Anesthesia Practices Study

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Anesthesia Practices Study

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ANESTHESIA PRACTICES STUDY

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EXECUTIVE SUMMARY

The 1994 MinnesotaCare Act required the Minnesota Department of Health to study the provision of anesthesiology services by anesthesiologists and certified registered nurse anesthetists (CRNAs). The following Executive Summary outlines the key findings of the study regarding patient outcomes, cost of services, and effects on competition.

- "Anesthesiology" refers to the "practice of medicine specializing in the medical management of patients who are rendered unconscious and/or insensible to pain and emotional stress during surgical, obstetrical and certain other medical procedures."[1] Anesthesia services are an important component of the health care market and represent 3-5% of total health care expenditures. Nationally, this figure includes anesthesia provider charges of approximately $9 billion per year, charges for preoperative tests estimated at $11.7 billion per year, and an unknown amount for anesthesia supplies and facility charges.

- Anesthesia services in Minnesota may be provided by two types of providers: an anesthesiologist--a medical doctor specializing in the practice of anesthesia; or a certified registered nurse anesthetist--an advanced practice nurse.

- Limitations on the study made it impossible to fully evaluate the cost of service provided under each type of employment arrangement. However, there are some findings worth noting. Anesthesia providers are paid the same amounts per case under Medicare, and will likely under Medicaid, as well, when new guidelines are implemented. Reimbursement is declining to all anesthesia providers for federally funded programs and other third party payers are also beginning to negotiate lower reimbursement rates.

- There are no studies, either national in scope or Minnesota-specific, which conclusively show a difference in patient outcomes based on type of anesthesia provider.

- Although this study is the result of concerns over the changing market for anesthesia services, the primary forces driving these changes are affecting all of health care. For more than a decade, rising health care costs have been a major concern for public and private purchasers of health care services. As both Medicare, and later Medicaid, began to review their payment methodologies to reduce costs, payers and providers were prompted to seek new ways to control costs and, at the same time, maintain or improve the quality of services. In addition, the growth in managed care concepts (i.e., negotiated fees, the formation of provider networks) has brought about greater competition in many areas, including anesthesia

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[1]American Society of Anesthesiologists. "Guidelines for Patient Care in Anesthesiology." American Society of Anesthesiologists, Membership Directory. Park Ridge, Illinois. 1994. Page 755.

services. This has been particularly true in Minnesota.

- As a result of an increasingly competitive market for hospital services, hospitals have begun to develop new service delivery models that provide high quality care in the most cost effective manner. Consequently, three Minnesota hospitals have found that it is more efficient to contract for anesthesia services with an outside provider group than to keep CRNAs on staff in salaried positions. These contracts include both anesthesiology and CRNA services in a care team mode of service delivery. This decision to terminate CRNAs from the salaried hospital staff was based on the changing health care market and the economics of the individual hospital. It is expected that there will be continued changes in the market for anesthesia services as the health care market continues to evolve.

In summary, anesthesia services continue to be provided primarily in a "care team" approach using both anesthesiologists and CRNAs, with current risk levels remaining very low. The market and demand for both CRNAs and anesthesiologists is changing and we can expect continued flux in this market for several years.

ANESTHESIA PRACTICES STUDY

INTRODUCTION

The 1994 MinnesotaCare Act, in a continued effort to assure access and determine the most cost-effective strategies for providing health care, required the Minnesota Department of Health to study anesthesia services provided in Minnesota health care facilities by nurse anesthetists and anesthesiologists. (See Appendix A for complete legislative language.) The study was required to "compare different third-party reimbursement practices and contractual and employment arrangements between health care facilities, nurse anesthetists, and anesthesiologists in terms of patient outcomes..., the cost of service..., and effects on competition under each arrangement."[2]

The following paper presents an initial analysis of this issue and an overview of the basic issues involving third party payment and anesthesiology services. Several limitations have prevented us from providing a more comprehensive study. First, Minnesota-specific literature regarding patient outcomes and anesthesiology services is limited. Even at the national level, there is little reliable information available regarding patient outcomes as related to anesthesia services, particularly when comparing outcomes by provider type. Secondly, the short timeline imposed upon the study as well as the very limited resources have required Health Department staff to limit the scope of this study to a literature review and interviews with relevant provider groups and other interested parties.[3]

The paper is organized as follows: first, the "Background" section identifies the key factors impacting anesthesia service delivery, namely, reduced hospital revenues and changes in Medicare reimbursement policy. The next three sections provide an overview of anesthesia services in general and as related to the current health care market. The last four sections of the paper discuss various aspects of reimbursement: general issues, Medicare and Medicaid payment policies and methodologies, and other third party payer reimbursement and issues. A final section provides summary comments.

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[2]1994 MinnesotaCare Act, Article 8, Section 69.

[3]See Appendix B for a list of persons and organizations who participated in this study.

BACKGROUND

The market for the delivery of anesthesia services and all of healthcare is currently in transition. New partnerships, more efficient and effective processes and new technological developments have contributed to the dynamics of the changes that are occurring. Major factors contributing to this transition are increased discounts by third party payers (resulting in lower payments), including commercial and managed care programs in Minnesota, and changes in reimbursement policies by Medicare and Medicaid. These changes have been evolving since the mid-1980s and have resulted in significant changes in several facets of the delivery of anesthesia services.

Employment arrangements for anesthesia services have been one area in which major change has occurred. Until 1989, hospitals hired certified registered nurse anesthetists (CRNAs) as employees, which fit the standard of providing nursing services. CRNA costs were considered an overhead factor and were built into most per diems and contracts and were not explicitly broken out. Whether or not the hospital billed for CRNA services was generally not an issue to the CRNAs as they were employees and paid on a salary basis. When Medicare gave CRNAs independent billing rights in 1989, hospitals were no longer in a position to manage the entire billing process nor to coordinate CRNA with the anesthesiologist billing who were already billing independently.[4] In addition, as a result of CRNA efforts, new payment rules were adopted for Medicare that, over a period time, would provide identical reimbursement per case for CRNAs and anesthesiologists. As the Health Care Financing Administration (HCFA) realized that two bills were often coming in for one case, they began to review their payment methodology. Ultimately, HCFA decided that they would pay one amount for anesthesia services.

Lack of coordination of billing between anesthesiologists and hospitals employing CRNAs often resulted in one of the providers not receiving reimbursement. In an environment of reduced anesthesia reimbursement, stricter billing rules under Medicare, and a focus on cost-containment in health care reform efforts, CRNAs were becoming costly for hospitals as salaried employees. Hospitals began to look for new models of providing anesthesia services that would encourage more coordination and collaboration of anesthesia providers in an effort to provide high quality care in the most cost-effective manner.

Another factor having tremendous impact on the market was the national Physician Payment Reform Commission's report indicating that anesthesiologist Medicare reimbursement was overvalued. Consequently, further changes in payment methodologies have been implemented that will reduce anesthesia service payments under Medicare. This will likely impact Medicaid reimbursement, at least in Minnesota, as Medicaid generally adopts Medicare guidelines for reimbursement.

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[4]Written comments from Health Billing Systems, Inc. dated December 27, 1994.

