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### A Historical Study of Nurse Anesthesia Education in Nebraska

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A HISTORICAL STUDY OF NURSE ANESTHESIA EDUCATION  
IN NEBRASKA

by

Sharon L. Hadenfeldt

A DISSERTATION

Presented to the Faculty of  
The Graduate College at the University of Nebraska  
In Partial Fulfillment of Requirements  
For the Degree of Doctor of Philosophy

Major: Educational Studies

Under the Supervision of Professor Marilyn L. Grady

Lincoln, Nebraska

November, 2006



A HISTORICAL STUDY OF NURSE ANESTHESIA EDUCATION  
IN NEBRASKA

Sharon L Hadenfeldt, Ph.D.

University of Nebraska, 2006

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The Certified Registered Nurse Anesthetists (CRNA) was the first advanced practice nursing specialty, dating to the late Nineteenth Century in the United States. Nurses were first recruited and trained by surgeons to administer anesthesia beginning in the 1870's in the United States. Apprenticeship training by either a surgeon, or another nurse, was the initial method of anesthesia training for the early nurse anesthetist. Post-graduate training programs began to appear within some hospitals at approximately 1910. The hospital-based nurse anesthesia programs became more standardized with the implementation of an accreditation program in 1952. Beginning in 1971 nurse anesthesia programs began to affiliate with academic institutions and began to award academic degrees. A master's level education was mandated for all nurse anesthesia programs in 1998.

The purpose of this study was to document the history of the education of nurse anesthetists in Nebraska from the Nineteenth Century to 2006. Evidence of: apprenticeship training, anesthesia training during the basic nursing school curriculum, organized post-graduate training programs prior to the implementation of accreditation by the American Association of Nurse Anesthetists (AANA), post-graduate hospital-based programs accredited by the AANA beginning in 1952, and academic degree programs at the baccalaureate and master's level was sought and analyzed. Analysis of primary and secondary documentary evidence, as well as the collection of eighteen oral history interviews was completed for the study. Nurse anesthesia education in Nebraska evolved through three primary phases. The first phase was apprenticeship training occurring between 1898 and 1925, the second was

the training of nursing students in the administration of anesthesia during the basic nursing education, occurring commonly between 1915 and 1930, and the third was the establishment of post-graduate programs. The first Nebraska post-graduate program was initiated in 1947 with an additional five programs operating at some time in the state. Three of the programs operated for two to six years, educating a small number of nurse anesthetists. All but one closed by 1987, leaving a single nurse anesthesia program in Nebraska.

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## CHAPTER 1

### INTRODUCTION

Certified Registered Nurse Anesthetists (CRNAs) provide approximately sixty-five percent of anesthetic services in the United States and are licensed in every state. The National Sample Survey of Registered Nurses, March 2004 found there were 32,523 CRNAs in the United States<sup>1</sup> and approximately 240 Nebraska residents were licensed in Nebraska as CRNAs in 2006.<sup>2</sup> To become licensed as a CRNA, a Registered Nurse (RN) must complete an accredited nurse anesthesia training program and pass the national certification exam.

These advanced practice nurses have provided anesthesia services in Nebraska since the late nineteenth century, but there is little known of the history of their education. For the year 2006 there were 102 accredited programs of nurse anesthesia in the United States with one Nebraska program, the BryanLGH Medical Center School of Nurse Anesthesia located in Lincoln.<sup>3</sup> This program has been in continuous operation since granted provisional accreditation in 1968. There were five additional nurse anesthesia educational programs in Nebraska during various periods of time.

Four of the Nebraska nurse anesthesia educational programs that closed were located in Omaha, Nebraska. Creighton Memorial-Saint Joseph Hospital, and later Creighton University, sponsored a program in Omaha beginning in 1947 and ending in 1987 with the voluntary closure of the program. Immanuel Hospital sponsored a second program in Omaha between the years 1956 and 1962. There was a program of a short duration affiliated with Bishop Clarkson Hospital of Omaha between 1971 and

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<sup>1</sup> Department of Health and Human Services, *The Registered Nurse Population: The National Sample Survey of Registered Nurses March 2004*, prepared by the Health Resources and Services Administration, available from <http://bhpr.hrsa.gov/>, accessed October 15, 2006.

<sup>2</sup> Personal communication, Carla Brandt, Nebraska Health and Human Services, November 1, 2006.

<sup>3</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Accredited Nurse Anesthesia Programs*, available from <http://www.aana.com>, accessed October 15, 2006.

1973. The first nurse anesthesia program in Nebraska to grant an academic degree was affiliated with the University of Nebraska Medical Center. The University program was approved by the University of Nebraska Board of Regents in late 1972, the first class of students was enrolled in 1973, and the program closed by the summer of 1982.

Evidence of anesthesia training for nurses prior to the development of the accredited post-graduate training programs was found. A Nebraska Lutheran Deaconess, Sister Marie S. Anderson, documented her anesthesia training obtained through apprenticeship methods, dated to 1898. Evidence was also found that most early Nebraska Schools of Nursing included the administration of anesthesia in the basic nursing curriculum for the registered nurse. Anesthesia was most often included in the time period between approximately 1915 and 1930. It was determined that at least one Nebraska nurse anesthetist was trained at Saint Catherine's Hospital in Omaha at some time between 1932 and 1936.

The purpose of this study was to document the history of the education of nurse anesthetists in Nebraska from the late nineteenth century to 2006. Evidence of: apprenticeship training, training during the basic nursing school curriculum, organized post-graduate training programs prior to the implementation of accreditation by the American Association of Nurse Anesthetists (AANA), and the establishment of post graduate programs accredited by the AANA beginning in 1952, were sought and analyzed.

## Background

### *The Origins of Nurse Anesthesia*

Nurse anesthesia is recognized as the oldest advanced practice nursing specialty.<sup>4</sup> Many have defined advanced practice nursing as practice in one of the four

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<sup>4</sup> Jeri L. Bigbee and Aara Amidi-Nouri, "History and Evolution of Advanced Nursing Practice," in *Advanced Nursing Practice: An Integrative Approach*, 2<sup>nd</sup> ed., ed. Ann B. Hamric, Judith A. Spross and Charlene M. Hanson (Philadelphia: W. B. Saunders, 2001), 3-32. See also Donna Diers, "Nurse-Midwives and Nurse Anesthetists: The Cutting Edge in Specialist Practice," in *Charting Nursing's Future: Agenda For the 1990's*, ed. Linda H. Aiken and Claire M. Fagin (Philadelphia: J. B. Lippincott, 1992), 159-180.

roles of Clinical Nurse Specialist, Nurse Practitioner, Certified Nurse Midwife, and Certified Registered Nurse Anesthetist. Advanced practice nurses have often been identified as RNs who have completed graduate level education and/or are certified in an area of specialization.<sup>5</sup> The term “advanced practice” is a contemporary term. At the beginning of the twentieth century the term “specialist” was used and referred to nurses who received postgraduate training in a specialty area of nursing. This training was generally of the apprenticeship model and included a variety of areas, including anesthesia, operating room, tuberculosis, laboratory, and dietetics.<sup>6</sup>

The record of early nurse anesthetists predates the twentieth century. Trained nurses and Catholic Hospital Sisters are documented functioning as anesthetists in the United States from the middle 1870’s onward.<sup>7</sup> These early nurse anesthetists were trained by some surgeons to administer anesthetics as an alternative to the medical student or untrained assistant. The medical students had little interest in the anesthetic, and gave more attention to observing the surgery than the condition of the patient. The nurse focused attention on the administration of the anesthetic, and possibly more importantly gained skill and expertise with continued experience. The medical student would be moved to another service in the medical school just as some skill in the anesthetic administration was acquired.<sup>8</sup> The anesthetist was subordinate to the surgeon and received a small payment, if any, for the service.<sup>9</sup> These attributes

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<sup>5</sup> Ann B. Hamric, “A Definition of Advanced Nursing Practice,” in *Advanced Nursing Practice: An Integrative Approach*, ed. Ann B. Hamric, Judith A. Spross and Charlene M. Hanson (Philadelphia: W. B. Saunders, 2000), 53-74.

<sup>6</sup> Bigbee and Amidi-Nouri, “History and Evolution,” 3-32.

<sup>7</sup> Virginia Thatcher, *History of Anesthesia: With Emphasis on the Nurse Specialist* (Philadelphia: J.B. Lippincott, 1953) 53-57.

<sup>8</sup> Florence Henderson, “The Nurse As an Anesthetist,” *The American Journal of Nursing* 9 (1909): 947, see also F. Truckey, “Anesthesia and Anaesthetics,” *The American Journal of Nursing* 9 (1909): 803-806.

<sup>9</sup> Thatcher, *History of Anesthesia*, 52-53.

made the administration of anesthesia unattractive to physicians and consistent with the role of nursing; “She ranks low in occupational prestige and financial rewards.”<sup>10</sup> Nursing was entirely a female domain in the nineteenth century and historically women assumed the work unwanted by men.<sup>11</sup> The gentle touch of a calm, confident nurse was a feminine attribute thought to allay a patient’s fear.<sup>12</sup> Commonly the physicians who began specializing in anesthesia were also female; the low status and pay of anesthesia service made the practice unattractive to male physicians.<sup>13</sup>

The development of aseptic principles during the 1880’s allowed for the rapid advancement of surgical techniques. Prior to the implementation of sterile procedures, the mortality from surgical wound infections discouraged surgical interventions. Deaths attributable to the haphazard administration of anesthetics became a more serious concern once septic deaths were less common.<sup>14</sup> Surgeons recognized the impact anesthetics had on surgical mortality rates and began to insist only trained anesthetists administer anesthetics in an effort to improve surgical outcomes.<sup>15</sup> Thatcher reported a 1894 editorial in the *Denver Medical Times* about anesthetics deaths, “the deaths... were due in the majority of instances, to the bungling and improper way in which it was administered, rather than to the anesthetic itself”.<sup>16</sup>

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<sup>10</sup> F. E. Katz, “Nursing,” in *The Semi-Professions and Their Organization: Teachers, Nurses, Social Workers*, ed. Amitai Etzioni (New York: The Free Press, 1969), 54.

