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**New Economic Perspectives on the Market for Anesthesia Services:
Achieving Desired Reforms through Fair Competition**

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by

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Health economists have been using theoretical models and econometric tools to analyze medical care for approximately four decades. Their efforts have generated some interesting debates and have occasionally produced a consensus. Consequently, each decade can be characterized by a health reform movement based on the prevailing conventional wisdom of economics—federalization of health insurance for

seniors and the poor in the 1960s, regulation of capital investments in the 1970s, competition among providers in the 1980s, and managed care in the 1990s.

Unfortunately, the economic interventions used to support these efforts have not yielded enduring improvements in resource allocation or market performance. Health economists have yet to identify a meaningful mechanism for efficiency and transfer it successfully to public policy. Fortunately, the Federal Trade Commission (FTC) is exploring new economic perspectives on reducing expenditures, improving quality, or broadening access. Its search is appropriately focused on finding workable remedies for restraints on competition, harmful barriers to entry, and other limitations on the free flow of inputs to their most productive uses.

The FTC is taking a much-needed look at one of the most pernicious and unfair restraints of trade in the medical marketplace—the monopoly power that physicians use to deny patients' direct access to equally qualified, less-expensive clinicians. This paper explains the impact of physicians' anticompetitive behavior in the market for anesthesia services, and it exposes the false arguments that medical doctor anesthesiologists (MDA)¹ have perpetuated in order to control certified registered nurse anesthetists (CRNA). This paper also shows why consumers are harmed by unnecessary restrictions on CRNAs' right to practice without the supervision of an MDA under circumstances that can only be explained by anesthesiologists' desires to protect monopoly profits.

MONOPOLIZATION AND ITS COSTS

The administration of anesthetics to control pain during surgery was developed by nurses in the second half of the nineteenth century. Anesthesia was performed almost exclusively by nurses until physicians began using educational reforms and state

¹ Although *medical doctor anesthesiologist* is commonly abbreviated as MDA in discussions of this issue, it is potentially misleading. Not all anesthesiologists are licensed as medical doctors (MD). Some graduated from osteopathic medical schools, which grant the doctor of osteopathy (DO) degree. The DO and MD degrees are effectively equivalent for physicians who have specialized in anesthesiology, so both are encompassed under the terms *MDA* and *anesthesiologist* in this paper.

medical practice acts to establish control over non-physician practitioners in the early decades of the twentieth century.² Physicians like to argue that nurse anesthetists are encroaching on the practice of medicine. From the perspective of historical fact, the opposite is true. Physicians “medicalized” (i.e., stole) a nursing function in the 1930s and 1940s and then used their control of the health insurance system during the 1950s and 1960s to secure generous reimbursement for a service that had previously been provided quite charitably and well by nurses.

The legacy of this monopoly is expensive. Anesthesiologists earn more than twice as much as nurse anesthetists each year, but the two professions effectively provide the same services.³ The number of anesthesiologists and the number of nurse anesthetists is about the same. Consequently, proportional analysis of income shares shows that one-half of the anesthesia labor pool (i.e., anesthesiologists) earns at least two-thirds of the income. If anesthesiologists were paid at the rate of nurse anesthetists, then one-third or more of the money paid for anesthesia services—that is, one-half the income earned by anesthesiologists—is being allocated unproductively. It could be reallocated to a more productive use elsewhere in the health care delivery system. The economic value of anesthesiologists’ monopoly-protected income, one-third or more of the total spending each year on anesthesia services, is not trivial.

Anesthesiologists, of course, argue that their higher incomes are fully justified by qualitative differences between anesthesiologists and nurse anesthetists. These arguments would justify anesthesiologists’ higher income share if they were demonstrably true, but they are not. The following table summarizes the erroneous positions taken by anesthesiologists:

² The classic introductions to the development of physicians’ monopoly power are Rosemary Stevens American Medicine and the Public Interest (New Haven: Yale University Press, 1971) and Paul Starr The Social Transformation of American Medicine: The Rise of a Sovereign Profession and the Making of a Vast Industry (New York: Basic Books, 1982). Specific analysis of the development of medicine’s control over nurses is presented in Jeffrey C. Bauer Not What the Doctor Ordered (New York: McGraw-Hill, 1998).

