

HPR POLICY BRIEF

AMERICAN SOCIETY OF ANESTHESIOLOGISTS - COMMITTEE ON HEALTH POLICY RESEARCH

JULY 2014 • VOL 2, ISSUE 4

EVIDENCE-BASED REVIEW DID NOT FIND NURSE ANESTHETISTS' CARE EQUAL TO THAT OF PHYSICIAN ANESTHESIOLOGISTS

EXECUTIVE SUMMARY

In July 2014, The Cochrane Collaboration published a literature review, "Physician anaesthetists versus non-physician providers of anaesthesia for surgical patients." Of more than 8,000 titles/abstracts screened by the authors, only six articles were included in their qualitative review.¹

In this review, the researchers attempt to assess the safety and effectiveness of different models of anesthesia care delivery. **The authors properly conclude that, when considered as a group, currently available scientific evidence is unable to answer this question.** Although the authors "hoped that this [the review] may lead to an increase in confidence in the skills of NPAs [nurse anesthetists] within the anaesthetic community..." (p. 4), their review provided no such support.

- No new data were presented.
- There were no studies that focused on outcomes for high-risk patients.

The American Society of Anesthesiologists® (ASA®) believes it is time for a new research agenda. Among the questions to be addressed are patient experience measures and outcomes beyond death and complications resulting from anesthesia. We believe no other specialty is positioned better to help answer these questions.

INTRODUCTION

The consideration by policymakers of increasing autonomy of non-physician providers is certainly not new, particularly in primary care. The debate surrounding this issue has recently been amplified because of health care reform efforts in the United States. The discussion has extended to anesthesia care, which has increased interest in the comparative effectiveness of anesthesia professionals.



THE COCHRANE COLLABORATION REVIEW

In July 2014, The Cochrane Collaboration, an independent, non-profit, non-governmental organization formed to organize medical research information, published a literature review, "Physician anaesthetists versus non-physician providers of anaesthesia for surgical patients." Of more than 8,000 titles/abstracts screened by the authors, only six articles were included in their qualitative synthesis.

The review presented no new data and included no studies that focused on high risk patients.¹

The Cochrane Collaboration hoped that their literature review would “lead to an increase in confidence in the skills of NPAs [nurse anesthetists] within the medical community” (p.4). According to the Cochrane review, studies comparing physician anesthesiologists to nurse anesthetists do not account for the fact that physicians care for sicker patients than non-physicians. The authors concluded that, based on the studies examined, it was not possible to provide an answer to the review question (p.15).

One of the biggest challenges in comparative studies is to understand what types of patients are cared for by the different anesthesia providers. For example, the authors note, “All these studies reported important imbalances, with NPA [nurse anesthetist]-only cases more likely to be based in rural, smaller hospitals with fewer facilities, and were judged as at high risk of imbalance.” (p. 13). There is substantial evidence indicating that Critical Access Hospitals (CAHs) are more likely to perform less complex operations, have more routine admissions and fewer specialized services than other hospitals.²⁻³ CAHs are much more likely to have nurse anesthetist-only cases.

Furthermore, in larger facilities with a mix of anesthesia professionals, sicker patients and patients undergoing more complex surgeries can be assigned to more skilled providers to match the skills of the person delivering the anesthetic with the needs of the patients.

Ineffective Comparative Effectiveness: Lessons from The Cochrane Collaboration

1. “No definitive statement can be made about the possible superiority of one type of anesthesia care over another” (p.2, 15)

No conclusion can be drawn from studies comparing physician anesthesiologists and nurse anesthetists. **The lack of evidence comparing physician anesthesiologists to nurse anesthetists should not be used to suggest that physician anesthesiologists and nurse anesthetists provide equivalent care for their patients.** The only definitive conclusion – according to this review – is that current studies, in aggregate, do not permit valid conclusions about the quality of outcomes for physician anesthesiologists compared to nurse anesthetists.

Although The Cochrane Collaboration “aimed to include RCTs (randomized controlled trials)” (page 5), none of the six was an RCT. It is unlikely that an RCT will be performed anytime in the foreseeable future to compare the effectiveness of physician anesthesiologists versus nurse anesthetists. As stated in The Cochrane Collaboration review, “it poses logistic difficulties in terms of allocation concealment and blinding of participants and personnel. Further, randomization may be unacceptable to health service providers, research ethics committees and patients, particularly for high-risk patients and procedures.” (p.15-16).

2. Researchers cannot effectively identify who administered the anesthetic: physician anesthesiologist or nurse anesthetist

The Cochrane Collaboration review states that “it can be difficult to be confident about whether a physician anesthetist was actually administering anesthetic” (p.11). For example, two of the studies (Dulisse and Pine) use the billing modifier “QZ” found in Medicare claims data for classification of nurse anesthetist solo cases. The validity of QZ for this purpose, however, is questionable as there are incentives for anesthesia practices to utilize QZ as a “catch-all”

indicator even when team care is the model used.⁴ It is problematic therefore, if not impossible, to compare whether a physician anesthesiologist is “better” than a nurse anesthetist if researchers are not certain who managed the case and provided the anesthetic. Additionally, it is not possible to determine if a physician anesthesiologist was available for advice or rescue of a patient managed by a nurse anesthetist if the patient experienced complications.

