementation

The group of residents consist of 36 residents. There will be quarterly workshops scheduled with 8 residents assigned to each workshop who will be divided into smaller groups of about 4 residents per group. They will be given the Case Guide and Questions. They will be required to complete the pre-test, the online module on postoperative delirium through the SCORE website and post-module quiz prior to the start of the workshop. The session will start with brief instructions on how to perform a 4AT assessment and then show a 3 minute video on a patient with hypoactive delirium. The resident will then use the scoring sheet to determine if the patient has delirium or not. Facilitator will briefly discuss the answers as a whole group. Then the residents will divide into 2 groups (4 residents per group) to review a case. There will be 40 minutes devoted to the case. The facilitator will direct the residents through the case, reviewing the questions, going around the group having everyone give answers to the questions. The facilitator will also highlight key teaching points for each question and fills in unanswered questions, thereby making it a rewarding learning experience for the residents. At the end of the session, the group with the highest number of correct answers will be rewarded a gift. The competitive nature of the interaction also encourages active participation by the groups.

Assessment

Assessment of the achievement of the learning objectives is done in a subsequent post-quiz along with a mini-cex which must be completed within the year.

Evaluation

A Likert - scale questionnaire and open-ended questions has been developed to allow learners evaluate the utility of the educational resource.

Relationship to Other Educational Materials

None

Extension Activities

None

List of References

1. Marcantonio EJ, Goldman L, Mangione CM et al. A clinical prediction rule for delirium after elective noncardiac surgery. *JAMA* 1994;271:134–139.
2. Fong TG, Tulebaev SR, Inouye SK. Delirium in elderly adults: diagnosis, prevention and treatment. *Nature reviews. Neurology*. 2009;5(4):210-220.
3. Inouye SK, Zhang Y, Jones RN, Kiely DK, Yang F, Marcantonio ER. Risk factors for delirium at discharge: development and validation of a predictive model. *Archives of internal medicine*. 2007;167(13):1406-1413.
4. Dasgupta M, Dumbrell AC. Preoperative risk assessment for delirium after noncardiac surgery: a systematic review. *J Am Geriatr Soc*. 2006;54(10):1578-1589.
5. Schwartz's Principles of Surgery, 10e : Chapter 47: Surgical Considerations in the Elderly.
6. Tan KY. Novel perioperative models make a difference in outcomes of elderly surgical patients. *Annals of Surgery*. 2014;259(4):e62-e63.
7. Shipway D, Harari D, Dhese J. Peri-operative management of older people undergoing surgery. *Reviews in Clinical Gerontology*. 2014;24(1):78-92.
8. Partridge JS, Harari D, Martin FC, Dhese JK. The impact of pre-operative comprehensive geriatric assessment on postoperative outcomes in older patients undergoing scheduled surgery: a systematic review. *Anaesthesia*. 2014;69 Suppl 1:8-16.
9. Strom C, Rasmussen LS, Sieber FE. Should general anaesthesia be avoided in the elderly? *Anaesthesia*. 2014;69 Suppl 1:35-44
10. Turrentine FE, Wang H, Simpson VB, Jones RS. Surgical risk factors, morbidity, and mortality in elderly patients. *J Am Coll Surg*. 2006;203(6):865-877.
11. **Scientific American Surgery** :Chapter 103:Perioperative Considerations for Anesthesia.
12. Hirsch J, DePalma G, Tsai TT, Sands LP, Leung JM. Impact of intraoperative hypotension and blood pressure fluctuations on early postoperative delirium after non-cardiac surgery. *British journal of anaesthesia*. 2015.
13. Marcantonio ER, Ngo LH, O'Connor M, et al. 3D-CAM: derivation and validation of a 3-minute diagnostic interview for CAM-defined delirium: a cross-sectional diagnostic test study. *Annals of internal medicine*. 2014;161(8):554-561
14. Inouye, Sharon K. et al. Postoperative Delirium in Older Adults: Best Practice Statement from the American Geriatrics Society, *Journal of the American College of Surgeons* , Volume 220 , Issue 2 , 136 - 148.e1 2015.

15. Hsieh TT, Yue J, Oh E, et al. Effectiveness of multicomponent nonpharmacological delirium interventions: a meta-analysis. *JAMA Intern Med*. Published online February 2, 2015.
16. Bellelli G, Mazzola P, Morandi A, et al. Duration of postoperative delirium is an independent predictor of 6-month mortality in older adults after hip fracture. *J Am Geriatr Soc*. 2014;62(7):1335-1340
17. McAvay GJ, Van Ness PH, Bogardus ST, Jr., et al. Older adults discharged from the hospital with delirium: 1-year outcomes. *J Am Geriatr Soc*. 2006;54(8):1245-1250.
18. Bellelli G, Morandi A, Davis DH, Mazzola P, Turco R, Gentile S, Ryan T, Cash H, Guerini F, Torpilliesi T, Del Santo F, Trabucchi M, Annoni G, Maclullich AM. **Validation of the 4AT, a new instrument for rapid delirium screening: a study in 234 hospitalised older people.** *Age Ageing*. 2014 Mar 14.
19. Hopkins RO, Jackson JC. Assessing neurocognitive outcomes after critical illness: are delirium and long-term cognitive impairments related? *Curr Opin Crit Care*. 2006;12:388-94