³ Income data for anesthesiologists and nurse anesthetists are inherently imperfect, so a conservative approach is used in this analysis. According to some available figures, anesthesiologists actually earn closer to three times the income of nurse anesthetists. With a 3:1 ratio, the cost of market failure would be even greater than the economic harm described in this paper.

False Arguments Used to Justify Higher Incomes for Anesthesiologists

1. Anesthesiologists are better trained and more qualified than CRNAs.
2. Anesthesiologists provide higher quality services than nurse anesthetists.
3. Anesthesiologists should supervise nurse anesthetists to ensure quality.
4. Anesthesiologists should be paid for supervising nurse anesthetists.

The data do not support these arguments. Many anesthesiologists may believe them fervently and honorably, but an objective look at the evidence suggests that the real issue is protecting monopoly incomes. The following sections explore each of the false arguments to show why considerable sums are being wasted as a result of indefensible restraints on competition in the market for anesthesia services. The paper concludes with an analysis of the anticompetitive motivation behind anesthesiologists' current effort to replace nurse anesthetists with anesthesiology assistants.

TRAINING AND QUALIFICATIONS

Anesthesiologists argue that they are more qualified to administer anesthesia because they have more years of training. The position has some initial appeal, but it weakens considerably upon careful examination.

- Doctors claim superiority because they have been to medical school. However, nurses can claim with equal pride that they have been to nursing school. The debate ends in a draw because the length of training for the MD and BSN degrees is the same—four years. The curricula in medical and nursing schools are also equivalent, particularly in the pre-clinical (i.e., first two) years when students in both schools take the same basic sciences courses, often in the same classrooms. Doctors still like to claim they have more training because most of them received a BA or BS before entering medical school. However, pre-med undergraduate degrees are almost never related to patient care. The clinical training of nurses or doctors is the same upon entry into their respective graduate programs in anesthesia.

- Anesthesiologists claim to be more qualified because they have generally completed four-years of residency, in comparison with the two-year minimum training of nurse anesthetists. Medical residents spend more time in general clinical medicine in the first year and may work on complicated cases in the fourth year, but the core training in anesthesia is equivalent in length in both programs.⁴ Since no study has ever shown that four years are needed to become proficient in the administration of anesthesia, the extra years of residency arguably make little or no marginal contribution to actual qualifications. In addition, many anesthesiologists in practice today have completed only two-year residencies because adding years to medical residency programs is a relatively recent phenomenon. Anesthesiologists who posit superiority of four-year residencies to cast doubt on the qualifications of CRNAs are also demeaning the qualifications of many good MDAs who completed only two years of residency training.

Indeed, years of training are not a meaningful proxy for qualifications to administer anesthesia. Anesthesiologists should not be allowed to cite longer residency training as an economically meaningful justification for higher incomes. The science and technology of anesthesia are changing so fast that knowledge and skills gained only a few years ago in a four-year medical residency or a two-year CRNA program are likely to be obsolete. The key to competency is continuing education and recertification in the use of current equipment and anesthetic agents. Nurse anesthetists are required to recertify their competency every two years and to attend a minimum of 40 hours of continuing education each year. Anesthesiologists do not have recertification requirements, they do not need to be board-eligible or board-certified to practice, and they are not required to complete continuing education requirements in order to practice as anesthesiologists. The difference speaks for itself. Regardless of past education, nurse anesthetists are ahead of anesthesiologists in meeting the quality criterion that

⁴ Cromwell, J "Barriers to Achieving a Cost-Effective Workforce Mix: Lessons from Anesthesiology" *Journal of Health Politics, Policy, and Law* vol. 24(6), p. 1332.

matters most—keeping up with the advances in a fast-changing, high-tech clinical science.