<sup>11</sup> Joan J. Brumberg and Nancy Tomes, “Women In the Professions: A Research Agenda For American Historians,” *Reviews In American History* 10 no. 2 (1982): 287.

<sup>12</sup> Truckey, “Anesthesia and Anaesthetics,” 803-806.

<sup>13</sup> Marianne Bankert, *Watchful Care: A History of America’s Nurse Anesthetists* (New York: Continuum, 1989), 52-53.

<sup>14</sup> Thatcher, *History of Anesthesia*, 49-52.

<sup>15</sup> Truckey, “Anesthesia and Anaesthetics,” 803-806.

<sup>16</sup> Thatcher, *History of Anesthesia*, 52.

The demand for competent anesthetists increased along with the proliferation of modern surgical suites. Nursing leaders were emerging during this time and began organizing nursing education in the United States. Recruitment became more selective and nursing education began to include didactic content in the classroom in contrast to training entirely by apprenticeship.<sup>17</sup> Graduates of the nursing educational programs were identified as trained, or graduate, nurses. Although some physicians did undertake the administration of anesthesia in the United States, the trained nurse was often called upon to fill the need for a competent anesthetist.<sup>18</sup> Surgeons requested that graduate nurses become trained in the administration of anesthetics and became confident in the skills of the nurse anesthetists, thus laying the foundation of the nurse anesthesia profession.<sup>19</sup>

There were some regional variations in the adoption of the trained nurse anesthetist. The Mayo brothers, along with their father, were renowned surgeons during this period gaining eminence both in the midwest and nationally. St. Mary's hospital was opened in Rochester, Minnesota in 1889 and quickly attracted surgeons who came to Rochester to observe the Mayo's surgical techniques. The visiting surgeons also observed the skill of the nurses who anesthetized the patients. Often they would select a trained nurse to send to St. Mary's to observe and learn anesthetic techniques and become their anesthetist.<sup>20</sup> Other midwestern and western hospitals and surgeons also utilized nurses as anesthetists and it became common practice in these regions.<sup>21</sup>

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<sup>17</sup> W. G. Glaser, "Nursing Leadership and Policy: Some Cross-National Comparisons," in *The Nursing Profession: Five Sociological Essays* ed. Fred Davis (New York: John Wiley & Sons, 1966), 8-11.

<sup>18</sup> Thatcher, *History of Anesthesia*, 66-67.

<sup>19</sup> Gustaf W. Olson, "The Nurse Anesthetist—Past, Present and Future," *Bulletin of the American Association of Nurse Anesthetists* 12 (1940): 297.

<sup>20</sup> *Ibid.*

<sup>21</sup> Thatcher, *History of Anesthesia*, 64-65, see also Truckey, "Anesthesia and Anaesthetics," 803-806.

In the southern region of the United States the development of the hospital lagged due to the remaining economic effects of the civil war. Southern surgeons traveled to private homes to perform operations accompanied by a nurse anesthetist who was employed by the surgeon.<sup>22</sup> The eastern region was the most conservative and continued to use the medical student or intern largely as the anesthetizer.<sup>23</sup> Although they may have come to the scene later, there is evidence that nurses were anesthetists early in the twentieth century in the eastern states. A discussion of the nurse as an anesthetist during the Twelfth Annual Convention of the Nurses' Associated Alumnae of the United States was published in 1909. It was reported "...the sun still rises in the East...they have appointed a nurse as anesthetist."<sup>24</sup>

#### *Early Nebraskan Nurse Anesthetists*

Members of religious nursing orders and lay trained nurses were both involved in anesthesia in Nebraska around the turn of the twentieth century. Florence Henderson was one of the early nurse anesthetists at St. Mary's in Rochester. She graduated from Bishop Clarkson Hospital Training School for Nurses in Omaha, Nebraska in 1900. She was trained to deliver anesthesia while a student nurse and remained at Bishop Clarkson Hospital following her graduation where she administered anesthetics. She was recruited to Rochester in 1904 and became Dr. Charles Mayo's anesthetist for fourteen years prior to moving to California. She published and spoke about her techniques at professional meetings, as well as training others who sought her expertise.<sup>25</sup> Another early Nebraska anesthetist was a Lutheran Deaconess affiliated with the Immanuel Deaconess Institute located in Omaha,

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<sup>22</sup> Thatcher, *History of Anesthesia*, 65-67.

<sup>23</sup> *Ibid.*, 76-78.

<sup>24</sup> Henderson, "The Nurse As An Anesthetist," 951.

<sup>25</sup> Joan Hunziker-Dean, "Voice and Touch: Florence Henderson On the Skills of An Ether Specialist," *AANA Journal* 67 (1999): 263-264.



Nebraska. Sister Marie S. Anderson, was trained to administer ether anesthetics in 1898 by Dr. B. B. Davis, an Immanuel Hospital surgeon. She was to take charge of a rural hospital, Dr. Dearborn's Hospital in Wakefield, Nebraska, where one of her duties was to administer anesthesia. She was assigned to the Wakefield hospital a short time, but continued in the anesthetist role through the 1930's.<sup>26</sup>

### *Professionalization of Nurse Anesthesia Education*

The training of nurse anesthetists progressed from the apprenticeship model to graduate level training programs during approximately 100 years. In 1931 leaders in nurse anesthesia began a professional organization, later known as the American Association of Nurse Anesthetists (AANA), and established educational standards at the organizational meeting. The promotion of appropriate education for the nurse anesthetist was the major impetus for organizing. A certification exam was first administered in 1945 with only those who had completed an AANA approved training program eligible to sit for the exam. In 1952 an accreditation process was implemented by the AANA that was recognized in 1955 by the United States Commissioner of Education as the national accreditor of nurse anesthesia education.

The nurse anesthesia educational programs admitted a RN and provided specialized training in anesthesia. Prior to 1969, all nurse anesthesia programs were certificate programs, meaning the graduate was awarded a certificate of anesthesia. The graduate was then qualified to write the national certification exam, becoming a Certified Registered Nurse Anesthetist with a passing score. Academic degree programs began to develop with a short lived master's level program implemented at Tripler Army Medical Center in Hawaii in 1969. The first civilian academic degree program was a baccalaureate program opened in South Dakota in 1971. The first civilian to earn a Master of Science in a nurse anesthesia program graduated in 1978, and in 1987 it was required that all students entering a program have an appropriate bachelor's degree. This served as a stimulus for programs to move to a graduate

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<sup>26</sup> Wilhelmina Gulotta, "Forty-Four Years in Anesthesia," *Bulletin of the American Association of Nurse Anesthetists* 9 (1941): 353-354.

framework. Many of the accredited programs offered either a certificate or bachelor's degree prior to this.<sup>27</sup> All programs were required to award a master's degree to any student admitted after January 1, 1998.

These changes were not without controversy. The editorial pages of the AANA Journal in early 1952 contained several letters debating the merits of the progressively increasing standards and the impact upon the shortage of nurse anesthetists.<sup>28</sup> In 1968 Ira Gunn again addressed the issue of training adequate numbers of nurse anesthetists and the impact of educational standards upon this. Ms. Gunn proposed that moving the training programs into the university academic framework would assist in attracting qualified students.<sup>29</sup> An Associate Director of the National Commission on Accrediting addressed the annual convention of the AANA in 1971, and questioned whether the movement toward degree programs in nurse anesthesia was necessary or desirable. The Associate Director proposed that degrees were a matter of personal pride, required education beyond the level necessary, and cited a Dean of a Medical School who argued that the physician was the only health professional requiring a degree.<sup>30</sup> Nursing as a whole experienced similar inter and intraprofessional conflicts, but the belief that the well educated nurse

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<sup>27</sup> National Commission on Nurse Anesthesia Education, "A Brief Historical Context of Nurse Anesthesia Education: Introduction," *AANA Journal* 58 (1990): 389-391.

<sup>28</sup> Philip Kromm, letter to Opinion Review, *Journal of American Association of Nurse Anesthetist* 20 (1952): 84-85; Exire O'Day, letter to Opinion Review, *Journal of American Association of Nurse Anesthetist* 20 (1952): 83-84; Opal Schram, letter to Opinion Review, *Journal of American Association of Nurse Anesthetist* 20 (1952): 4, 6; and Helen Vos, letter to Opinion Review, *Journal of American Association of Nurse Anesthetist* 20 (1952): 2, 4.

<sup>29</sup> Ira P. Gunn, "Current Nursing Issues and Their Implications For the Preparation of Nurse Anesthetists," *Journal of American Association of Nurse Anesthetist* 36 (1968): 417-418.

<sup>30</sup> Jerry W. Miller, "To Degree or Not To Degree?" *Journal of American Association of Nurse Anesthetist* 39 (1971): 455-456.

was a societal benefit paved the path to the increased academic requirements.<sup>31</sup> An unattributed May 1952 AANA Journal editorial titled “AANA Accreditation Program” stated the first obligation of a profession is to improve the quality of the service to the public, and the rising educational standards were a vehicle to accomplish this. This reflects a concern of the leaders of the nurse anesthesia community with professional development.