As a result of these market changes, several hospitals in the Twin Cities have made the decision to terminate all certified registered nurse anesthetists from their employment. Instead of employing CRNAs on staff, these hospitals will now contract with outside groups for anesthesia services. Hospitals found that terminating CRNAs from staff and contracting for anesthesia services eliminated their potential billing errors, and even more importantly, reduced costs at a time when declining anesthesia reimbursement is making an impact. Mercy and Unity Hospitals, in the reorganization of their anesthesia delivery services, estimates that costs were reduced by over $1 million.[5]

Many CRNAs, seeing the changing dynamics of the marketplace, fear widespread unemployment and/or reduced wages as a result of some hospitals' decision to terminate CRNAs from employment. Concerns have also been expressed by CRNAs regarding possible barriers to practice including issues related to restriction of practice based on denial of clinical privileges, exclusive contracting by a medical group, or refusal by insurers to provide professional liability insurance and/or to restrict reimbursement by not recognizing CRNAs as reimbursable providers.[6]

This study is intended to examine the actual impact of the trend toward contracting for anesthesia services. To date, Mercy and Unity hospitals (both part of Allina), as well as St. Cloud Hospital, have terminated their CRNAs and now contract for anesthesia services. Several other hospitals are considering this option. In November, 1994, a lawsuit was filed by the Minnesota Association of Nurse Anesthetists (MANA) and twelve individuals against a number of hospitals, anesthesiologist groups, anesthesiologists, and other individuals and organizations.[7]

OVERVIEW OF ANESTHESIA SERVICES

Scope of Services

It is estimated that anesthesia services represent 3-5% of total national health care expenditures. This includes anesthesia provider charges of approximately $9 billion per year as well as charges for preoperative tests which is estimated at $11.7 billion per year. The

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[5]Written comments from John R. Murphy, Vice President of Mercy & Unity Hospitals dated December 22, 1994.

[6]Recht, P., Garg, R. "Antitrust Issues for the Nurse Anesthetist: Areas of Concern." Nurse Anesthesia. Vol. 3, No. 2, June 1992. Pages 58-61, 63-65.

[7]MANA complaint dated November 9, 1994, and filed in the United States District Court, District of Minnesota, Fourth Division. File No. 3-94-1446. Pages 1-2.

costs for anesthesia supplies and facility charges are unknown.[8]

There are more than 25,000 practicing CRNAs in the United States.[9] According to the American Association of Nurse Anesthetists (AANA) there were, as of September 1, 1994, 1115 full or part time practicing CRNAs in Minnesota (including 153 CRNA students).[10] According to the University of Minnesota's Institute for Health Services Research, Minnesota ranks third highest in the nation in the ratio of CRNAs per capita.[11]

As of June 1, 1994, the American Society of Anesthesiologists (ASA) had a membership of 32,165 (includes 20,782 active members as well as residents, affiliates, life, honorary, and retired members). On December 31, 1993, the Minnesota chapter of the ASA (Minnesota Society of Anesthesiologists), had a membership of 528, with 358 being listed as active.[12] The number of active members does not include an estimated 80 anesthesiology residents. Thus the number of practicing anesthesiologists in Minnesota was roughly 438.

It is estimated that 26 million anesthetics are given in the United States annually. CRNAs, either in independent practice or in conjunction with an anesthesiologist, administer 65% of those anesthetics. In addition, CRNAs are the sole anesthesia providers (under the supervision of a physician, usually a surgeon) in 85% of rural hospitals.[13] It should be noted, however, that complex surgeries are more likely to be performed in the metropolitan area.

Types of Providers

Anesthesia services in Minnesota may be provided by two types of providers: an anesthesiologist--a medical doctor specializing in the practice of anesthesia; or a certified registered nurse anesthetist--an advanced practice nurse. Both types of providers may legally

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[8]Johnstone, R., and Martinec, C. "Costs of Anesthesia." Anesthesia and Analgesia. Vol. 76, 1993. Page 840.

[9]Michels, K. "AANA Testifies Before PPRC on Federal Healthcare Reform." Journal of the American Association of Nurse Anesthetists. Vol. 61, No. 6. December 1993. Page 550.

[10]Minnesota Association of Nurse Anesthetists. Comments to the Minnesota Department of Health on the December 2, 1994 Draft of the Anesthesia Practices Study. December 23, 1994. Page 2.

[11]Wellever, Moscovice and Hill, Page IV.

[12]Phone interview with Ron Bruns, Membership Department, American Society of Anesthesiologists (ASA), November 14, 1994.

[13]Michels, Page 561.

perform all types of anesthesia services for all levels of patient acuity.[14] There is another type of provider called an "anesthesia assistant," but they are not licensed to practice in the State of Minnesota. The anesthesia assistants are trained to work in an anesthesia care team mode only and never practice independently.[15] In the past, surgeons could bill separately for providing anesthesia during a procedure. However, surgeons are no longer legally allowed to bill for anesthesia services.

Educational Requirements for Anesthesia Providers

Anesthesiologists have completed their education and residency requirements to become a medical doctor (MD) which generally requires a baccalaureate degree plus four years of medical school. Another four or more years of training are required to become a specialist in anesthesia services. There are two anesthesiology residency programs located in Minnesota: one at the University of Minnesota in Minneapolis and the other at the Mayo Graduate School of Medicine in Rochester.[16]

A certified registered nurse anesthetist is a registered nurse in advanced practice. Under current educational requirements, CRNAs are registered nurses with a baccalaureate degree who have completed an additional 24 to 36 months of training in anesthesiology in an accredited program.[17] There are four CRNA training programs in Minnesota. Three are located in the Twin Cities metro area (Abbott-Northwestern Hospital; Veterans Administration School of Anesthesia; and Minneapolis School of Anesthesia in St. Louis Park); the fourth is located at the Mayo Clinic in Rochester.[18] After graduation, the nurse must pass a national certification exam for certification as a CRNA. The American Association of Nurse Anesthetists carries the authority for certification of CRNAs.[19]

Scope of Practice

According to the American Association of Nurse Anesthetists, "A CRNA takes care of a patient's anesthesia needs before, during and after surgery or the delivery of a baby...Because CRNAs are licensed as nurses, they provide services in conjunction with a

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[14]Michels, K. "AANA Testifies Before PPRC on Federal Healthcare Reform." Journal of the American Association of Nurse Anesthetists. Vol. 61, No. 6. December 1993. Page 561.

[15]Minnesota Society of Anesthesiologists. "Minnesota Society of Anesthesiologists Report to The Commissioner of Health, State of Minnesota." Minnesota Society of Anesthesiologists. October 1994. Page 5.

[16]Minnesota Society of Anesthesiologists, Page 3.

[17]Wellever, A., Moscovice, I., Hill, T. Reimbursement and the Use of Mid-Level Practitioners in Rural Minnesota. Institute for Health Services Research, School of Public Health, University of Minnesota. January 1993. Page 6.

[18]Wellever, Moscovice and Hill, Page 6.

[19]Minnesota Rules, Chapter 6330, Pages 5969-5970.

qualified physician--for instance, a surgeon, dentist, podiatrist, or anesthesiologist."[20] (See Table 1 for a description of the scope of practice of both professions.)

TABLE 1:

ANESTHESIA PROVIDERS: SCOPE OF PRACTICE

SCOPE OF PRACTICE Anesthesiologists[21]	SCOPE OF PRACTICE CRNAs[22]
Surgery/Delivery of a baby: Responsibilities: A) Preanesthetic evaluation and treatment B) Medical management of patients, including the protection of life functions and vital organs C) Postanesthetic evaluation and treatment D) On-site medical direction of any non-physician who assists in the technical aspects of anesthesia care to the patient	**Surgery/Delivery of a baby:** Responsibilities: A) Perform physical assessment B) Participate in preoperative teaching C) Prepare for anesthetic management D) Administer anesthesia to keep the patient pain free E) Maintain anesthesia intraoperatively F) Oversee recovery from anesthesia G) Follow the patient's postoperative course from recovery room to patient care unit
Management of problems in pain relief	
Management of cardiopulmonary resuscitation	
Management of problems in pulmonary care	
Management of critically ill patients in special care units	

Although it appears that there is overlap in the scope of practice of these two types of providers, there are some major differences. The extensive medical training of the anesthesiologists provide a higher level of expertise necessary for problem solving in more medically complex procedures. Additionally, because CRNAs are licensed as nurses, not doctors, they are prohibited by law from prescribing drugs. Thus, they may administer the drugs for pain management, but cannot make the decision of what type or dosage to administer without physician direction or under an established protocol. Anesthesiologists have a broader scope of practice and ability to act independently in their capacity as medical doctors. The technical skills and nursing expertise of the CRNAs in the administration of anesthetics are, however, a valuable part of the delivery of these services.