QUALITY OF SERVICES

Anesthesiologists like to talk about research showing death rates are higher when anesthesia services are provided by nurse anesthetists alone. In their opinion, safety is compromised by independent practice of nurse anesthetists and enhanced by anesthesia care teams (ACT) under the supervision of an anesthesiologist. The discussion sections in a few articles have made inferences about practitioner-based differences in outcomes, but ***no published study has ever reported a scientifically defensible test of a hypothesis about a statistically significant difference (i.e., a difference greater than one that could be explained by chance) attributable to the anesthesia practitioner or the care delivery model.***⁵

The studies used by anesthesiologists to imply inferiority of nurse anesthetist care are irrelevant for several reasons, including:

- The data are too old to be relevant. Though published in the 1990s, the studies are predominantly based on data from the 1980s. Given dramatic improvements in the science and technology of anesthesia in the intervening years (see previous paragraph), differences that may or may not have existed ten to fifteen years ago are unlikely to be relevant today.⁶
- The studies are uncontrolled. No effort was made to isolate other variables that might explain practitioner-related differences, erroneously causing differences to be attributed to the practitioners.⁷

⁵ For a comprehensible and comprehensive review of the criteria for a good scientific study, see Bauer, *JC Statistical Analysis for Decision-Makers in Health Care* (New York: McGraw-Hill, 1996), Chapters 1-3.

⁶ The classic study of this genre is Silber, JH *et al* "Hospital and Patient Characteristics Associated with Death after Surgery: A Study of Adverse Occurrence and Failure to Rescue" *Medical Care* 30:615, 1992. Although cited often as "proof" of excess deaths attributable to nurse anesthetists, the article does not include any data whatsoever on care provided by nurse anesthetists. It has, sadly, assumed the power of urban myth.

⁷ The "Minnesota study" is often quoted to show that an increase in the number of anesthesiologists accounts for a decrease in anesthesia-related mortality, but the data in the study were not collected or

- The data are not valid measures of the purported purpose of the research. In particular, studies that allegedly show practitioner-related differences in outcomes do not include data from different practitioner groups. The conclusions are pure conjecture, if not outright fabrications.⁸

A prospective randomized controlled trial (RCT) would be needed to support any defensible conclusions about practitioner-based differences between outcomes. However, such a trial would be extraordinarily expensive and would require several years to conduct (during which time the underlying circumstances would almost certainly change). The extreme rarity of anesthesia-related problems would necessitate sample sizes of several hundred thousand cases to produce a sufficiently powerful test, and patients would have to be randomly assigned to anesthesiologists and nurse anesthetists.

Such a study is almost certainly unaffordable and infeasible. It is also unnecessary because two other approaches can be used to produce an acceptable estimator of any differences in quality of care. First, premiums for professional liability insurance are useful because the malpractice premiums of nurse anesthetists should be high and rising if their care were inferior. Actual experience is the opposite. Nurse anesthetists' premiums from the St. Paul Companies, the largest professional liability carrier at the time, declined 50% between 1988 and 2001. Second, nurse anesthetists meet the criteria that physicians have implicitly used for many years to justify their elite positions as "captain of the ship."⁹ On both these counts, nurse anesthetists are at least as qualified as anesthesiologists.

controlled for this purpose. See Abenstein, JP and MA Warner "Anesthesia Providers, Patient Outcomes, and Costs" *Anesthesia and Analgesia* 82:1273, 1996.

⁸ Another article authored by Silber *et al* (*Anesthesiology* 93:152 2000), known as the Pennsylvania study, is used to argue that supervision by anesthesiologists leads to better care. However, the data in the study do not meaningfully define the provider of anesthesia care, and deaths are measured for a full 30 days following surgery—a meaningless period because anesthesia-related deaths almost always occur in the first two postoperative days. The title of the article, "Anesthesiologist Direction and Patient Outcomes," is totally unrelated to the data used in the study.

⁹ See Bauer, JC Not What the Doctor Ordered (New York: McGraw-Hill, 1998), chapter 5, for an in-depth analysis of the seven foundations of the right to independent, unsupervised practice: 1) advanced education; 2) ongoing certification; 3) scientific base; 4) coherent clinical model; 5) professional liability; 6) professional ethic; and 7) quality assurance.