### *Professional Development*

Various authors have advanced a multitude of professional traits. Some are attributes considered necessary for the public to bestow the title of professional; some are the result, or rewards, of achieving professional status; some are related to the process of becoming a profession. Torstendahl contended the central characteristic of professions was to serve a problem-solving purpose in the eyes of the public. It is irrelevant whether the profession actually solves a problem, or if a problem exists. But what is vital, is that the public views the profession as essential to providing a needed service.<sup>32</sup> The larger community grants professional status to a group and several traits have been recognized that contribute to the probability of professional recognition.

Ethical treatment of those seeking their expertise and a service ideal are enduring professional attributes.<sup>33</sup> The lay public is unable to judge the appropriate

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<sup>31</sup> Fred Davis, V. L. Olesen, and E. W. Whittaker, “Problems and Issues in Collegiate Nursing Education,” in *The Nursing Profession: Five Sociological Essays* ed. Fred Davis (New York: John Wiley & Sons, 1966), 146-147.

<sup>32</sup> Rolf Torstendahl, “Introduction: Promotion and Strategies of Knowledge-Based Groups,” in *The Formation of the Professions: Knowledge, State and Strategy* ed. Michael Burrage and Rolf Torstendahl (London: Sage, 1990), 3.

<sup>33</sup> John B. Cullen, *The Structure of Professionalism: A Quantitative Examination* (New York: Petrocelli Books, 1978); William J. Goode, “The Theoretical Limits of Professionalization,” in *The Semi-Professions and Their Organization: Teachers, Nurses, Social Workers* ed. Amitai Etzioni (New York: The Free Press, 1969), 277.

application of expert knowledge, so must rely upon the professional to refrain from self-interest.<sup>34</sup> A special skill, or expert knowledge, that can only be acquired through extensive training, and that must be applied on a case-by-case basis is another attribute. The skill and training are the basis for professional judgment, and for the claim that only individuals possessing these credentials have the right to provide the service to the public.<sup>35</sup> Professions also strive to maintain autonomy and control over professional violations. A profession must be a self-regulating community that establishes the standards of professional practice, and sanctions those in the community that violate the standards.<sup>36</sup>

Social status, prestige, and influence are often the rewards of achieving professional status. High levels of income generally, with some exceptions, follow these traits.<sup>37</sup> The Scottish professional accountancy has been studied in regards to professional development for several reasons. Accountancy in Scotland has achieved greater prestige and income than in comparable countries, and there are extensive written records dating to the mid-nineteenth century available for study. It has been concluded that some of the socially well-connected accountants in Scotland organized during the nineteenth century in an effort to improve the members' socio-economic status. The organizations were exclusive social clubs that once formed were successful in progressively achieving professional status for the membership. The organizations also achieved subsequent market closure by the end of the nineteenth century. This case study clearly illustrated the value of the professional designation.<sup>38</sup>

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<sup>34</sup> Harold L. Wilensky, "The Professionalization of Everyone?" *The American Journal of Sociology* 70 no. 2 (1964): 141.

<sup>35</sup> Andrew D. Abbott, *The Systems of Professions* (Chicago: University of Chicago Press, 1988): 7.

<sup>36</sup> Goode, "The Theoretical Limits," 270.

<sup>37</sup> *Ibid.*, 276; Torstendahl, "Introduction: Promotion," 5-6.

<sup>38</sup> Thomas A. Lee and Stephen P. Walker, "Introduction: Early Scottish Professionalism in Accountancy in *Studies in Early Professionalism: Scottish*

Wilensky proposed a process of professional development that contained five elements. First, individuals begin doing a particular task as a full-time occupation. The first practitioners of the emerging profession come from other occupations by necessity.<sup>39</sup> Occasionally a new task is created or reshaped by external events resulting in readjustments in the established professions.<sup>40</sup> The early leaders establish training schools with standards of training, and a professional association is formed. Legal recognition of credentials is sought to protect the professional jurisdiction and a code of ethics is developed and enforced. A delineated body of knowledge and standards of training must be linked to the right to practice the occupation. This functions to establish the legitimacy of the jurisdiction, or the right to provide a necessary service, in the eyes of the public.<sup>41</sup>

The institutionalization of the training programs assists in the reliability of the training credential, and can standardize the course of instruction. Professional education serves numerous functions beyond transmitting the knowledge and skills necessary to obtain the appropriate credentials. The educational institution legitimizes the intellectual basis of the profession and provides a forum for the refinement and growth of the knowledge base. The training programs can establish the quality of those recruited into the profession. It is also the foundation of shared professional identity and fosters a sense of group cohesion.<sup>42</sup> A sense of group identity promotes lifelong commitment to a profession and is vital to a successful self-regulating community.<sup>43</sup>

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*Chartered Accountants 1853-1918* ed. Stephen P. Walker and Thomas A. Lee (New York: Garland Publishing, 1999), *xi-xxii*.

<sup>39</sup> Wilensky, "The Professionalization," 142.

<sup>40</sup> Abbott, *The Systems*, 33.

<sup>41</sup> Wilensky, "The Professionalization," 142-146.

<sup>42</sup> Eliot Freidson, *Professionalism, the Third Logic: On the Practice of Knowledge* (Chicago: University of Chicago, 2001), 84.

<sup>43</sup> Goode, "The Theoretical Limits," 276.

Prior to the twentieth century, professional training was mainly conducted outside of the university. Legal and medical training was often in the apprenticeship tradition, and some of the newer professions such as engineering began their training programs in vocational institutes. Professional education within the university with full-time faculty devoted to teaching occurred in the United States during the twentieth century.<sup>44</sup> Wilensky stated that professional training programs that began outside of the university system generally affiliated with the university within two to three decades.<sup>45</sup> Nursing education has proceeded from the institutionalization of university-based nursing programs, followed by master's level programs in nursing, which focused on research utilization. The advent of doctoral programs with a group of researchers with nursing as a specialty is the third phase.<sup>46</sup>

Nursing is referred to as a semi-profession by Etzioni, a subprofession by Abbott, a subordinate profession by Freidson, or a borderline case by Wilensky.<sup>47</sup> Medicine's claim to professional status is undisputed and the jurisdiction of the physician is thought to preclude nursing from fully professionalizing. There is a growing body of academic nurses conducting research in the new discipline of nursing science. These nurses are differentiated from the main body of nursing and sometimes their goals and strategies are in conflict.<sup>48</sup> It is likely that the status of

<sup>44</sup> Freidson, *Professionalism*, 97.

<sup>45</sup> Wilensky, "The Professionalization," 146.

<sup>46</sup> Aant Elzinga, "The Knowledge Aspect of Professionalization: The Case of Science-Based Nursing Education in Sweden," in *The Formation of the Professions: Knowledge, State and Strategy* ed. Michael Burrage and Rolf Torstendahl (London: Sage, 1990), 165.

<sup>47</sup> Abbott, *The Systems*, 18; Amitai Etzioni, "Preface," in *The Semi-Professions and Their Organization: Teachers, Nurses, Social Workers* ed. Amitai Etzioni (New York: The Free Press, 1969), v-xvii; Freidson, *Professionalism*, 84; Wilensky, "The Professionalization," 155-156.

<sup>48</sup> Elzinga, "The Knowledge Aspect," 155-156.

nursing, and advanced practice nursing, in regard to professionalization will continue to be a point of discussion.

## Methodology

### *Historical Study*

The study of history must be approached systematically and with an appreciation for the complexity of the issue under study. Procedure and method are vital to the successful historian. Brundage stated rigorous procedures are to be observed in all phases of the research, from the development of the question, use of the sources, to the interpretation and presentation of the final report.<sup>49</sup> Method is a guide for the research, a safeguard to limit the impact of individual bias upon the research. The research can organize, and communicate, the complexity that is inherent in any human event with the use of method.<sup>50</sup>

The subject of the study must be carefully framed. The aim of an historical study is to communicate to another individual the facts uncovered. The subject must be clear to the reader for the account to be useful, and the subject must be clear to the writer of the account, if the writer is to make the account clear to the reader.<sup>51</sup> A purpose statement and research questions framed the study, and a search for primary and secondary sources was conducted.

### *Categories of Evidence*

Historical research is dependent upon sources of evidence to provide information to illuminate the topic of study. These sources are categorized in several ways. The sources can be either primary or secondary sources. Primary sources are

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<sup>49</sup> Anthony Brundage, *Going to the Sources: A guide to Historical Research and Writing*, 3<sup>rd</sup> ed. (Wheeling, Ill.: Harlan Davidson, 2002), 2.

<sup>50</sup> Jacques Barzun and Henry F. Graff, *The Modern Researcher*, 5<sup>th</sup> ed. (Fort Worth: Harcourt Brace Javanovich, 1992), 165.

<sup>51</sup> *Ibid.*, 15.

firsthand accounts of an event, while secondary sources interpret and present information gathered from primary sources. A primary source must be carefully analyzed as it has not had the critical review of a secondary source.<sup>52</sup> Secondary sources must be analyzed for the treatment of the facts by the author of the work. Sensitivity to the minds that the facts have been processed through must be maintained.<sup>53</sup>

Contemporaneous versus noncontemporaneous sources is another categorization. Contemporaneous evidence refers to persons or materials present at the time of the event. The person may be a witness to the event or a nonwitness who has indirect knowledge of the event. Materials may include documents and artifacts produced at the time of the event. Evidence may also be classified as being deliberately or unconsciously transmitted, although often it is difficult to make this distinction. Sources that were produced with the awareness they would be preserved may deliberately introduce distortions in an effort to influence future impressions. Unconsciously transmitted sources cannot be considered entirely without bias, as bias may be present secondary to other motives.<sup>54</sup>

Evidence may be in document form or another form. Documents include any written communication, published or unpublished, typed or handwritten. The volume of documents, especially unpublished documents, produced in the modern world is growing exponentially creating storage and access challenges. At the same time, much of the personal communication that was done through written letters in the past is now done with telephone or electronic communication. Generally there is no written record of this communication and much is lost to the historian. The collection

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<sup>52</sup> Sandra B. Lewenson, "Historical Research Method," in *Qualitative Research in Nursing: Advancing the Humanistic Imperative*, ed. Helen J. Streubert and Dona R. Carpenter (Philadelphia: J. B. Lippincott, 1999), 207.