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[20]American Association of Nurse Anesthetists. Questions and Answers About a Career in Nurse Anesthesia. American Association of Nurse Anesthetists, Education and Research Department. January 1994.

[21]American Society of Anesthesiologists, Page 755.

[22]American Association of Nurse Anesthetists, January 1994.

Factors Effecting Utilization of Providers

There are several factors that impact the type of anesthesia provider used. Employment location is a major factor in determining the type of services provided. In small rural hospitals, the frequency of more complicated surgeries (requiring more advanced skills in anesthesia services) is generally much lower compared to urban hospitals. Consequently, the opportunity for a provider (whether CRNA or anesthesiologist) to become proficient in more complex procedures (such as heart bypass surgery) is not available because the volume of these cases is quite low. However, in small rural hospitals, there may be more opportunity to become very proficient in emergency administration of anesthesia due to accidents or other trauma. Often in such cases, the patient is stabilized at the local health facility and then transported to an urban hospital if major surgery is required. In metropolitan hospitals, a provider may become proficient in more complex surgeries. This is especially true for CRNAs working in teaching facilities or hospitals specializing in complicated procedures such as heart/lung surgery, where, under the "medical direction" of an anesthesiologist, the CRNA has gained the necessary experience to provide the more complicated services.

There are several options for the delivery of anesthesia services. An anesthesiologist may perform the work alone; a CRNA may perform the work under the supervision of a physician; or an anesthesiologist may "medically direct" the work of one or more CRNAs. To "medically direct" a CRNA refers to the mode of practice in which an anesthesiologist carries primary responsibility for the anesthesia service being performed and directly participates in the administration of the anesthesia and management of the case. The anesthesiologist may "medically direct" in up to four cases at once. In Minnesota, as in the rest of the U.S., the overwhelming majority of surgical cases involve one anesthesiologist medically directing two CRNAs. In obstetrics, the majority of cases involve a single "care team" of one anesthesiologist and one CRNA.[23] In rare circumstances when an anesthesiologist works on five or more cases, it is referred to as "supervision" because of the reduced amount of direct participation on each case. This third option mentioned above, involving medical direction, is commonly known as the "anesthesia care team" mode and is the predominant style of practice in urban communities in Minnesota as well as across the nation.

A second factor in determining the level of services provided is personal preference. Some providers may prefer to limit their scope of practice to more routine types of service delivery. Also, some CRNAs do prefer to work in anesthesia care team settings, even though it may impact their scope of practice because of Medicare reimbursement rules (in particular, the requirements under the Tax Equity and Fiscal Responsibility Act ["TEFRA"] of 1982),[24] that require the anesthesiologist to perform certain procedures in order to qualify

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[23]American Society of Anesthesiologists. 1994 ASA Membership Survey. American Society of Anesthesiologists. Park Ridge, Illinois. 1994.

[24]Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). Section 405.552.

for reimbursement for the case.[25] For example, according to the president of the newly-formed CRNA anesthesia practice group, Nurse Anesthesia Services, P.A., "The model we have developed for the delivery of anesthesia services provides a winning solution for all. Currently, Midwest Anesthesiologists have an exclusive contract with Mercy and Unity Hospitals to provide anesthesia services. They contract with our independent services, Nurse Anesthesia Services, P.A., to complete the team of 17 anesthesiologists and 36 nurse anesthetists. In the spirit of professional cooperation we have successfully completed nine months of high quality, cost effective anesthesia. This efficient delivery of care [anesthesia care team] provides an answer to how to manage anesthesia services in an urban setting"..."We sincerely believe our working model is one of the best solutions to the problems faced by the health care industry."[26]

The third factor involves the complexity of the caseload. The hospital, based on the hospital's community standards and its own process for granting practice privileges, may require that anesthesia services be provided in the context of a care team approach. This is especially likely to occur where the caseload involves many complicated cases. In other words, it is widely believed that a care team approach provides the safest mode of anesthesia delivery. This is evidenced by the current large percentage of cases in which a care team approach is utilized. Consequently, hospitals may prefer this mode of service delivery.

Related to the complexity of the caseload is simple volume. In some cases, the sheer volume of cases may make the anesthesia care team a more appealing option. The anesthesiologist is available on a broader basis for consultation on problems, while CRNAs carry out the anesthesia plan developed for each patient. Thus, in hospitals where the care team approach is utilized, operating rooms may be scheduled and utilized in a more cost-effective manner.

The process of granting practice privileges is an important factor in the choice of provider in a given hospital, surgical center, etc. Although both CRNAs and anesthesiologists may *legally* perform anesthesia services, it is up to the hospital, via hospital policies and by-laws, to make the decision as to which type(s) of providers to utilize. Community standards, which consider availability of types of providers and their comfort level with those providers, are a factor in that decision. In other words, if a small rural community is looking for a provider, and the caseload is low with very few cases requiring an advanced level of practice, the hospital may grant practice privileges to one or more CRNAs as their only providers. These "privileges" also define whether the CRNA may practice independently or must work with an anesthesiologist.

A final factor influencing the choice of provider is simple availability. If one type of provider is not available in a given geographic location, the hospital must use whatever

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[25]American Association of Nurse Anesthetists. The Nurse Anesthesia Profession and Contemporary Issues. American Association of Nurse Anesthetists, Park Ridge, Illinois. June 1993.

[26]Michelle M. Wasche, President, Nurse Anesthesia Services, P.A. letter dated December 27, 1994.

provider *is* available. This is generally not a concern in metropolitan areas, but may be important in rural communities.

PATIENT OUTCOMES AND TYPE OF PROVIDER

There have been no Minnesota-based studies comparing the outcomes of anesthesia services by type of anesthesia provider. In fact, there have been very few studies comparing anesthesia outcomes by type of anesthesia provider nationwide. The few studies that have been conducted nationally focus on patients receiving anesthesia services during the 1960's and 70's and given the lack of available data they are worth noting.

Studies comparing anesthesia providers typically compare anesthesia administered by anesthesiologists alone, by CRNAs under the supervision of the operating surgeon, or by an anesthesia care team in which anesthesia is administered by a non-physician anesthesia provider (e.g., a CRNA) under the direction of an anesthesiologist.

The Stanford Center for Health Care Research conducted a 17-hospital study of institutional differences in anesthesia outcomes on patients receiving selected surgical procedures performed in 1973-74.[27] This study investigated whether differences in surgical outcomes could be explained by differences in the mix of anesthesia providers most often used in the study hospitals. The hospitals were divided into two groups: hospitals in which anesthesiologists were primarily the providers (9 hospitals; 5,159 patients), and hospitals in which nurse anesthetists were primarily the providers (7 hospitals; 3,405 patients).

Outcomes considered were deaths, complications, and intermediate outcomes. Ratios of the actual number of adverse outcomes (or deaths, morbidity, or weighted outcome scales) to the number predicted from selected patient and hospital characteristics (i.e., indirectly standardized outcomes ratios) for the two groups were compared and tested. The study concluded that, although there were some unadjusted outcome differences between the two groups, after controlling for patient and hospitals characteristics, there were no statistically significant differences in outcomes between the two groups of hospitals defined on the basis of primary type of anesthesia provider.

