

# The Cost Effectiveness of Nurse Anesthetist Practice

The expanded use of Certified Registered Nurse Anesthetists (CRNAs) in providing anesthesia services makes financial sense especially as patients, carriers, purchasers and employers demand cost-effective services of high quality. This fact holds true regardless of whether the CRNA anesthesia service is provided in collaboration with an anesthesiologist or as a CRNA service alone.

According to the fiscal year 1996 American Association of Nurse Anesthetists (AANA) membership survey, the employment and practice arrangements of CRNAs are: hospital employed (39%); anesthesiologists group employed (36%); CRNA group or self employed (15%); and university, military, office, or surgery center/clinic employed (10%). CRNAs working with anesthesiologists, other physicians such as surgeons and (where authorized) podiatrists, dentists and other health care providers, administer approximately 65% of all anesthetics administered to patients each year in the United States. CRNAs are the sole anesthesia providers in more than 70% of rural hospitals, affording anesthesia and resuscitative services to these medical facilities for surgical, obstetrical, and trauma care.

In relation to CRNA use in the provision of anesthesia services, substantial cost savings are realized when considering salary comparison between CRNAs and anesthesiologists. While CRNA salaries have risen in recent years, they have not increased as dramatically as those of anesthesiologists. The median annual salary in 1994 for a CRNA was \$84,000 based on the 1995 AANA membership survey. In contrast, the median salary for an anesthesiologist was approximately \$244,600 based on 1994 data reported by the Medical Group Management Association (MGMA).

The educational costs of preparing CRNAs are significantly less than those needed to prepare anesthesiologists. Becoming a CRNA usually takes seven to eight years (including a year of acute care nursing experience); becoming an anesthesiologist usually takes a minimum of 12 years. According to a correspondence from the director of Hospital Payment Policy, Health Care Financing Administration (HCFA) dated July 27, 1992, to Kathleen A. Michels, RN, JD, director of Federal Government Affairs at the AANA, the average cost to prepare one anesthesiology resident, per year, is estimated to be \$84,837. According to 1992 data obtained from the AANA, the average cost to prepare one nurse anesthetist, per year, is estimated to be \$11,741. Considering the average costs for preparing nurse anesthetists, it becomes apparent that approximately eight CRNAs can be prepared for the cost of preparing a single anesthesiologist. In addition, those eight CRNAs will have entered the work force and cumulatively provided anesthesia services for a number of years by the time the one anesthesiologist is ready to practice.

According to Jerry Cromwell, PhD, a health care economist and president of Health Economics Research in Waltham, MA, in a paper published in *The U.S. Health Workforce: Power, Politics and Policy*, he noted that, "Anesthesia is an excellent laboratory for studying [workforce] substitutions." He further observed that anesthesia in the United States was historically performed by nurses and only in the past 25 years have the numbers of physicians entering the field begun to change the statistics significantly concerning the CRNA contribution to the total anesthesia workload.

Additionally Dr. Cromwell noted that there are significant cost implications to having the wrong input mix in anesthesia based on the tremendous differences in practice earnings of CRNAs versus anesthesiologists, and stated his belief that: "Anesthesia, therefore, provides an excellent example of what can go wrong with the workforce mix when you pay for inputs (i.e., types of providers) rather than outputs (i.e., the services delivered). Federal and third-party reimbursement have paid for anesthesia inputs rather than outputs. This major flaw in the reimbursement system explains the inefficient mix we've developed in anesthesia (Cromwell and Rosenbach 1988)."

CRNA services are reimbursed directly by Medicare, state and federal programs, and a number of commercial carriers. When both a CRNA and an anesthesiologist are participating in the same case, the services of both anesthesia providers should be recognized for the extent of their involvement and appropriate payment methodologies should apply. Independently billing CRNAs provide savings for other government programs and for private payers either on the basis of their payment methodologies or because they typically charge less than their physician counterparts. For example, a Texas survey recently indicated that CRNA charges to private payers were between 10 and 25% less than those of the anesthesiologists. With the significant entry of managed care in the health care market, these CRNAs have been required to compete for contracts with many of these entities, as have physicians.

For hospitals which employ the CRNAs who work in collaboration with anesthesiologists, the financial viability of a CRNA/MD service is clearly dependent upon a cost-effective mix of providers as well as hospital competency in appropriately billing CRNA services. Hospitals which claim to lose money on CRNA services are likely billing inappropriately and therefore not receiving the revenue to which they are entitled. Failure to bill correctly may lead to divestment of hospital employed CRNAs to physician groups. That position weakens control of the facility's hospital-based revenue sources and limits the potential for hospitals to include anesthesia services when negotiating comprehensive managed care contracts.

The trend to align physician and hospital incentives to control costs is accelerating. HCFA has been studying an all-medical staff diagnosis-related grouping (DRG) payment system that would include all physicians. This all-inclusive payment arrangement would have obvious and profound implications for the kinds and numbers of inpatient consulting services. Undoubtedly, this force will accelerate in the near future as the health care system moves steadily toward higher levels of capitated payment in conjunction with the continued decrease in health care reimbursement from all payers.

With respect to the growth of managed care and its impact on anesthesia, Dr. Cromwell stated in a presentation to the 1995 Annual Meeting of the Association for Academic Health Centers, "A simple example of the arbitrage potential between managed care HMOs and more expensive private fee-for-service medicine is anesthesia. In Southern California Kaiser hospitals, there are about 0.4 anesthesiologists for every full-time CRNA. In the rest of California, excluding the Kaiser System, the ratio is 2.6 anesthesiologists for every CRNA. There is no reason to believe that the mix of operations in non-Kaiser hospitals is dramatically different than experienced in Southern California Kaiser, implying tremendous opportunities for cost-saving arbitrage through the greater penetration of managed care."

Cost efficiency of anesthesia services is dependent on avoidance of high MD to CRNA working ratios that cannot be justified on the basis of quality of care or cost effectiveness. Patient care needs should dictate appropriate personnel resources rather than predetermined numerical ratios. As an illustration, Kaiser Permanente Medical Centers, in an inter-regional examination of operating room best practices, conducted an internal benchmarking process to identify the best operating room practices in 42 Kaiser Permanente facilities. Kaiser found that the productivity of the anesthesia care team is increased by each anesthesiologist directing four operating rooms staffed with CRNAs, and CRNAs exercising an expanded practice.

CRNAs have traditionally made high quality anesthesia services accessible to underserved populations despite the cost constraints and/or isolation of many geographic locations. For any

service location,

CRNAs are highly cost-effective, quality anesthesia providers on the basis of educational costs, cost of service, productivity, and substitutability for more expensive providers. Whether working with or without anesthesiologists, they serve as the key to cost savings in the provision of anesthesia and anesthesia related services, whether within operating rooms or in expanded service areas such as pain management clinics, postoperative suites and critical care units.

### **References**

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