<sup>53</sup> Barzun and Graff, *The Modern Researcher*, 139.

<sup>54</sup> Robert J. Shafer, *A Guide to Historical Method*, 3<sup>rd</sup> ed. (Homewood, Ill.: Dorsey Press, 1980), 84.



of oral evidence can aid in overcoming this and to fill the gaps in the written record.<sup>55</sup> Archival documents are not altered by the passage of time as an individuals' memory may be, but they are often incomplete or inaccurate. An appropriately conducted and recorded interview can provide many details that were not documented for various reasons. While an individual's memory, particularly if the individual was a participant in an event, will be subjective and biased, archival sources often are biased as well.<sup>56</sup> Oral evidence should be treated with the same scrutiny and consideration as documents are, and always clearly referenced to facilitate evaluation by future historians.<sup>57</sup>

### *Institutional Approval*

The Institutional Review Board (IRB) of the University of Nebraska-Lincoln granted an expedited review of the study.<sup>58</sup> Two criteria were met for an expedited review to be granted: the project posed no more than minimal risk to the participants, and it fell into one of nine eligible categories. The study methods were included in category number seven of the expedited review criteria, which includes research using survey, interview, or oral history methodology.<sup>59</sup> The risk to the participants was minimal as they were not asked for information of a sensitive nature such as recreational drug use, sexual practices, criminal behavior, or religious beliefs.

Institutional Review Boards were designed to protect human subjects from harm while participating in biomedical and behavioral science experimentation. The application of the regulations in the Common Rule has inhibited historical study.

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<sup>55</sup> Ibid., 91.

<sup>56</sup> Donald A. Ritchie, *Doing Oral History* (New York: Twayne Publishers, 1995), 6.

<sup>57</sup> David M. Oshinsky, "Oral History: Playing By the Rules," *The Journal of American History* 77 no. 2 (1990): 609-614.

<sup>58</sup> See APPENDIX A.

<sup>59</sup> John A. Neuenschwander, *Oral History and the Law* (Carlisle, Penn: Oral History Association, 2002), 50.

Specifically, requests for specific questions to be asked during interviews, a requirement for the anonymity of the interviewee, and a requirement to destroy the tapes after the research is completed are incompatible with oral history interviews. This stimulated the joint development of comprehensive guidelines for conducting oral history interviews by the American Historical Association, the Oral History Association, and Society for History in the Federal Government.<sup>60</sup> All interviews were conducted following the ethical guidelines adopted by the American Historical Association.<sup>61</sup> As per provision number six of these guidelines “

Interviewers should arrange to deposit their interviews in an archival repository that is capable of both preserving the interviews and making them available for general research. Additionally, the interviewer should work with the repository in determining the necessary legal arrangements.

The AANA History & Archives Society: Oral History Guidelines were followed as well to allow for the placement of the interviews in the archives.<sup>62</sup> The transcribed interviews, including any written comments added to the transcript by the interviewee, were placed with the AANA History & Archives Society located in Park Ridge, Illinois. A grant awarded by the AANA Foundation funded the transcription of the interviews, and the travel costs associated with the collection of evidence.<sup>63</sup>

### *Collection of Documents*

A search for primary and secondary documents was conducted for this study. A search of several data bases including; Academic Search Premier, American Association of Nurse Anesthetists Library Archives, American: History and Life, American: Historical Abstracts, Article First, Cumulative Index of Nursing and Allied Health, Dissertation Abstracts Online, Scholarly Journal Archive, and Worldcat, was done for background material. Key words used were; Catholic Hospital Sisters,

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<sup>60</sup> Ibid.

<sup>61</sup> See APPENDIX B.

<sup>62</sup> See APPENDIX C.

<sup>63</sup> See APPENDIX D.

Lutheran Deaconess, nurse anesthesia, nurse anesthesia education, nurse anesthesia history, nursing education, nursing education history, and Sisters of Charity.

An extensive search for unpublished documents related to the education of Nebraska nurse anesthetists was done at several locations. This included the American Association of Nurse Anesthetists Archives, Park Ridge, Illinois; BryanLGH School of Nurse Anesthesia, Lincoln, Nebraska; Clarkson College, Omaha, Nebraska; Creighton University, Omaha, Nebraska; Immanuel Medical Center, Omaha, Nebraska; Evangelical Lutheran Church of America Archives, Park Ridge, Illinois; Nebraska Association of Nurse Anesthetists, Lincoln, Nebraska; Nebraska State Historical Society Archives, Lincoln, Nebraska; Sister's of Mercy Archives, Omaha, Nebraska, and the University of Nebraska Medical Center, Omaha, Nebraska. These locations were identified during the research process.

A variety of unpublished documentary evidence was found during the research. A rich primary source was found in the Evangelical Lutheran Church of America Archive. A two paged typed document was found in the file of Sister Marie S. Anderson, a Lutheran Deaconess affiliated for much of her life with the Immanuel Deaconate located in Omaha, Nebraska. Written by Sister Marie, the document described the methods by which she became trained to administer anesthetics, dating to 1898.<sup>64</sup> Another primary source of documentary evidence was found in early records of Nebraska nursing schools. Nurses' Training School ledgers dated from approximately 1905 through the 1930's were found in the Nebraska State Historical Society Archives (NSHS). The ledgers contained evidence related to the curriculum taught to nursing students, with evidence of theoretical and practical training in anesthesia provided to the nursing students. Two recruitment brochures produced by two early Nurses' Training Schools were also found in the NSHS. The brochures provided further evidence related to the study questions. Another source of primary evidence found in the NSHS was Training School Reports filed with the state of Nebraska. The reports were filed by some Nurses' Training Schools beginning in 1909. Information related to the inclusion of anesthesia in the nursing school

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<sup>64</sup> See APPENDIX E.

curriculum was sought by the state through the reports between 1925 and 1940. The reports also documented the educational background of several practicing nurse anesthetists during the time period.

A scrapbook was found with the records of the Nebraska Association of Nurse Anesthetists. A variety of documentary evidence primarily related to the time period between 1936 and 1970 was found within the scrapbook. Four individuals interviewed for the study provided additional documents related to the interview topics. Documents related to the accreditation process and the national description of nurse anesthesia programs were found in the American Association of Nurse Anesthetists Archives. Documents related to the respective nurse anesthesia programs were found in Reinhart Library on the Creighton University campus and the School of Allied Health office on the University of Nebraska Medical Center campus. The files found in the BryanLGH Medical Center School of Nurse Anesthesia provided evidence related to the single remaining nurse anesthesia program in the state.

#### *Collection of Oral Evidence*

Oral sources of evidence were sought following the primary search for documentary evidence. The initial analysis of the documentary evidence directed the search for oral sources as proposed by Thompson.<sup>65</sup> Eighteen individuals who were likely to have relevant information were identified and located. See APPENDIX F for the individuals interviewed and their relationship to nurse anesthesia education in Nebraska. Each interviewee was contacted, provided with a description of the study and the information to be discussed. An informed consent form was signed prior to each interview which included consent to have the interview audio taped, transcribed and to place the transcription with the AANA History & Archives Society in Park Ridge, Illinois for future reference.<sup>66</sup> The interviewee was informed that any

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<sup>65</sup> Paul Thompson, "History and the Community," in *Oral History: An Interdisciplinary Anthology* ed. David K. Dunaway and Willa K. Baum (Nashville: American Association for State and Local History, 1984), 37-50.

<sup>66</sup> See APPENDIX G.

information which could be harmful to another individual would be excluded from the transcript. A copyright release was also signed as required by the AANA History & Archives Society.<sup>67</sup>

I sought to be familiar with the particular topic prior to each interview. A collector of oral history must prepare themselves by extensive review of the existing material in order to frame appropriate questions, to stimulate the subject's memory, and to identify inconsistency's in the record.<sup>68</sup> An outline of the interview topics to be explored was shared with the subjects prior to the interview. This was done to assist with the recovery of memories and to promote more productive and relevant interviews.<sup>69</sup>

The interviews were held in a quiet room of the interviewee's choice and were recorded with two tape recorders. Following biographical information, I began the interviews with broad, open-ended questions. Each interviewee was asked to address the following core interview questions.

1. How has the education of nurse anesthetists changed during your career?
2. What was the role of the program director?
3. How was the didactic, or classroom, instruction structured?
4. How was the clinical portion of the program structured?

These common questions provided a framework for the interviews, but each interview had unique aspects.<sup>70</sup> Taking into account the responses to the core questions and the background information obtained prior to the interview, more specific follow up questions related to the individuals' experiences were asked. A more specific

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<sup>67</sup> See APPENDIX H.

<sup>68</sup> Saul Benison, "Introduction to Tom Rivers," in *Oral History: An Interdisciplinary Anthology* ed. David K. Dunaway and Willa K. Baum (Nashville: American Association for State and Local History, 1984), 124-130.

<sup>69</sup> Ritchie, *Doing Oral History*, 8-9.