In another study, the Anesthesia Study Committee of the North Carolina Medical Society compared the incidence of the 90 anesthesia-related deaths across five types of providers administering the anesthetic: (1) a CRNA working alone, (2) an anesthesiologist working alone, (3) the combination of a CRNA and anesthesiologist working together, (4) a surgeon

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[27] Forrest, W. Outcome--The Effect of the Provider in Health Care Delivery in Anesthesia, Hirsh, R., Forrest, W., et al (eds), George F. Stickley Company, Philadelphia, 1980. Page 137.

or dentist, or (5) unknown.[28] The 90 anesthetic-related deaths were taken from the 900 perioperative (i.e., occurring at about the time of the surgical procedure) deaths that occurred from 1969 to 1976 in North Carolina. The authors estimated that over two-million anesthetics were administered in North Carolina during that period. To calculate the incidence of anesthetic-related deaths per patient for each provider group, North Carolina hospitals were surveyed to determine the number of anesthetics provided by these groups.

The incidence of anesthetic-related deaths for these groups was then expressed in terms of the number of deaths per anesthetics administered. No methods of adjusting or accounting for differences between these groups in case-mix or outcome-related patient characteristics were employed. Observed differences suggest that anesthesiologists and the CRNA - anesthesiologist care team were somewhat associated with lower rates of anesthesia-related deaths than CRNA's working alone. However, given the absence of controls, the findings cannot be used to determine (1) whether the differences are greater than would be expected by chance, or (2) the extent that the type of anesthesia provider is responsible for the differences versus others factors. The author concluded that the incidence of patient death among these groups is "rather similar."

In the context of considering the adverse outcomes associated with different anesthesia care provider groups, it is important to acknowledge the variety of factors that may impact these outcomes (e.g., patient characteristics such as age and comorbidities, type and duration of surgical procedure) in addition to the performance of the anesthesia provider.[29] A valid study of anesthesia outcomes for different provider groups must therefore account for all factors associated with the risk of adverse outcomes.

Given the limited amount of current and sufficiently controlled evidence comparing outcomes for different types of anesthesia providers or groups of providers, researchers have considered the feasibility of conducting a large-scale study to address these questions but have been deterred because of the significant costs. In 1980, the Center for Disease Control (CDC) conducted a pilot study to determine the feasibility of establishing surveillance for and conducting a nationwide study of mortality and severe morbidity associated with anesthesia. Data was collected in five non-randomly selected hospitals over a three month period. The rate of adverse outcomes with anesthesia as a contributing factor was 6.25/10,000 procedures and the rate of adverse outcomes totally related to anesthesia was 1.25/10,000 procedures. Due to the low frequency of anesthetic related adverse outcomes, the cost (size) of the full-

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[28] Bechtold, A., Committee on Anesthesia Study, "Anesthetic-Related Deaths: 1969-1976," North Carolina Medical Journal, Vol. 42, 1981, Pages 253-259.

[29] Fleming, S. "Toward the Development of Integrative Risk-Adjusted Measures of Quality Using Large Clinical Databases--The Case of Anesthesia Services," Evaluation and the Health Professions, Vol. 15, No. 4, March, 1992. Pages 49-57.

scale study was estimated at $15 million,[30] a major factor in the decision not to complete the final study.

Summary

To date only two studies directly comparing the outcomes of patients receiving anesthesia by anesthesiologists, CRNAs, and combinations of the two have been conducted nationwide. Both of these studies used data for patients who received services about 20 years ago. Although the North Carolina study observed some differences between the groups, the findings cannot be tested for statistical significance, nor were they adjusted for differences in patient severity, complexity, or demographic characteristics. And, while the Stanford study employed a method of adjusting for patent and hospital differences, it found no significant differences between provider groups.

Finally, given that the available studies of the outcomes of anesthesia across type of provider are either dated or dated and insufficiently controlled suggests the need for further studies. However, the scale and projected cost of a study that would be necessary to conclusively address the issue of the affects of anesthesia provider on patient outcomes must be balanced against the expected benefits.

THE HEALTH CARE MARKET AND ANESTHESIA SERVICES

Demand for CRNAs and Anesthesiologists

According to the Minnesota Society of Anesthesiologists, the demand for anesthesiologists has been consistent until recent years when a slight decline has occurred.[31] Of those anesthesiologists completing training in Minnesota, approximately half stay in Minnesota. Currently the supply roughly equals the demand with more graduates willing to work in rural communities.[32]

In a survey conducted by the Office of Rural Health in the Minnesota Department of Health, Division of Health Care Delivery Policy, the projected number of CRNAs that will be recruited over the next two years (1993-1995) indicate an increased demand.[33] Demand in this context refers to "the number of facilities and/or communities actively seeking to recruit physicians or mid-level providers through the offering of a specific practice opportunity.

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[30]Klaucke, D., Revicki, D., Brown, R. Investigation of Mortality and Severe Morbidity Associated with Anesthesia: Pilot Study Final Report, Battelle Human Affairs Research Centers, Washington D.C., 1988.

[31]Interview with Minnesota Society of Anesthesiologists (MSA). September 1, 1994.

[32]Interview with Minnesota Society of Anesthesiologists (MSA). September 1, 1994.

[33]Bergeron, D., Buck, S., Hill, T. Minnesota Physician and Mid-Level Practitioner Demand Assessment. Minnesota Center for Rural Health. August 1993. Pages 26-27.

This number does not denote 'need,' 'optimal,' or even 'appropriate' levels of providers statewide, regionally, or locally."[34]

Employment Arrangements

Anesthesiologists generally practice within the context of an anesthesiology group to provide anesthesia services to patients in hospitals and outpatient facilities. They bill independently of the hospital or healthcare facility. According to the 1994 Occupational Outlook Handbook, the median income of anesthesiologists in the U.S., after expenses, was $210,000 in 1991.[35] Minnesota-specific salary information is not available.

CRNAs may be employees or contractors with one or more hospitals;[36] work independently; or work for an anesthesiologist's group. In some cases, CRNAs work independently or as partners with physicians.[37] Recently, professional CRNA corporations have begun to develop which may contract either directly with the hospital or with an anesthesiologist group to provide services. In urban Minnesota communities, as well as across the nation, the predominant style of practice is the anesthesia care team mode with an anesthesiologist providing medical direction for one or more CRNAs.[38] 1991 national estimates indicate that 47% of CRNAs are employed by hospitals, 38% are employed by physicians within an anesthesiology group, and 12% contract their services independently. In 1982, 34% of hospitals relied solely on CRNAs for anesthesia services, mostly in rural areas.[39] CRNAs are typically employed in inpatient and outpatient operating rooms. However, they may also practice in emergency rooms, intensive care units, and psychiatric wards."[40] In Minnesota, more than 50% of all CRNAs practice in the Twin Cities metropolitan area.

The salary and benefits of CRNAs vary by the level of skill, geographic location and negotiation ability of each CRNA or CRNA group. Salaries for *hospital-employed* CRNAs working in Minnesota range from approximately $24,000 to $112,000 per year, with an

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[34]Bergeron, Buck and Hill, Page 1.

[35]United States Department of Labor. Bureau of Labor Statistics. Occupational Outlook Handbook. United States Department of Labor. April 1994. Page 163.

[36]Wellever, Moscovice and Hill, Page 11.

[37]Wellever, Moscovice and Hill, Page III.

[38]Interview with Minnesota Society of Anesthesiologists (MSA). September 1, 1994.

[39]Wellever, Moscovice and Hill, Page 11.

[40]Wellever, Moscovice and Hill, Page 11.

average salary of $69,000.[41] This is somewhat higher than the national average of $66,622.[42] Salary data from the American Association of Nurse Anesthetists, which includes not only *staff* CRNAs, but also independent contractors, indicate that the overall national average was actually $82,700 in 1992. Minnesota-specific data show that the average was $78,658.[43]

There has been an increasing trend in the past decade toward outpatient surgery. In fact, under Medicare, the use of outpatient hospital settings rose from 3.3% in 1980 to 25.5% in 1992, with inpatient settings providing only 47.9% of all surgical care.[44] There is also a current trend toward ambulatory surgery clinics.[45] There were ten such freestanding outpatient surgery clinics in Minnesota in 1993.[46] Anesthesia services are being performed in a greater variety of settings and at present it is unclear what impact this may have on employment arrangements.