3. The Dulisse study did not adequately adjust for differences in patient sickness (p. 13)

The Dulisse study, which the authors evaluated as ‘high risk’ for bias because it was funded by the American Association of Nurse Anesthetists, is one of the six studies judged adequate for review. This study included only age, sex, and race in the set of individual patient characteristics. It is understandable that sicker patients and those having more difficult surgeries will have worse outcomes (deaths and complications) compared to healthier patients having less complex surgeries. Researchers try to adjust for these differences in “sickness” using advanced statistical techniques to perform an apples-to-apples comparison of physician anesthesiologist outcomes compared to nurse anesthetist outcomes. The Dulisse study and similar studies that do not account for any of the diseases patients have (e.g. diabetes, heart attacks, strokes, heart failure) are structurally weak which helps explain the lack of finding differences in rare outcomes among a diverse patient population.

A NEW PERIOPERATIVE RESEARCH AGENDA

THE NEED FOR A NEW RESEARCH AGENDA

The Institute of Medicine has lauded the achievements of physician anesthesiologists by noting that “studies...indicate that, today, anesthesia mortality rates are about one death per 200,000–300,000 anesthetics administered, compared with two deaths per 10,000 anesthetics in the early 1980s.”⁵ Such drastic improvements over the span of only a few decades demonstrate physician anesthesiologists’ dedication to enhancing patient safety.

The ASA Committee on Health Policy Research (CHPR) believes it is time for a new research agenda to recognize that as perioperative physicians, anesthesiologists must measure patient experience and outcomes beyond simply death and complications resulting from anesthesia. The ASA call for a new research agenda includes:

1. Effectively differentiating healthy patients (where anesthesia-related mortality is already very low) and sicker patients for which anesthetic management decisions may make a larger difference in morbidity and mortality.
2. Recognizing that patients are increasingly caring about long-term clinical outcomes such as morbidity and postoperative quality of life.
3. Physician anesthesiologists taking a leadership role in improving these outcomes.

Innovations by physician anesthesiologists have increased patient confidence in the safety of their surgery. Patients certainly value outcomes beyond the operating room such as morbidity and postoperative quality of life. CHPR recommends an increased focus on interventions in all locations where physician anesthesiologists bring value (e.g., ICU, radiology and catheterization labs). While physician anesthesiologists have a long and robust history of advancing intraoperative safety and providing value through innovations in anesthesia care,⁶ CHPR believes that similar improvements can be made during the entire perioperative process resulting in better long-term patient outcomes. The best examples are those hospitals and health systems that have already done this through the use of the Perioperative Surgical Home model.⁷⁻⁸

THIS HPR POLICY BRIEF WAS DEVELOPED AND ISSUED BY THE ASA COMMITTEE ON HEALTH POLICY RESEARCH.

REFERENCES

- ¹Lewis SR, Nicholson A, Smith AF, Alderson P. Physician anaesthetists versus non-physician providers of anaesthesia for surgical patients. *Cochrane Database of Systematic Reviews* 2014; Issue 7. Art. No.: CD010357. DOI: 10.1002/14651858.CD010357.pub2
- ²Gadzinski AJ, Dimick JB, Ye Z, Miller DC: Utilization and outcomes of inpatient surgical care at Critical Access Hospitals in the United States. *JAMA Surg* 2013 May; 1:1-7
- ³Joynt KE, Harris Y, Orav EJ, Jha AK. DC: Quality of care and patient outcomes in Critical Access rural hospitals. *JAMA* 2011; 306(1):45-52
- ⁴Byrd JR, Merrick SK, Stead SW: Billing of anesthesia service and the QZ modifier: A lurking problem. *ASA Newsletter* 2011; 76(6):37
- ⁵Institute of Medicine: To Err is Human: Building A Safer Health System. National Academies Press, 2000. Washington, DC, p 32
- ⁶Dutton RP, Halzack N, Liao A, Miller TR: Anesthesiology. A History of Value. *American Society of Anesthesiologists, HPR Policy Brief* 2013; Vol 1, Issue 1
- ⁷Garson L, Schwarzkopf R, Vakharia S, Alexander B, Stead S, Cannesson M, Kain Z: Implementation of a total joint replacement-focused perioperative surgical home: A management case report. *Anesth Analg* 2014; 118(5):1131-6
- ⁸Vetter TR, Boudreaux AM, Jones KA, Hunter JM, Pittet JF: The Perioperative Surgical Home: How anesthesiology can collaboratively achieve and leverage the triple aim in health care. *Anesth Analg* 2014; 118(5):1131-6