<sup>70</sup> *Ibid.*, 13.

questionnaire format would have inhibited the flow of the interview. The interview was flexible and followed the natural dialog as the memories unfolded.<sup>71</sup>

The demeanor and status of the interviewer are important to the results of an interview.<sup>72</sup> The interviewee was allowed to choose the location of the interview to maximize the comfort level of the interviewee. Allowing the interviewee the choice of location was also an attempt to lessen an imbalance in perceived power that may have resulted if I asked them to come to my office for the interview. Two individuals who reside at a distance were contacted prior to a national meeting which they were attending and arrangements were made to conduct the interview while attending the meeting. Putting forth the effort to meet at the location of the interviewee's choice demonstrated appreciation for the subject's contribution and improved rapport.<sup>73</sup> I strove to show interest and respect for the individuals who consented to be interviewed, and to remain in the background. I limited interruptions and comments to those that supplied guidance to the discussion.

One interview revealed information that could result in social injury to another person and the information was excluded from the transcript. A typed transcript of the interview was provided to each subject, and they were invited to add written comments. Lance proposed that this may result in additional information and the notes should be filed with the transcript.<sup>74</sup> Five individuals returned the transcript and one individual requested the removal of two statements from the transcript. Statements removed from the permanent record either because of potential injury to

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<sup>71</sup> David Lance, "Oral History Project Design," in *Oral History: An Interdisciplinary Anthology* ed. David K. Dunaway and Willa K. Baum (Nashville: American Association for State and Local History, 1984), 116-123.

<sup>72</sup> Paul Thompson, *The Voice of the Past: Oral History* (Oxford: Oxford University Press, 1978), 178.

<sup>73</sup> William Cutler, "Accuracy in Oral History Interviewing," in *Oral History: An Interdisciplinary Anthology* ed. David K. Dunaway and Willa K. Baum (Nashville: American Association for State and Local History, 1984), 81.

<sup>74</sup> Lance, "Oral History Project," 123.

another individual, or due to the request of the interviewee, are completely confidential. Three interviewees added written comments to the transcript which were filed with an original copy of the interview.

### *Validity*

The validity of all evidence was considered through internal and external criticism. A source was subjected to external criticism to determine the genuineness of the document.<sup>75</sup> The origin of all documents including where, when, why, and by whom it was written was explored as suggested by Christy.<sup>76</sup> The accuracy of copying is important, as well as the authorship and date of the evidence. All these factors contributed to the judgment of the authenticity of the document.<sup>77</sup>

The researcher is the lens through which historical evidence is perceived, with both strengths and weaknesses present in either an “outsider” or “insider” view. I considered my biases as a female, an “insider” as a nurse anesthesia educator, and a Nebraska resident living early in the twenty-first century, as I interpreted the meaning of statements.<sup>78</sup> Internal criticism seeks to determine what was truly intended by the author. The period in which the source originated, and correlation with other sources was considered.<sup>79</sup> Once the intended meaning of the author was determined, then a judgment was made about the credibility of the information. This was inherently subjective and required an analysis of the evidence in relationship to other evidence.<sup>80</sup> For example, the two page document written by Sister Marie Anderson was subjected

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<sup>75</sup> Lewenson, “Historical Research Method,” 207.

<sup>76</sup> Teresa E. Christy, “The Methodology of Historical Research: A Brief Introduction,” *Nursing Research* 24, no. 3 (1975): 190.

<sup>77</sup> Shafer, *A Guide to Historical*, 41.

<sup>78</sup> Christy, “The Methodology,” 191.

<sup>79</sup> Lewenson, “Historical Research,” 207.

<sup>80</sup> Shafer, *A Guide to Historical*, 55.

to external criticism which substantiated most statements made by the author but refuted others. An example of statements that were substantiated by other sources were the claim that surgeons trained in Europe were more familiar with chloroform anesthetics, and patients usually struggled when an ether cone was used to induce an anesthetic. Statements made in the document that did not stand up to external criticism were that there were no books on anesthetic techniques available in the approximate year of 1910, and that the open drop ether technique was developed by Sister Marie.

The interviews were subjected to internal criticism as well. The validity of information obtained during an interview can only be measured by comparing it to other accounts. A single account of an event cannot be considered valid.<sup>81</sup> Firsthand accounts can be considered the most accurate but they cannot be considered completely reliable. The truth may be intentionally, or unintentionally distorted for numerous reasons.<sup>82</sup> The oral history interviews were first tested for internal consistency, and then substantiated with other sources on the same topic.<sup>83</sup>

### *Purpose and Research Questions*

The research questions framed the study. The interpretative of evidence was an active process and involved more than reciting a chronology of events, names, dates, and places. The purpose of this historical study was to describe the evolution of nurse anesthesia education in Nebraska. Several research questions guided the study.

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<sup>81</sup> Alice Hoffman, "Reliability and Validity in Oral History," in *Oral History: An Interdisciplinary Anthology* ed. David K. Dunaway and Willa K. Baum (Nashville: American Association for State and Local History, 1984), 71-72.

<sup>82</sup> Christy, "The Methodology," 191-192.

<sup>83</sup> Louis Starr, "Oral History," in *Oral History: An Interdisciplinary Anthology* ed. David K. Dunaway and Willa K. Baum (Nashville: American Association for State and Local History, 1984), 5.



*The grand tour question was: How did the education of nurse anesthetists evolve in Nebraska?*

The education of nurse anesthetists in Nebraska evolved through three primary phases. The first was training through apprenticeship prior to, and immediately following 1900. The second phase was the systematic training of student nurses in the administration of anesthesia during the basic nursing education. The third phase was specialized post graduate anesthesia training obtained by RNs. Eight more specific research questions were addressed by the study:

*How did the early Nebraska nurse anesthetists become trained in anesthetics prior to the development of organized training programs?*

Surgeons trained Sister Marie Anderson through apprenticeship methods between 1898 and 1900. Later, at approximately 1925, she traveled out of Nebraska to be trained by the manufacturer of the anesthesia machine in Minnesota, and to observe anesthetic techniques in a Chicago hospital. Primary evidence related to nursing school curricula revealed it was common for nursing students to receive anesthesia training during their basic education between approximately 1915 and 1930. Often selected student nurses received a greater amount of training than others. Prior to 1947, it was necessary for a RN to travel out of Nebraska in order to attend a post-graduate anesthesia training program, and nursing school records documented that many did.

*Where was the location of the first organized post-graduate training program in nurse anesthesia in Nebraska?*

The first Nebraska post-graduate training program specializing in anesthesia was sponsored by Creighton Memorial-Saint Joseph Hospital of Omaha Nebraska, beginning in 1947.

*Where were the subsequent nurse anesthesia training programs located?*

Five subsequent nurse anesthesia programs were initiated in Nebraska following the opening of the Creighton Memorial-Saint Joseph Hospital program. Immanuel Hospital of Omaha was the second program in the state, operating from 1955 through 1962. Following the closure of the Immanuel program, a program in

Lincoln, Nebraska was active for eighteen months during 1965 through 1967, graduating one class of three students. The Bryan Memorial Hospital program in Lincoln, Nebraska was then opened in 1968. There were again two programs operating in Omaha when Bishop Clarkson Hospital sponsored a program between 1971 and 1973. The University of Nebraska Medical Center began a baccalaureate nurse anesthesia program in 1973. The University program was closed in 1983, and the Creighton University program, which had evolved from the Creighton Memorial-Saint Joseph Hospital program, was closed in 1987.

*What precipitated the opening of nurse anesthesia training programs in Nebraska?*

Members of the AANA, the professional organization for nurse anesthetists, encouraged and supported the opening of the Creighton Memorial-Saint Joseph Hospital School of Anesthesia following World War II. The record and success of nurse anesthetists in the improved safety of anesthesia administration during World War II increased the demand for trained nurse anesthetists. The AANA educational guidelines provided guidance for the development of nurse anesthesia training programs, with many opening through out the United States following World War II.

Individual CRNAs and anesthesiologists with an interest in nursing anesthesia education were the largest factor in the opening of the subsequent nurse anesthesia programs in the state. Little is known of the opening of the Immanuel program but one CRNA trained in the Immanuel program, Darleen Herman, was responsible for the founding of the two Lincoln programs. An anesthesiologist on the Immanuel staff when the Immanuel program was opened, Dr. Robert Therien, was responsible for the Clarkson Hospital program. It is unlikely the University of Nebraska Medical Center program would have been implemented without the influence and support of Dr. Daniel Wingert.

*What precipitated the closing of nurse anesthesia training programs in Nebraska?*

The individual nature of the support for nurse anesthesia education was a factor in the closure of several of the programs. Three of the hospital based certificate programs were closed due to a lack of support and involvement beyond the director of the program. Clinical access necessary for the extensive clinical training was

negatively impacted in the case of the Saint Elizabeth program, and inadequate didactic support was the major factor cited in the case of the Immanuel program. The Bishop Clarkson program was almost entirely dependent upon one individual, Dr. Therien, and was never fully developed.

Financial support of the program by the sponsoring institution was another factor. The small student body and extensive use of clinical instruction by nurse anesthesia programs was associated with the high cost of the programs. The didactic and clinical faculty members were often volunteers due to a lack of financial support. This structure could have promoted a lesser degree of commitment to the programs by the faculty. Financial costs combined with the opening of a physician anesthesiology residency program were the major factors in the closure of the Creighton University program. The increased accreditation demands which occurred in the middle of the 1970's in addition to inadequate institutional support led to the closure of the University of Nebraska Medical Center program.