In many cases, these employment arrangements have remain unchanged. However, as CRNAs have been terminated from hospital employment, new arrangements have formed. CRNAs may contract individually or form their own anesthesia groups and contract directly with hospitals, anesthesiologist groups, or health plans. As the number of hospital-employed CRNAs decreases, these arrangements will continue to shift and develop. The market is in a dynamic state and it is unclear what changes will occur in the future. However, there are two factors that will impact that process.

The first factor is demand. There is a continued need for the services of CRNAs as well as anesthesiologists. The market requires the availability of both types of providers as neither provider practices in sufficient numbers in Minnesota to manage the workload alone without compromising the quality of care provided. Additionally, both provider types have unique skills to offer based on their training and educational backgrounds. For these reasons, the type of contracts that are being negotiated between CRNAs and anesthesiologists are extremely variable. Anesthesiologist groups generally hire CRNAs to ensure that anesthesia services are available as necessary to cover the anesthesia caseload.

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[41]Health Care Cost Information System (HCCIS). "1992 Revenue and Expense Report." Minnesota Department of Health, Division of Health Care Delivery Policy. October 1994.

[42]United States Department of Labor. Bureau of Labor Statistics, Page 177.

[43]Used by permission of the American Association of Nurse Anesthetists. Data from the 1994 AANA Membership Survey. American Association of Nurse Anesthetists, Park Ridge, Illinois. 1994.

[44]United States House of Representatives, Committee on Ways and Means. Overview of Entitlement Programs: 1994 Green Book. Washington, D.C.: U.S. Government Printing Office. July 1994. Page 1080.

[45]Wellever, Moscovice, and Hill, Page 9.

[46]Health Care Cost Information System (HCCIS). 1993 Annual Status Report Information. Minnesota Department of Health, October 1994.

The second factor is competition. Interviews with CRNAs and anesthesiologists indicate that, historically, there has been little competition of any type between the providers. Competition between anesthesiology groups has been virtually non-existent. Rarely would a hospital switch from one anesthesia group to another. Likewise, competition has been limited in the past between CRNAs and anesthesiologists. However, it is still the case that in many areas of Minnesota (whether for cost reasons or hospital/community preference), one provider type may be the predominate provider to the local market.[47]

Currently, the competitive forces in the market are changing as reductions in reimbursement for anesthesiology services are phased in and as hospitals and other providers are attempting to become more cost-effective providers of services. Anesthesiologist groups are now beginning to compete for hospital contracts. Competition is also increasing between provider types (anesthesiologists and CRNAs), and though different, both have desirable qualities to offer a potential purchaser. Further, competition between provider *groups* is also developing as both CRNAs and anesthesiologists form new groups. These forces are all contributing to the changes in the market for anesthesia services.

REIMBURSEMENT ISSUES

Reimbursement for anesthesia services is an extremely complex and controversial topic. Anesthesia services are reimbursed under a special formula that applies to no other medical professional. The amount Medicare pays for anesthesia services is based on three factors, "the complexity of the procedure, the time involved performing the procedure, and the personnel delivering the services. Complexity is measured by "base units"; the more complex or risky a procedure is, the more units assigned to it. The number of base units assigned to a procedure is uniform nationwide."[48] Time units are measured in 15-minute intervals.

The United States General Accounting Office (GAO) has examined the issue of time units because of findings of significant variations in payment for the same type of procedure. The GAO found that the time factor accounts for 58% of Medicare anesthesia payments and that large, unexplained variations in anesthesia time for the same procedures exist.[49] This is significant in light of the fact that there is also an inability to substantiate claimed anesthesia times. Consequently, the GAO concluded that the Department of Health and Human Services should eliminate the direct link between anesthesia time and payment for anesthesia

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[47]Minnesota Association of Nurse Anesthetists. Information presented with Comments to the Minnesota Department of Health on the December 2, 1994 Draft of the Anesthesia Practices Study. December 23, 1994.

[48]United States General Accounting Office. Medicare: Payments for Medically Directed Anesthesia Services Should Be Reduced. Washington, D.C.: U.S. General Accounting Office. March 1992. Page 2.

[49]United States General Accounting Office. Medicare: Variations, Page 27.

units.[50] "GAO also believes that HHS should make Medicare payments for anesthesia services consistent with payment for other physician services."[51]

In response to the 1991 GAO statement calling for the elimination of time units, "HHS agreed that Medicare payments for anesthesia services should not be based on time and stated that it intends to eliminate time units under the physician fee schedule...The American Association of Nurse Anesthetists and American Society of Anesthesiologists disagreed, noting that Medicare's definition of anesthesia start time, while ambiguous, could be improved and time reimbursement retained for anesthesia services...The Anesthesia Care Team Society stated that the problem GAO identified with preoperative anesthesia time warrant changing Medicare's payment policy...The Society suggested paying a standard amount for presurgical services and continuing time-based reimbursements for services during and following surgery."[52] The issue has yet to be resolved. However, several significant changes have been made to the payment formula in recent years.

1994 HCFA Payment Guidelines

Under OBRA (Omnibus Budget Reconciliation Act) requirements, the Secretary of the Department of Health and Human Services must establish a new fee schedule each year that sets payment amounts for all physician services provided in all fee schedule areas. That fee schedule amount is equal to the product of: 1) the relative value of the service; 2) the geographic adjustment factor (GAF); and 3) the national dollar conversion factor for the year.[53] Because anesthesia services are calculated differently than any other physician service, a special conversion factor of $14.20 was established for 1994.[54]

HCFA recently changed the way Medicare pays different types or mix of professionals delivering anesthesia services. One of three delivery methods is usually used: (1) an anesthesiologist working alone, (2) a CRNA working under the supervision of a surgeon without an anesthesiologist, and (3) an anesthesiologist medically directing one or more CRNAs or anesthesiology residents."[55] The last option, involving the medical direction of one or more non-physician anesthesia providers, is commonly referred to as an "anesthesia

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[50]United States General Accounting Office. Medicare: Variations, Pages 3-4.

[51]United States General Accounting Office. Medicare: Variations, Page 3.

[52]United States General Accounting Office. Medicare: Variations, Pages 4-5.

[53]United States House of Representatives, Committee on Ways and Means. Overview of Entitlement, Pages 1037-1038.

[54]United States House of Representatives, Committee on Ways and Means. Overview of Entitlement, Page 1051.

[55]United States General Accounting Office. Medicare: Payments, Pages 2-3.

care team."[56] Until 1994, Medicare used a different formula for each of these circumstances. (See Appendix C for detailed tables on 1994 Medicare payment changes.) The payment formula used was based on "conversion factors" (CFs). These CFs were basically the base rate of reimbursement per time or base unit. Typically, the CRNA CF was a percentage of the anesthesiologist CF. However, effective January 1, 1994, HCFA eliminated the use of separate Medicare CFs for medically directed CRNAs. This occurred as a result of the adoption by Congress of the single anesthesia fee payment for the anesthesia care team (Omnibus Budget Reconciliation Act of 1993). Thus, payment for medically directed CRNA services are currently derived from a formula that uses the anesthesiologist CF.[57]

There have been other major changes in the area of anesthesiologist conversion factors as well. Under OBRA89, a resource-based relative value scale (RBRVS) system was created to calculate the anesthesiologist's conversion factor each year. "During the implementation of RBRVS, the services of anesthesiologists were found to be 29% overvalued, not 18%, as had been originally estimated."[58] Consequently, the decision was made that anesthesiologist CFs would be reduced over a period time to the appropriate level. In fact, "anesthesiologists in virtually all localities experienced a 10 to 30 percent reduction in the conversion factor between 1990 and 1992. Medicare payments to medically directed CRNAs rose between 1990 and 1992, with most increases in the range of 10 to 20 percent."[59] This coincides with salary data from the American Association of Nurse Anesthetists 1994 Membership Survey which indicate that CRNA salaries, on average, increased by 15% in 1988, 11% in 1989, 14% in 1990, 4% in 1991, and 2% in 1992.[60]

Prior to 1994, payments for the anesthesia care team could be "as much as 140% of the cost of a solo anesthesiologist providing the service."[61] However, anesthesiologist CFs "were reduced in 1994 due to the continued phase-in of anesthesiologist cuts under physician payment reform."....."Beginning January 1, 1994, the payment for the anesthesia care team will be 120% of what a solo anesthesiologist would have been paid for performing the

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[56]Minnesota Society of Anesthesiologists, Page 8.

