



Effective Health Care

Effectiveness of Protocols for Early Extubation Following Cardiac Surgery

Nomination Summary Document

Results of Topic Selection Process & Next Steps

- The topic, *Effectiveness of Protocols for Early Extubation Following Cardiac Surgery*, was addressed by a 2012 Cochrane systematic review on fast-track cardiac care protocols, including anesthesia and time-directed protocols for early extubation.
 - Zhu F, Lee A, Chee YE. Fast-track cardiac care for adult cardiac surgical patients. *Cochrane Database Syst Rev* 2012; 10:CD003587.

Topic Description

Nominator(s): Individual
Nomination Summary: The nominator states that his facility has developed a protocol for early extubation following cardiac surgery while in the operating room. He is interested in disseminating the early extubation protocol to other healthcare providers.

Staff-Generated PICO Population(s):

Population(s): Adults who have undergone cardiac surgery

Intervention(s): Implementation of protocols for early extubation, including extubation in the operating room (OR) immediately following surgery

Comparator(s): Use of standard protocols for anesthesia, critical care, and extubation following cardiac surgery; no protocol; management based on patient's clinical course

Outcome(s): Proportion of individuals requiring reintubation, time to reintubation, complications (e.g., ventilator-associated pneumonia, atelectasis, ventilator-induced lung damage, pulmonary embolism, myocardial infarction, stroke, life-threatening arrhythmia, acute kidney failure, sepsis, and gastrointestinal hemorrhage), need for long-term ventilation/tracheotomy, mortality, mobilization and recovery, intensive care unit (ICU) and hospital length of stay, and cost

Key Questions from Nominator: What is the safety and effectiveness of protocols for early extubation following cardiac surgery, including extubation while in the OR?

Considerations

- The topic meets EHC Program importance criteria. (For more information, see <http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/>.)

- Approximately 400,000 coronary artery bypass graft surgeries are performed in the US each year. Fast-track cardiac anesthesia was introduced to address the increasing demand for cardiac surgery. In many units, patients are now extubated on the operating table or within hours after their cardiac surgery using time-directed formalized weaning protocols, and they recover in a dedicated unit outside the intensive care unit (ICU) setting as part of a fast-track program. Early extubation has been associated with shortened the length of stay in the ICU after cardiac surgery and reduced costs.
- There is some indication that early extubation is now considered a standard of care, so there may be little clinical uncertainty on whether or not clinicians should use early extubation protocols but around the methods for achieving early extubation.
- The topic is addressed by a 2012 Cochrane systematic review on fast-track cardiac care for adult cardiac surgical patients. Fast-track interventions examined included the use of low-dose opioid based general anesthesia versus high-dose opioid based general anesthesia, and early extubation using time-directed protocols versus usual care for extubation. The review concluded that the use of low-dose opioid based general anesthesia and time-directed protocols for fast-track interventions have similar risks of mortality and major postoperative complications to conventional (not fast-track) care, and therefore appear to be safe in patients considered to be at low to moderate risk. The review stated that fast-track interventions reduced the time to extubation and shortened the length of stay in the intensive care unit, but did not reduce the length of stay in the hospital.