ANESTHESIOLOGIST SUPERVISION OF NURSE ANESTHETISTS

Serious questions about the quality of care provided by anesthesiologists are raised, perhaps unwittingly, in recent articles from the official monthly newsletter of the American Society of Anesthesiologists (ASA). Statements like the following implicitly contradict the assumption that anesthesiologist supervision assures top-quality care:

“For the safety of our patients, we realize that physicians must remain in charge of all aspects of medicine, including the delivery of anesthesia care. Although most nurse anesthetists, like *most anesthesiologists, have as their pre-eminent goal the provision of good clinical care for their patients*, the nurse anesthetists’ state and national organizations all too often appear to be fixated on the single issue of independent practice.”¹⁰

The phrase in italics [added for this paper] implicitly states that some anesthesiologists do not strive primarily for top-quality care, yet it appears in an article defending anesthesiologist-directed care teams. The article pointedly does not say that all anesthesiologists aspire to good care.

A more serious problem with the quality of anesthesiologists is revealed in an article by a leader of the American Board of Anesthesiology:

“In summary, because of low numbers of trainees and low written pass rates [varied from 61-71% from 1994 to 1998; 46% in 2000] during the late 1990s, the number of newly board-certified anesthesiologists who became available to enter the national workforce pool went from an annual high of 1,536 in 1997 to only 705 in 2001. ...this represents only half the number of new ABA diplomate anesthesiologists available annually five years earlier.”¹¹

How can anesthesiologists argue that nurse anesthetists must be supervised when half the recently trained anesthesiologists could not pass the profession’s own board examination in 2000? Perhaps anesthesiologists should devote their time and money to self-improvement rather than supervising nurse anesthetists. And the rest of us should

¹⁰ David C. Mackey, M.D. “Anesthesiology Assistants: A New Direction for the Anesthesia Care Team Begins to Accelerate (Finally)” *ASA Newsletter* March 2003

¹¹ Kapur, PA “American Board of Anesthesiology Update” *ASA Newsletter* April 2003, p. 16

question the quality of supervision by the large number of anesthesiologists who fail to meet the quality standards of their own profession.

The total lack of scientifically acceptable research to justify supervision as a quality-control imperative is matched by a total lack of accurate data and valid studies to determine efficient levels of supervision. The quantity of supervision associated with least-cost production or output-maximization for anesthesia services of a specified quality has never been determined. Medicare follows a definition of supervision simplistically based on specified ratios of nurse anesthetists to anesthesiologists. This approach effectively defines what an anesthesiologist must do to be paid for supervision, but it is not based on any clinical or economic data.

"The TEFRA standards [that define seven criteria for medical direction of nurse anesthetists by anesthesiologists] were intended to preclude payments to anesthesiologists for very limited or "phantom" services that add no significant value. They were not intended to define the clinically appropriate or most cost-effective roles for the members of an ACT [anesthesia care team], nor have any studies been conducted to support such interpretation."¹²

Even if good scientific research had demonstrated a positive association between anesthesiologist supervision of nurse anesthetists and better clinical outcomes—which it has not—no studies have been performed to determine the CRNA:MDA ratio that produces desired performance. Medicare payment policy obviously improves anesthesiologist incomes, but it has never been shown to improve consumer welfare. The fees paid to anesthesiologists for supervising nurse anesthetists are not producing any demonstrable economic value and are, therefore, unnecessary. The supervisory fees produce nothing of economic or clinical value. They only help anesthesiologists earn more than twice as much as nurse anesthetists for the same productivity.

SUPPLY AND DEMAND FOR SERVICES AND ANESTHESIOLOGY ASSISTANTS

Organized anesthesiology's latest anticompetitive behavior is its effort to resurrect anesthesia assistants (AA) as substitutes for nurse anesthetists. A growing shortage of

¹²Klein, JD "When will Managed Care Come to Anesthesia?" *Journal of Health Care Finance* 23(3):67, Spring 1997

anesthesiology services is advanced by anesthesiologists as the primary reason for expanding the use of anesthesiology assistants, but the implied existence of a widening gap between supply and demand is based on erroneous reasoning. Anecdotes about cancelled surgery are cited as "proof" of the need for more anesthesia caregivers. However, no current and reliable data demonstrate that cancellations are due to a shortage of assistants for anesthesiologists to supervise.