[57]Michels, K., Hopkinson, S. "HCFA Issues 1994 CRNA and Anesthesiologist Medicare Conversion Factors." Journal of the American Association of Nurse Anesthetists. Vol. 62, No. 1. February 1994. Page 14.

[58]Michels, Page 562.

[59]Rosenbach, M., Ammering, C. "Payment Options for the Anesthesia Care Team." Center for Health Economics Research under service agreement with the Physician Payment Review Commission. December 1992.

[60]American Association of Nurse Anesthetists (AANA). Membership Survey data. American Association of Nurse Anesthetists. 1994. Figures used by permission of the AANA.

[61]Michels, Page 562.

procedure alone. This amount is split 50/50 between the CRNA and anesthesiologist. There will be an additional 5% cut each year over four years from the 120%, ending in 1998 in a permanent 100% cap, split 50/50. The law repeals the use of reductions in base units and 30-minute time units (versus the normal 15-minute time units) that have been used in determining payment for anesthesiologists who medically-direct CRNAs."[62] Nationally, this will result in an increase in reimbursement in some cases, but a decrease in others. The reason for the variation in effects of the change in conversion factors is that these factors are based in part on geographic area."[63] Thus, even different areas within one state may be impacted differently depending on location. The "geographic adjustment factor (GAF)" is designed to account for the geographic variability of some factors such as the cost of malpractice insurance.[64] There are currently 217 fee schedule areas nationwide, each with their own GAF. Minnesota is under two fee schedule areas, but both have equivalent GAFs at this point in time.[65]

The changes in Medicare guidelines for reimbursement have significantly affected payment to both CRNAs and anesthesiologists. When a CRNA performs a procedure independently, Medicare recognizes the same number of base units and computes time units the same way as when an anesthesiologist personally performs the procedure. The same conversion factor is also used. Thus, the Medicare payment is identical for a CRNA to what an anesthesiologist would have received, and there are no cost savings to Medicare based on provider type.[66]

In cases (under Medicare payment guidelines) where an anesthesiologist is medically directing one or more CRNAs (anesthesia care team mode), payment is split 50/50 between providers. Although "anesthesiologists working in a 2:1 practice ratio (2 CRNAs to 1 anesthesiologist; i.e. 1 CRNA per case with the anesthesiologist working on both cases) will in general experience cuts under the 100% and 120% caps that are similar to those faced by CRNAs, there is one major difference between the two providers. The difference is that while CRNAs can participate in only one case at a time, anesthesiologists will still be allowed to medically direct CRNAs in up to four cases. Thus an anesthesiologist can receive a 50% split from up to four cases, while a CRNA can receive a 50% split from only one case."[67] It is important to note, however, that both national and Minnesota-specific data

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[62]Michels and Hopkinson, Page 14.

[63]United States General Accounting Office. Medicare: Payments, Page 3.

[64]United States House of Representatives, Committee on Ways and Means. Overview of Entitlement, Page 1038.

[65]United States House of Representatives, Committee on Ways and Means. Overview of Entitlement, Page 1087.

[66]Michels and Hopkinson, Page 15.

[67]Michels and Hopkinson, Page 15.

indicate that the overwhelming majority of cases involving the medical direction of CRNAs are performed in a 2:1 practice ratio. The incidence of anesthesiologists practicing in a 3:1 or 4:1 ratio is minimal in comparison.[68]

A final change made in the 1994 Medicare reimbursement rules pertains to billing for services while teaching residents. In the past, an anesthesiologist could bill Medicare when medically directing one or two anesthesiology residents. The anesthesiologist was paid for each service as if it was personally provided; that is, two full payments for medically directing two residents. This delivery method gave "anesthesiologists a higher revenue per hour than when they medically direct two CRNAs. In addition, Medicare reimburses hospitals for costs related to the anesthesiology residents, such as salary and fringe benefits, on a cost basis."[69] Beginning in 1994, "a teaching anesthesiologist will be paid in exactly the same way regardless of whether he/she is involved in two concurrent cases with anesthesiology residents, nurse anesthesia students, or CRNAs."[70] Thus, the anesthesiologist receives 50% on each case regardless of who is being directed. This change will remove the past financial incentive to choose direction of residents over CRNAs. While teaching CRNAs do not "medically direct" students, they DO *supervise* multiple concurrent cases. As in the past, Medicare restricts teaching CRNAs to billing as if they only personally performed on one case.

Another issue related to reimbursement is "medical necessity," an issue that has been quite controversial in the past as it relates to Medicare. "Medical necessity" refers to the requirement that for a CRNA to be medically directed by an anesthesiologist, there must be certain criteria present illustrating that a second provider is in fact necessary. Arbitrary and inconsistent criteria used by various carriers often resulted in denial of payment for CRNA services. In Minnesota, these criteria have been more clearly established. However, although Medicare will pay two providers, full payment is often made to the *first* provider to bill. Therefore, a second provider (whether for CRNA or anesthesiologist services) may be denied reimbursement. This "rejection of Medicare payment for CRNA involvement in 1:1 cases is having a major financial impact on the hospitals which employ the CRNAs."[71] (See Table 2 on the following page for a list of the major changes (and their impacts) in Medicare reimbursement methodologies since 1987.

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[68]American Society of Anesthesiologists, Memorandum. 1994 ASA Membership Survey. American Society of Anesthesiologists, Park Ridge, Illinois. 1994.

[69]United States General Accounting Office. Medicare: Payments, Page 4.

[70]Michels and Hopkinson, Page 15.

[71]Michels, Page 553.

TABLE 2:

IMPACT OF MAJOR MEDICARE REIMBURSEMENT REVISIONS

Revision	CRNAs	Anesthesiologists	Hospitals
Decreased payment for medical direction (1987)	No impact	Lower payment; higher costs due to required tracking	No impact
Direct payment to CRNAs authorized (1989)	Independents could bill on their own	No impact at first; Later, dual billing became an issue	Hospitals had to do a separate billing for CRNA services; conflicts began to occur with anesthesiologist billings
Parity between solo-CRNA and solo-anesthesiologist payments (5 year phase in plan) (1990)	Higher payment	Lower payment	No impact
CF raised for medically-directed CRNAs (1990)	Higher payment	No impact	Higher payments for hospital-employed CRNAs
Change to a single CF (1994)	Parity with payment to anesthesiologist per case	Lower payment	Higher payment for hospital-employed CRNAs
120% cap on care team payments; split 50/50 (1994)	Parity with payment to anesthesiologist per case	Lower payment; billing problems increased due to change in split	Higher payment for hospital-employed CRNAs; billing conflicts increased resulting in lost payments
Change in payment for teaching anesthesiologists (1994)	Removed barrier to care team participation	Lower payment for teaching residents	No impact
Future changes already approved: Reduction of cap on care team to 100% (5% reduction per year beginning in 1994)	Lower payment; CRNAs may be used less in care team mode if anesthesiologists choose to do more solo practice	Lower payment; incentive may be removed to work in a care team mode	Lower payment for hospital-employed CRNAs; may be forced to make a decision between using CRNAs under surgeon supervision or using only an anesthesiologist if the financial incentive for care team mode is removed

Medicaid Reimbursement for Anesthesia Services

The Minnesota Department of Human Services administers Medicaid (known as Medical Assistance, or "MA" in Minnesota) reimbursement for anesthesia services. In general, the Medicaid reimbursement guidelines follow the Medicare rules and policies. However, due to the time and resource commitment to implementing the new MMIS II system (Medicaid Management Information System), Medicaid staff have been delayed in modifying the Minnesota rules to conform to the 1994 Medicare payment policies. It is anticipated, however, that the change will be made as soon as resources permit.