*Who were the leaders of nurse anesthesia education in Nebraska?*

The leaders of nurse anesthesia education in Nebraska included the program directors identified, but a few individuals were found to be more influential. Darleen Herman, CRNA started the first nurse anesthesia program outside the city of Omaha at Saint Elizabeth Hospital in Lincoln. When resistance was met there, and the Saint Elizabeth program was unable to be continued, she overcame obstacles to open another program in a second Lincoln Hospital, Bryan Memorial Hospital. After several years of leading the Bryan program she earned a graduate degree, designed and implemented the baccalaureate program through Creighton University. When the University of Nebraska Medical Center program closed abruptly with a class of students unable to complete their training at the University, Ms. Herman assisted the students in transferring to the Creighton program with minimal interruption to their training.

Another leader of nurse anesthesia education was Dr. Daniel Wingert of the University of Nebraska Medical Center. Dr. Wingert implemented the first academic degree program for nurse anesthesia in Nebraska, and one of the first five in the

United States. The rationale for the baccalaureate curriculum is unknown as almost all nurse anesthesia programs were certificate programs in 1973.

Frank Mazairski, CRNA was a leader in successfully advancing the Bryan Memorial Hospital certificate program to first an undergraduate program affiliated with a local college, to a graduate program affiliated with a University across state boundaries. When the first University affiliation was terminated within three years, another affiliation was developed, which was also across state boundaries. The affiliation between Bryan Memorial Hospital, later BryanLGH Medical Center, and the University of Kansas proved to provide long term stability to the program. With the 1987 closure of the Creighton University program, the BryanLGH Medical Center affiliated program remained the only nurse anesthesia program in Nebraska.

*What factors promoted the professionalization of nurse anesthesia education in Nebraska?*

The leaders of nurse anesthesia education were largely responsible for the professionalization of nurse anesthesia education in Nebraska, but there were other influences. The leadership within the post-secondary institutions which sponsored the nurse anesthesia academic degree programs was also instrumental in the professionalization of nurse anesthesia education. Nebraska Wesleyan in Lincoln, Nebraska developed an innovative program which allowed the nurse anesthesia students to earn a BS degree. Creighton University and the Department of Allied Health at the University of Nebraska Medical Center were similarly influential. The cooperation of the University of Kansas, School of Allied Health in the development of the graduate program associated with BryanLGH Medical Center was very important to the long term success of the remaining nurse anesthesia program. Another factor vital to the professionalization of the BryanLGH Medical Center program was the financial commitment of the medical center administration.

*How has the evolution of nurse anesthesia education in Nebraska compared to the national trends in nurse anesthesia education?*

The establishment of several small hospital based certificate nurse anesthesia programs in Nebraska following World War II was typical of the national story of

nurse anesthesia education. The number of programs nationally increased steadily between 1950 and 1970. Most programs were small, with a national average of five graduates produced annually. Beginning at approximately 1970, nationally the number of nurse anesthesia programs began to fall. A large number of programs, especially those associated with teaching medical centers were closed during the 1980's, similar to the Nebraska experience when the University of Nebraska Medical Center and Creighton University programs were closed.

Where the Nebraska experience was unusual was the early establishment of baccalaureate degree programs. By 1980 there were three nurse anesthesia programs located in Nebraska which awarded a BS upon completion of the program. Less than a quarter, or 32 of 143 accredited nurse anesthesia programs in the United States, were awarding an academic degree at the time. Most nurse anesthesia programs which later developed academic degree programs transitioned directly to a master's level curriculum. Because the Nebraska programs were some of the first academic programs, they first developed the undergraduate curriculum.

### *The Presentation of the Evidence and Interpretations*

The evidence found during the historical study of the education of nurse anesthetists in Nebraska is presented within six chapters. Interpretation of the findings was included with the evidence. The content of the six chapters were determined during the analysis of the data and were divided according to the most cohesive topics. The chapters were organized in a roughly chronologic order, but several areas of chronological overlap in the topics were present.

Apprenticeship training is the focus of Chapter 2. The analysis of the evidence related to the training and anesthesia career of Sister Marie S. Anderson, dating to the years between 1898 and the mid 1930's, was presented. The primary evidence found was placed into context with comparison and expansion through a review of secondary sources. Chapter 3 is the documentation of the training of student nurses during basic nurses' training in early Nebraska Schools of Nursing. Many student nurses, between approximately 1915 and 1930, were educated in the administration of

anesthesia. Chapter 4 is the analysis of the national development of post-graduate nurse anesthesia programs, beginning in the post World War I era through 1974. The programs were hospital based, awarding a certificate of anesthesia upon completion. The role of the professional organization representing nurse anesthetists, the AANA, was explored. Chapter 5 is the description of the Nebraska hospital based nurse anesthesia certificate programs in operation between 1947 and 1978. The possibility of a training program operating at Saint Catherine's Hospital prior to 1940 is also discussed. Chapter 6, a continuation of Chapter 4, is the analysis of the further national development of nurse anesthesia programs from the certificate programs to eventually graduate level programs. The time frame encompasses the years 1974 through 2006. The role of accreditation in the development of nurse anesthesia education was presented. Chapter 7 is a description of the academic degree programs of nurse anesthesia operating within Nebraska between 1973 and 2006. Included was a description of the factors which promoted the establishment of each program, a description of the program design and curriculum, and the factors which promoted the closure of the programs which were shut down. A discussion of the state of nurse anesthesia education in Nebraska for the year 2006 closes the presentation of the findings.

The content of three of the chapters was subjected to expert review prior to completion of the study. The information related to Sister Marie Anderson contained within Chapter 2 was presented before the annual meeting of the AANA History & Archives Society in August, 2006. A paper based upon Chapter 3, "Anesthesia Training in the Basic Nursing Program Curriculum, 1915-1930", was presented during the annual meeting of the American Association for the History of Nursing in September, 2006. Dr. Betty J. Horton, CRNA, DNSc reviewed Chapter 6.<sup>84</sup> Dr. Horton was the Director of Accreditation and Education for the AANA Council on Accreditation for much of the time period discussed in Chapter 6. These reviews provided content validity for the study.

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<sup>84</sup> See APPENDIX I.

I will develop insight into the circumstances surrounding the events and will have theories as to the why of things. This is unavoidably subjective but necessary to provide a meaningful context to tie all the individual pieces together (Barzun & Graff, 1992).





## APPRENTICESHIP TRAINING: SISTER MARIE ANDERSON

The role of the Catholic Hospital Sisters in the early development of nurse anesthesia was well documented by Thatcher. Surgeons across the United States trained the Sisters to administer anesthetics, most commonly between the mid-1880's through 1900. Two Lutheran Deaconesses also trained to administer anesthetics are mentioned by Thatcher, but the record is scant compared to the Catholic Sisters.<sup>1</sup> There are two likely explanations for the disparity. First there was a much greater number of Catholic Sisters compared to the Deaconess numbers in the United States. The organizational structure of the Protestant Sisters was a second factor. While the Catholic Sisters were under the authority of another nun, a female Mother, the Deaconesses were under the supervision of a male Pastor. Thatcher references numerous Sisters in her documentation of the Catholic Sisters who were trained in anesthesia, while she references a Pastor V. Serenius to document the Deaconess role. The Pastor's knowledge was indirect, while the Catholic Sisters often had first hand knowledge with much richer detail.

Sister Marie S. Anderson was one of the Deaconesses referenced by Thatcher. She received her Deaconess training in the Immanuel Deaconate founded in Omaha, Nebraska before the turn of the twentieth century. An unusual depth of documentation related to her anesthesia training and career was found. The documentation included autobiographical notes, newspaper articles and information found in a scrapbook of the Nebraska Association of Nurse Anesthetists. Sister Marie's anesthesia training was divided into two phases in two distinct time periods. Between 1898 and 1900 she was trained by surgeons to administer ether and chloroform by mask. In 1925 she arranged to obtain further training in the newer techniques of nitrous oxide and other inhalation agents administered with an anesthesia machine. An analysis of Sister Marie's training

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<sup>1</sup> Virginia Thatcher, *History of Anesthesia: With Emphasis on the Nurse Specialist* (Philadelphia: J.B. Lippincott, 1953) 63-64.

and career provided a case study in the early development of nurse anesthesia education.

### Immanuel Deaconess Institute

Immanuel Hospital in Omaha, Nebraska began operations December 20, 1890. The hospital was the vision of a Swedish Lutheran pastor, Rev. Erik Alfred Fogelstrom, as the most appropriate base for a female diaconate to evangelize for the church. Rev. Fogelstrom's primary purpose was to establish a female deaconate modeled upon the German Lutheran deaconate, with the building of the hospital a secondary goal.<sup>2</sup> The Catholic Sisters of Mercy began hospital work in Omaha during the 1860's followed by the Franciscan Sisters in the 1880s.<sup>3</sup> Rev. Fogelstrom recognized the effectiveness of Catholic charitable institutions in reaching the public, and became concerned by Rome's rising influence.<sup>4</sup> He felt it necessary to begin similar charity work to counteract the Catholic influence. Several hospitals were founded in Omaha during the last decades of the nineteenth century and Rev. Fogelstrom approached community leaders with his hospital proposal. In the late nineteenth and early twentieth century local networks of prominent citizens often

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<sup>2</sup> G. Evertt Arden, *History of the Augustana Lutheran Church* (Rock Island, Ill: Augustana Press, 1963) 214-217.

<sup>3</sup> A brief discussion of the early history of hospitals in Nebraska can be found in Albert F. Tyler, ed., *History of Medicine in Nebraska*, comp. Ella F. Auerbach (Omaha: Magic City Printing, 1928; reprint, Omaha: University of Nebraska Library of Medicine, 1977) 477-481 (page citation is to the reprint edition). Arden in *History of the Augustana Lutheran Church* states the only Omaha hospital in existence at the time of Immanuel's founding was Catholic, but several other Omaha hospitals, including the early Clarkson and Methodist hospitals, are documented in Tyler's history.