Hospitals' financial problems and the shortage of RNs (specifically, operating room nurses) are far more likely explanations of cancelled operations. Even if the alleged shortage of anesthesia services is real, increasing the supply of AAs is not the only possible solution to the problem. The quickest and most efficient way to increase the supply of anesthesia services would be to have anesthesiologists spend all their time in direct patient care rather than in supervising nurse anesthetists who are perfectly capable of working on their own. Basic economic analysis shows that the supply of anesthesiologists taking care of patients could be increased immediately and at no extra cost by freeing anesthesiologists from unnecessary and unproductive supervision of nurse anesthetists. Anesthesiologists would, of course, need to continue supervising anesthesiology assistants because AAs are not qualified for independent practice, but the economic impact is trivial because anesthesiology assistants are only slightly more than one percent (1%) of the anesthesia work force (i.e., approximately 700 AAs, 30,000 MDAs, and 30,000 CRNAs).

The AA solution is also illusory because the alleged need for additional anesthesia personnel is based on projections of existing volumes of surgery. However, most health futurists are now forecasting a relative decline in surgery as more drugs are developed to cure or prevent conditions (e.g., coronary artery disease, breast and prostate cancers, arthritic joints) that have been traditionally treated with surgery. Even if the number of surgeries were to increase, the number of AAs that could be trained would be very unlikely to grow at all. New AA programs would need to be created to complement the two in existence, but academic health centers (or any other academic institutions, for that matter) where AAs must be trained have no money to start new programs.

In conclusion, organized anesthesia's push for AAs is an action that can only be explained by a desire to maintain control over a market. It is not supported by any proof whatsoever of economic or clinical problems with nurse anesthetists. Even the language used to promote AAs reflects anesthesiologists' fixation on control. CRNAs and AAs were together classified as "dependent anesthesia providers" in a recent issue of the official monthly newsletter of the American Society of Anesthesiologists.¹³ Another article in the same issue bemoaned "the extender monopoly held by nurse anesthetists."¹⁴

The reference to nurse anesthetists as extenders totally misses the point of product and market concepts used for more than a century to measure the extent of competition in a marketplace. In the language of economic analysis of market performance, nurse anesthetists are acceptable substitutes for anesthesiologists. However, AAs are not acceptable substitutes for CRNAs. Organized anesthesiology's attempt to place nurse anesthetists in the same market as anesthesiology assistants is indefensible. To make the additional claim that nurse anesthetists have a monopoly in that market is ludicrous! By all appearances, anesthesiologists are trying to create and control a vertically integrated market. The net effect of this monopoly behavior is gross inefficiency—unnecessary and inflated expenditures on anesthesiologists' supervisory services when the same medical care can be provided just as well by unsupervised nurse anesthetists.

Nurse anesthetists compete with anesthesiologists, but the competition has not been fair because anesthesiologists have successfully promoted false arguments to protect their disproportionate share of the total income for anesthesia services. Nurse anesthetists are at least as qualified as anesthesiologists to practice without supervision in the defined scopes of practice for which they are trained. Anesthesiologists like to talk about extra lives being lost due to unsupervised practice by nurse anesthetists, but absolutely no scientific evidence exists to support the claim.

¹³ Neeld, JB Jr "Integrating Anesthesiologist Assistants into Anesthesia Care Team Practices" *ASA Newsletter* vol. 67(3) March 2003

¹⁴ Mackey, DC "AA: A New Direction for the Anesthesia Care Team Begins to Accelerate (Finally!)" *ASA Newsletter* vol. 67(3) March 2003

The harm of monopoly power in this market is not lost lives. The real harm is millions and millions of dollars paid to anesthesiologists for supervisory services that do not need to be performed. The Federal Trade Commission has an excellent opportunity and a statutory responsibility to restore competition to the market for anesthesia services by taking actions that end anesthesiologists' indefensible monopoly practices.