CRNAs must enroll in the MA program in order to bill for their services. CRNAs may bill independently or, if the CRNA is hospital-employed, CRNA anesthesia services may be

billed by the employing hospital.

For CRNAs who are independently enrolled, MA will reimburse them directly. CRNA bills submitted to MA contain the CRNA's provider number and modifier codes indicating whether services were independent or supervised by a physician. The MA program formula for discounting reimbursement for CRNAs results in payment rates that are approximately 80 percent of the physician's rate for independent care and 60 percent of the physician's rate for supervised care."[72]

Under Medicaid rules, hospitals also have the option of including CRNA services in the DRG amount or "unbundling" the services and billing the CRNA service separately from the inpatient hospital charges. CRNA services must all be billed the same way (either all included in the DRG amount or all billed separately). At present, approximately 45%[73] of the hospitals in the State have chosen to "unbundle" CRNA services. This option was first made available in October, 1993. Hospitals will have an option every two years to have services "unbundled," but once that occurs, they cannot choose to reverse their decision. Once separated, the payments must remain separate.

The amount by which the DRG payment is reduced is different from hospital to hospital because of the variability of the factors that are involved. In most cases, it appears that the DRG amount is reduced by a fraction of the amount that could be collected under separate CRNA billing. Thus, as the CRNA services are "unbundled," Medicaid is likely to see an overall increase in the cost of anesthesia services. (Accurate estimates are unavailable on the impact of this billing option.) The increase is the result of the differential allowed under the DRG compared to the payment by Medicare for physician services. Also, although there is a lower payment in place for CRNAs compared to anesthesiologists under Medicaid, there may be increased *total* reimbursement when both a CRNA and an anesthesiologist are involved.

Other Third Party Payer Reimbursement Issues

Private health insurance companies are required by Minnesota statute (MS 62A.15, subdivision 3a, see Appendix D) to pay for services provided by CRNAs which are covered under their policy or contract. However, there is "no direction on the issues of conditions and payment parity. As a result, private third-party payers vary in their treatment of MLPs" (mid-level practitioners, including CRNAs). Third party payers have the freedom to discount anesthesiologist payments, CRNA payments, or CRNA payments in relation to anesthesiologist payments. However, many do NOT discount CRNAs in relation to anesthesiologists because "(1) they have not had the administrative systems in place to identify MLP claims for payment and (2) the volume of claims has been relatively small."[74]

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[72]Wellever, Moscovice and Hill, Page 33.

[73]Information from the Minnesota Department of Human Services, Medicaid Program.

[74]Wellever, Moscovice and Hill, Page 41.

In other words, many of the payers do not have the appropriate coding within their claims payment systems to identify whether a provider is a CRNA or an anesthesiologist. Since the number of claims for CRNAs are believed to be relatively small, it has not been cost-effective to modify the systems.

The American Association of Nurse Anesthetists (AANA), in their testimony to the Physician Payment Review Commission (PPRC), state that they oppose "the adoption of Medicare's RBRVS rates by all insurers because it results in an insufficient payment for the quality anesthesia service provided."[75] Minnesota's healthcare reform efforts are specifically mentioned because "Many ISNs are considering adopting Medicare's RBRVS methodology and rates as a way to contain costs."[76]

Both CRNAs and anesthesiologists will be impacted in the future by the growth of managed care in Minnesota. Managed care organizations are already negotiating for lower rates for anesthesia services. With the increased growth in managed care, there will continue to be increased emphasis on cost containment resulting in increased competition.

SUMMARY

The 1994 MinnesotaCare Act (Article 8, Section 69) required the Minnesota Department of Health to study the provision of anesthesiology services by anesthesiologists and certified registered nurse anesthetists. Listed below are the key findings of the study regarding patient outcomes, cost of services, and effects on competition.

- Limitations on the study made it impossible to fully evaluate the cost of service provided under each type of employment arrangement. However, there are some findings worth noting. Anesthesia providers are paid equivalent amounts per case under Medicare, and will likely under Medicaid, as well, when new guidelines are implemented. Reimbursement is declining to all anesthesia providers for federally funded programs and other third party payers are also beginning to negotiate lower reimbursement rates.

- There are no studies, either national in scope or Minnesota-specific, which conclusively show a difference in patient outcomes based on type of anesthesia provider.

- National and state health care reform efforts are effecting the entire health care market in Minnesota. Although this study is the result of concerns over the changing market for anesthesia services, the primary forces driving these changes are effecting all of health care. For more than a decade, rising health care costs have been a major concern for state and

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[75]Michels, Page 563.

[76]Michels, Page 563.

federal programs. As both Medicare, and later Medicaid, began to review their payment methodologies to reduce costs, payers and providers were prompted to seek new ways to control costs and, at the same time, maintain or improve the quality of services. Reduced payments by payers have brought about greater competition in many areas, including anesthesia services, and a growth in managed care concepts (i.e., negotiated fees, the formation of provider networks). This has been particularly true in Minnesota.

- As a result of the reduced reimbursement to anesthesia providers and the increased focus on cost containment, Minnesota hospitals have had to examine their budgets and attempt to cut costs. Hospitals began to look for new service delivery models that would encourage the cooperation of providers in their delivery of services, maintain high quality, and be cost effective. Consequently, several hospitals made the decision to terminate their CRNAs from their hospital staff and to contract for services. The providers are thus responsible for the billing and overhead costs, not the hospital, and for providing quality service to the patient. This decision, based on economics and the changing market, provide cost savings to these hospitals. The impact of health care market dynamics will continue as the market demands shift and develop both locally and nationally.

In summary, anesthesia services continue to be provided primarily in a "care team" approach using both anesthesiologists and CRNAs, with current risk levels remaining very low. The market and demand for both CRNAs and anesthesiologists is changing and we can expect continued flux in this market for several years.

ANESTHESIA PRACTICES STUDY

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ANESTHESIA PRACTICES STUDY
APPENDIX A

LEGISLATIVE REFERENCE

1994 MinnesotaCare Act, Article 8 Sec. 69.

STUDY OF ANESTHESIA PRACTICES.

The commissioner of health shall study and report to the legislature by January 15, 1995, on anesthesia services provided in health care facilities of this state by nurse anesthetists and anesthesiologists. The study shall compare different third-party reimbursement practices and contractual and employment arrangements between health care facilities, nurse anesthetists, and anesthesiologists in terms of their effect on:

(1) patient outcomes in this state, including the incidence of mortality/morbidity as related to provider and practice methods in urban and rural settings as disclosed by a literature search of available retrospective or prospective studies;

(2) the cost of the service provided under each arrangement to health care facilities, third-party purchasers, and patients; and

(3) the effects on competition under each arrangement.

The report shall also include the commissioner's findings on the most appropriate methods to provide anesthesia services to ensure cost-effective delivery of quality anesthesia services.