<sup>4</sup> Communities of Catholic sisters played a substantial role in the establishment of American hospitals in the second half of the nineteenth century. This was in spite of significant anti-Catholicism. See Sioban Nelson, *Say Little, Do Much: Nurses, Nuns, and Hospitals in the Nineteenth Century* (Philadelphia: Univ. of Pennsylvania Press, 2001) 32-55.

sponsored philanthropic institutions such as hospitals out of civic duty and pride.<sup>5</sup> 31  
Rev. Fogelstrom promised Omaha community leaders that trained deaconesses would provide nursing service if money could be raised to build the hospital.<sup>6</sup>

Almost all hospital nursing care in the United States in the late nineteenth century was provided by either student nurses or untrained nurses. The untrained nurse, paid a small salary, was generally from the lowest class in character and behavior. In the United States nursing training programs of the Nightingale model were founded in hospitals from the 1870's onward, providing an inexpensive source of nursing labor. Upon the completion of their training, most nurses left the hospital environment as almost all trained nurses obtained employment as private duty nurses in homes.<sup>7</sup> In Nebraska, Bishop Clarkson Memorial Hospital in Omaha first began training nurses in 1888, and eight other nursing schools in the state began training small numbers of nurses by 1900.<sup>8</sup> It would not be until the 1930's, the Depression years, before the combination of economic pressure felt by nurses and the increased complexity of hospital nursing care caused graduate nurses to assume general nursing positions in hospitals.<sup>9</sup> The deaconess was an attractive solution to the nineteenth century hospital nursing challenge.

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<sup>5</sup> Guenter B. Risse, *Mending Bodies, Saving Souls: A History of Hospitals* (New York: Oxford Univ. Press, 1999) 468.

<sup>6</sup> Arden, *Augstana Lutheran Church*, 215.

<sup>7</sup> Hospitals depended upon the cheap labor of student nurses with trained, or graduate, nurses rarely assuming hospital nursing positions. See Susan M. Reverby, "Training as Work: The Pupil Nurse as Hospital Machine" in *Ordered to Care: The Dilemma of American Nursing, 1850-1945* (Cambridge: Cambridge Univ. Press, 1987) 60-76.

<sup>8</sup> Wendell W. Oderkirk, "Organize or Perish: The Transformation of Nebraska Nursing Education, 1888-1941" (Ph.D. diss., University of Nebraska, 1987) 124-125.

<sup>9</sup> The factors leading to the employment of trained nurses by hospitals; the inability of patients to pay for private nursing care, the increased complexity of hospital nursing care, and the economic pressure on the trained nurse to find work is discussed in Susan M. Reverby, "Great Transformation, Small Change" in *Ordered to Care: The Dilemma of American Nursing, 1850-1945* (Cambridge: Cambridge Univ. Press, 1987) 180-181.

Nursing the sick was a central duty of the deaconess of the ancient Christian<sup>32</sup> church, but the work was gradually restricted by disapproving male religious leaders.<sup>10</sup> The deaconess role was revived in early nineteenth century Europe by Protestant churches to provide relief to social problems, with nursing the sick a primary role.<sup>11</sup> The religious nursing sister has often been portrayed as the predecessor to the trained nurse. More recent scholarship contends these women were the first trained nurses prior to the emergence of modern nursing as a respectable pursuit for secular women.<sup>12</sup> Indeed, Florence Nightingale was deeply influenced by the work and training of the deaconesses. She wrote of spending several months at the Kaisersworth Diaconate on the Rhine during 1851.<sup>13</sup> The deaconess training regime influenced many schools of nursing in both Europe and America.<sup>14</sup> Friederike Fliedner, who together with her husband Pastor Theodor Fliedner founded the Kaisersworth training program in 1836, is credited with writing an early book on

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<sup>10</sup> Lavinia L. Dock and Isabel Maitland Stewart, *A Short History of Nursing: From the Earliest Times to the Present Day*, 2d ed., rev. and enl. (New York: G.P. Putnam's Sons, 1925) 44-46.

<sup>11</sup> Frederick S. Weiser, "The Origins of Lutheran Deaconesses in America," *Lutheran Quarterly* 13 (1999): 423.

<sup>12</sup> Nelson, *Say Little*, 27-31.

<sup>13</sup> Ann Bradshaw, *The Nurse Apprentice: 1860-1977* (Aldershot: Ashgate, 2001) 1-9. See also a reprinting of a pamphlet written by Nightingale in 1851 titled "The Institution of Kaisersworth on the Rhine, for the Practical Training of Deaconesses" in Anne L. Austin, *History of Nursing Source Book* (New York: G. P. Putnam's Sons, 1957) 192-195.

<sup>14</sup> Components of nursing training attributed to deaconess training include the preliminary or probationer period, physician's certificate of health, usually a clergy certificate, financial allowance, regular classes and lectures, special etiquette and a female superintendent with authority for the students. Josephine A. Dolan, *Goodnow's History of Nursing*, 11<sup>th</sup> ed. (Philadelphia: W.B. Saunders, 1963) 208. See also Dock and Stewart, *Short History*, 109.

nursing ethics and the practical training of nurses.<sup>15</sup> The book was widely used as a <sup>33</sup> resource for the training of deaconesses in the care of the sick.

An American diaconate was first established in Pittsburgh by Pastor William Passavant. In 1846 he visited Kaisersworth and upon returning home founded Passavant Hospital in Pittsburgh. The diaconate was established by bringing four deaconesses from Germany to begin an American motherhouse. Several additional hospitals associated with the deaconess movement were founded with the Lankenau Hospital and Philadelphia Motherhouse developed together in the 1880's. It became the largest Motherhouse in America, and in 1896 was the location of the first meeting of the Lutheran Deaconess Conference in America.<sup>16</sup> The primary work of all the early deaconesses in the United States was related to nursing. The first deaconess to enter the Immanuel Deaconess Institute was recruited from the Omaha congregation prior to the building of the hospital. She traveled to the Philadelphia Motherhouse for a year of training prior to the hospital opening.<sup>17</sup>

In Omaha, money was raised locally for Immanuel Hospital, but while Lutheran church leaders supported the idea of the hospital and diaconate in Omaha, extensive missionary obligations prevented more tangible support. Thus by the spring of 1892, Rev. Fogelstrom financed the building of a home for deaconesses next to the hospital and organized the formation of the Immanuel Deaconess Institute.<sup>18</sup> A similar pattern of development had occurred in both northern Europe and the eastern United States earlier in the nineteenth century. The establishment of a hospital resulted in the creation of a diaconate to supply trained and dedicated women to

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<sup>15</sup> Friederike Fliedner recorded her training methods in a journal thought to be used subsequently by many pastors as material for numerous writings on principles and practices of training. Dock and Stewart, 106-108.

<sup>16</sup> Weiser, 425.

<sup>17</sup> Arden, *Augustana Lutheran Church*, 215.

<sup>18</sup> *Ibid*, 215-216.

provide nursing care. A supply of trained deaconesses was integral to the mission of<sup>34</sup> the hospital, and the hospital work was integral to the mission of the diaconate.<sup>19</sup>

After training at the Philadelphia diaconate, Bothilda Swensson, the first Immanuel deaconess, trained in Sweden for an additional two years of training. Four other Omaha women spent a year in Philadelphia prior to returning to Omaha in 1890 to open the hospital and begin training other deaconesses.<sup>20</sup> The first deaconess to train in Omaha began training at Immanuel in January of 1891, within a month of the hospital opening.<sup>21</sup> By 1899 the number of deaconesses at Immanuel had grown to twenty-five, while there were 197 deaconesses in the United States that same year. The Omaha deaconess community continued to grow until 1944 when the number of deaconesses reached seventy-seven, the largest number recorded at Immanuel. The highest number of deaconesses in America was 487 sisters at ten sites in 1938. These numbers included both consecrated sisters and sisters in training.<sup>22</sup>

The unsalaried deaconess committed to service of the Christian Church through caring for the sick and vulnerable.<sup>23</sup> An Immanuel deaconess candidate began with practical work in the hospital and attended classroom instruction for a year. Nursing courses were a part of the Immanuel deaconess training until 1922 when a

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<sup>19</sup> Arden explains Fogelstrom's desire to found a hospital was primarily to provide the most appropriate base of operations for the diaconate, 215. See also Nelson, *Say Little*, 143, for an excerpt from Fogelstrom's unpublished autobiography in which he laments the lack of Protestant work with the 'masses' while the "Catholics are systematically doing great work."

<sup>20</sup> Nelson, 143.

<sup>21</sup> For a discussion of the early history of the Institute, see "Seventy-Five Years, Ministry of Mercy: Immanuel Deaconess Institute, Omaha, Nebraska" at the Immanuel Archives, Omaha, Nebr.

<sup>22</sup> A table of the American Motherhouses and the number of deaconesses at each in the years of 1899, 1940, and the highest number reported at each with the year is found in Weiser, 431. The Omaha Motherhouse reached its highest number of deaconesses later than any other in the United States. The Immanuel diaconate eventually merged with the Philadelphia and Baltimore diaconates.