ANESTHESIA PRACTICES STUDY
APPENDIX B

Anesthesia Practices Study Research Team

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Tom Ehrlichmann

Minnesota Society of Anesthesiologists (MSA):

Dr. Craig Johnson, St. Cloud Hospital, President of MSA
Dr. Mark Warner, Mayo Clinic & Hospital
Dr. John Abenstein, Mayo Clinic & Hospital
Dr. David Byer, Mayo Clinic & Hospital
Dr. Douglas Koehntop, University of Minnesota Hospital
Peter Thorson, Government Relations

Minnesota State Agency: Department of Human Services

Chris Reisdorf

Third Party Payers:

Blue Cross/Blue Shield of Minnesota
The Travelers Companies

ANESTHESIA PRACTICES STUDY
APPENDIX C

MEDICARE PAYMENT METHODOLOGY CHANGES

Pre-1994 Medicare Payment Methodology	1994 Payment Method Anesthesiologist	1994 Payment Method Certified Registered Nurse Anesthetist (CRNA)
Reimbursement Formula For One Independent Provider: ***Anesthesiologist***: Dollar Conversion Factors (CFs) were multiplied by sum of base and time units. ***CRNA***: CFs multiplied by sum of base and time units. Main difference is that Minnesota CFs were always lower than the anesthesiologist CFs were. (Prior to 1989, CRNAs services were only billed to Medicare under Part A and therefore as part of the DRG. They could not bill as independent providers.)	CFs are multiplied by sum of base and time units. However, CFs have been substantially reduced.	CFs are multiplied by sum of base and time units. CFs have increased and are equivalent to anesthesiologist CFs.

APPENDIX C (CONTINUED):

Pre-1994 Medicare Payment Methodology	1994 Payment Method Anesthesiologist	1994 Payment Method Certified Registered Nurse Anesthetist (CRNA)
Reimbursement Formula For Care Team Mode: Prior to 1989, anesthesiologist billed as the only provider since CRNA services were covered under Part A. Medicare paid for both anesthesiologist and CRNA, but it wasn't apparent. Since 1989, confusion often arises when a CRNA is hospital-employed because CRNA services are billed separately. It is often viewed as "duplicate" billing and frequently only one provider is paid while the other is denied. Between 1989 and Jan. 1, 1994: ***Anesthesiologist***: Dollar Conversion Factors (CFs) were multiplied by sum of base and time units. However, the number of base units were reduced when the anesthesiologist was medically directing a CRNA (-10% for 2 procedures; -25% for 3 procedures; -40% for 4 procedures). Thus, although CFs were reduced for part of this time period, an anesthesiologist may still bill for up to 4 procedures at one time. Also, time units were set at 30 minutes instead of 15. ***CRNA***: CFs multiplied by sum of base and time units. CFs were still lower than the anesthesiologist CFs. CRNAs are limited to billing for only one procedure.	Same reimbursement as CRNA. Time and base units are identical. 120% of what an anesthesiologist would have been paid for performing the procedure alone. This amount is split 50/50 between the CRNA and anesthesiologist. (There will be an additional 5% cut each year over four years from the 120%, ending in 1998 in a permanent 100% cap, split 50/50.) The law also repeals the use of reductions in base units and 30-minute time units (versus the standard 15-minute time units) that have been used in determining payment for anesthesiologists who medically direct CRNAs.	Same reimbursement as anesthesiologist. Time and base units are identical. 120% of what an anesthesiologist would have been paid for performing the procedure alone. This amount is split 50/50 between the CRNA and anesthesiologist. (There will be an additional 5% cut each year over four years from the 120%, ending in 1998 in a permanent 100% cap, split 50/50.)

APPENDIX C (CONTINUED):

Pre-1994 Medicare Payment Methodology	1994 Payment Method Anesthesiologist	1994 Payment Method Certified Registered Nurse Anesthetist (CRNA)
Reimbursement For Procedures While Teaching Anesthesiology Residents: ***Anesthesiologist***: Residents have not ever been paid under Medicare for their services. However, the teaching anesthesiologist could bill the procedure as if s/he were the only provider and receive 100% of the reimbursement. The anesthesiologist could also be teaching two students on two procedures at once and thus receive 100% of the reimbursement in both cases. This increased the amount of reimbursement over what could be received for directing CRNAs. ***CRNA***: Teaching CRNAs cannot bill for more than one procedure.	When teaching one resident, the anesthesiologist may bill for the service as if s/he is the only provider. When teaching two residents, the anesthesiologist must follow the rules for medical direction--(i.e. receives payment equal to half of the total reimbursement). The other half may be paid to a CRNA who may also be part of the procedure; if no CRNA is present, the other half of the reimbursement remains unpaid. This removes the incentive for teaching residents rather than directing CRNAs.	Not Applicable; Teaching CRNAs may not bill for supervising concurrent cases.

ANESTHESIA PRACTICES STUDY
APPENDIX D

62A.15 LICENSED HEALTH PROFESSIONAL SERVICES IN ACCIDENT AND HEALTH AND NONPROFIT HEALTH SERVICE POLICIES.

Subdivision 1. **Applicability.** The provisions of this section apply to all group policies or subscriber contracts providing payment for care in this state, which are issued by accident and health insurance companies regulated under this chapter and nonprofit health service plan corporations regulated under chapter 62C.

Subd. 2. **Chiropractic services.** All benefits provided by any policy or contract referred to in subdivision 1, relating to expenses incurred for medical treatment or services of a physician must also include chiropractic treatment and services of a chiropractor to the extent that the chiropractic services and treatment are within the scope of chiropractic licensure.

This subdivision is intended to provide equal access to benefits for insureds and subscribers who choose to obtain treatment for illness or injury from a doctor of chiropractic, as long as the treatment falls within the chiropractor's scope of practice. This subdivision is not intended to change or add to the benefits provided for in these policies or contracts.

Subd. 3. **Optometric services.** All benefits provided by any policy or contract referred to in subdivision 1, relating to expenses incurred for medical treatment or services of a physician must also include optometric treatment and services of an optometrist to the extent that the optometric services and treatment are within the scope of optometric licensure.

This subdivision is intended to provide equal payment of benefits for optometric treatment and services and is not intended to change or add to the benefits provided for in those policies or contracts.

Subd. 3a. **Nursing services.** All benefits provided by a policy or contract referred to in subdivision 1, relating to expenses incurred for medical treatment or services of a duly licensed physician must include services provided by a registered nurse who is licensed pursuant to section 148.171 and who is certified by the profession to engage in advanced nursing practice. "Advanced nursing practice" means the performance of

APPENDIX D (CONTINUED):

health services by professional nurses who have gained additional knowledge and skills through an organized program of study and clinical experience preparing nurses for advanced practice roles as nurse anesthetists, nurse midwives, nurse practitioners, or clinical specialists in psychiatric or mental health nursing. The program of study must be beyond the education required for registered nurse licensure and must meet criteria established by the professional nursing organization having authority to certify the registered nurse in advanced nursing practice. For the purposes of this subdivision, the board of nursing shall, by rule, adopt a list of professional nursing organizations which have the authority to certify nurses in advanced nursing practice.

This subdivision is intended to provide payment of benefits for treatment and services by a licensed registered nurse certified in advanced nursing practice as defined in this subdivision and is not intended to add to the benefits provided for in these policies or contracts.

Subd. 4. **Denial of benefits.** (a) No carrier referred to in subdivision 1 may, in the payment of claims to employees in this state, deny benefits payable for services covered by the policy or contract if the services are lawfully performed by a licensed chiropractor, licensed optometrist, or a registered nurse meeting the requirements of subdivision 3a.

(b) When carriers referred to in subdivision 1 make claim determinations concerning the appropriateness, quality, or utilization of chiropractic health care for Minnesotans, any of these determinations that are made by health care professionals must be made by, or under the direction of, or subject to the review of licensed doctors of chiropractic.

HIST: 1973 c 252 s 1; 1976 c 192 s 1,2; 1976 c 242 s 1; 1983 c 221 s 2; 1988 c 441 s 1; 1988 c 642 s 2-4; 1989 c 330 s 13,14

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