<sup>23</sup> Arden, *Augustana Lutheran*, 217.

nursing school for lay women was established at the Omaha hospital. Deaconesses 35 served as the entire nursing staff at Immanuel hospital for the first thirty-two years of operation, until the opening of the nursing program.<sup>24</sup> A deaconess was also expected to serve as a missionary, parish worker, teacher, and welfare worker as selected by the church. Most deaconesses actually served in a combination of these capacities.<sup>25</sup>

### Early Training of Sister Marie Anderson

Marie S. Anderson entered the Immanuel Diaconate on November 1, 1895 at age twenty-three and "...entered nursing the same year."<sup>26</sup> Sister Marie had immigrated from Sweden at the age of seventeen and moved to Omaha and the Immanuel Diaconate from New York.<sup>27</sup> She came to Immanuel following the death of her fiancé, trained in nursing as a deaconess, and practiced as a nurse anesthetist for forty-four years.<sup>28</sup> She would spend sixty-seven years in service as a deaconess until her death at age ninety in 1962, the great majority of years at Immanuel Hospital.<sup>29</sup> Written unsigned autobiographical notes were found at the Evangelical Lutheran Church of America (ELCA) Archives in Park Ridge, Illinois. Several of the dates and details in the notes are verified through other sources, and the handwriting matches a notebook found in the file, and a handwritten note found in the Immanuel Archives in Omaha. A two-page typed document found in the ELCA archives

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<sup>24</sup> See "Immanuel Centennial 1887-1987: A Century of Caring" at the Immanuel Archives, Omaha, Nebr.

<sup>25</sup> "Recall Early Days", *The Deaconess Banner* 38 No 4 (1959):6.

<sup>26</sup> [Marie S. Anderson], "I entered the Deaconess calling...". A brief autobiographical note describing nursing career. Marie Anderson collection found at the Evangelical Lutheran Church of America Archives, Park Ridge, Ill.

<sup>27</sup> Obituary newspaper clipping. Marie Anderson collection found at the Evangelical Lutheran Church of America Archives, Chicago, Ill.

<sup>28</sup> "Open House Cites Sister: She worked 65 years at Immanuel" *Evening World Herald*, Oct 31 1960.

<sup>29</sup> Obituary, Marie Anderson collection.

detailing her experiences in learning to give anesthesia was particularly relevant to the study. There was no date on the document, but it was presumed to be written some time after 1950. Sister Marie wrote that the first patient she gave anesthesia remained alive in 1950 which was the basis for the presumption. Her typed name, Marie S. Anderson, was at the bottom of the second page and “Article written by myself” was handwritten at the top of the first page. The handwriting was similar to two other handwritten and signed documents found in her file. 36

Sister Marie wrote “My first experience in giving Anesthesia began in the year 1898.”<sup>30</sup> She had been selected to go to Wakefield, Nebraska and take charge of a six- bed country hospital. As the only trained nurse in the hospital she was expected to prepare the patient, room and instruments for surgery and then administer ether anesthetics.<sup>31</sup> Wakefield was a small town approximately 100 miles north-west of Omaha and she was undoubtedly the only trained nurse in the community. It was estimated there were fewer than 100 trained nurses in Nebraska two years later, in 1900, with the majority working in Lincoln and Omaha. Ninety percent of women working as “nurses” in the state at this time were untrained, with few trained nurses working in the more rural areas of the state.<sup>32</sup>

The doctor in Wakefield needed “...someone to get the operating room in order and prepare the patient and give ether anesthesia.” The Directing Sister asked the surgeon at Immanuel, Dr. B.B. Davis, to teach Sister Marie to administer ether anesthesia in preparation to fill this role. Dr. Byron Bennett Davis was a prominent Omaha surgeon and professor at Omaha Medical College. He served as the surgeon at

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<sup>30</sup> Marie S. Anderson, “Article Written by Myself” Typed two page article detailing how she was trained in anesthesia. Marie Anderson collection found at the Evangelical Lutheran Church of America Archives, Chicago, Ill.

<sup>31</sup> Wilhelmina Gulotta, “Forty-Four years in Anesthesia” *Bulletin of the American Association of Nurse Anesthetists* 9 No 4 (1941): 353-354.

<sup>32</sup> Oderkirk, “Organize or Perish,” 151.



Immanuel hospital from 1890 through the 1920's.<sup>33</sup> Early surgeons often taught nurses, medical interns, or others, the basics of delivering anesthesia to their patients. Medical students gave anesthetics during their training in order to observe and learn surgery primarily, often with unfavorable anesthetic outcomes. Some surgeons began to rely on Catholic Hospital Sisters and then, trained nurses.<sup>34</sup> 37

### *Ether Anesthesia*

Sister Marie was apprehensive about learning to administer ether anesthesia. She explains her apprehension as due to observing interns give patients anesthetics; "...seeing their work had left an impression on me that was not very favorable." Often the patients would struggle and try to get off the operating room table during the induction of the anesthetic. This was common and there are several possible explanations for this reaction to the anesthetic.<sup>35</sup>

Fear of the anesthetic was rational as the haphazard administration of anesthesia during this time period resulted in a high mortality rate. Lay and professional publications attributed an increased surgical death rate to the use of anesthetics. This raised public awareness of the danger of anesthesia.<sup>36</sup> Some physician claims that ether caused insanity, and other serious long term effects, were

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<sup>33</sup> Albert F. Tyler (Ed), *History of Medicine in Nebraska* comp. Ella F. Auerbach (Omaha: Magic City Printing, 1928; reprint, Omaha: University of Nebraska, 1977) 102-104 (page citations are to the reprint edition).

<sup>34</sup> Thatcher, *History of Anesthesia*, 53-57. In 1910 North Dakota, the teenage son of a physician administered anesthetics. John S. Lundy "From This Point in Time: Some Memories of My Part in the History of Anesthesia" in *Journal of the American Association of Nurse Anesthetists*, 34 No 2 (1966): 95.

<sup>35</sup> Thatcher (49) provides several excerpts illustrating the routine use of physical force to restrain patients during the induction of anesthetics.

<sup>36</sup> Martin S. Pernick, *A Calculus of Suffering: Pain, Professionalism, and Anesthesia in Nineteenth Century America* (New York: Columbia University, 1985) 217. A series of fatal case reports is included in W. Stanley Sykes, "Thirty-seven Little Things Which Have All Caused Death" in *Essays on the First Hundred Years of Anesthesia, Volume II* (Teviot Place, Edinburgh: E. & S. Livingstone, 1961) 1-25.

additional reasons to fear the anesthetic. There was more public opposition to anesthesia in the later nineteenth century than at the time of its' mid-nineteenth century discovery.<sup>37</sup> The unpleasant odor of ether and the irritation to the upper and lower airways upon inhalation, particularly if high concentrations were introduced quickly, made it difficult for patients to cooperate. Patients frequently experienced intense coughing and difficulty breathing with a spasm of the vocal cords during induction.<sup>38</sup> Also during induction of anesthesia a patient must pass through two stages prior to reaching the surgical anesthesia stage. Phase II, or the excitement stage, often includes violent physical activity by the patient, especially with an inhalation induction such as ether. The excitement stage was prolonged if the anesthetic was introduced too slowly.<sup>39</sup> Finally the patient often felt suffocated, or actually was suffocated, by the tight placement of an ether soaked cloth or paper over the nose and mouth.

Many problems had to be managed to achieve a smooth ether induction without having to fight the patient. The patient's fears had to be calmed and the ether administered neither too quickly, nor too slowly, while allowing for adequate respirations in order to avoid a struggle. This was a difficult task for the inexperienced intern. "With these impressions on my mind I was not very happy about what was before me." wrote Sister Marie.<sup>40</sup>

Sister Marie gave her first anesthetic in 1898 to a patient who underwent an abdominal operation.<sup>41</sup> She had been assigned to care for the patient prior to surgery,

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<sup>37</sup> Pernick, *Calculus of Suffering*, 217. Howard Riley Raper, *Man Against Pain: The Epic of Anesthesia* (New York: Prentice-Hall, 1945) 105-106.

<sup>38</sup> Howard W. Haggard, "The Absorption, Distribution, and Elimination of Ethyl Ether" *Journal of Biol. Chem.* 59 (1924): 795-802 reprinted in *Milestones in Anesthesia: Readings in the Development of Surgical Anesthesia, 1665-1940*, ed. Frank Cole (Lincoln, Nebr: University of Nebraska, 1965) 229-238.

<sup>39</sup> Raper, *Man Against Pain*, 219.

<sup>40</sup> Anderson, "Article Written by Myself".

<sup>41</sup> Gullotta, "Forty-four Years," 353.

so as was customary, she was expected to assist during the operation. “I was told to <sup>39</sup> give the anesthetic.” Sister Marie described making a mask by folding a newspaper in a cone shape and covering the newspaper with a towel. Cotton was then put inside the cone and about one half ounce of ether was poured on the cotton. Her description of the cone shaped mask is consistent with historical descriptions of early methods of etherization.<sup>42</sup> An ether cone made in such a manner was commonly used in the United States, especially in the eastern and midwestern regions. After Morton’s public ether demonstration in Boston in 1846, he filed a patent to protect the ether inhaler he had designed. Surgeons quickly took to pouring ether on a sponge and placing it directly on the nose and mouth. The cone was added to hold the ether sponge up off the face. The direct contact of the ether sponge on the face was irritating to the skin, and the cone minimized the exposure of the surgeon and assistants to the ether vapor. The ether cone was inexpensive, easy to make, and actually more effective than the inhaler. It was widely adopted throughout the United States within a year.<sup>43</sup>

Sister Marie used cotton rather than a sponge, but otherwise her ether cone was typical for the place and time. Where the description differs is the small amount of ether, one half ounce, poured into the cone. Morton recommended two ounces initially, followed by another two ounces in a few minutes if the patient failed to reach an adequate level of anesthesia.<sup>44</sup> An 1898 editorial published in *Western Medical Review*, an early Nebraska medical journal, specified that two and one fifth ounces was the correct amount of ether poured into the cone.<sup>45</sup> Other reports detail

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<sup>42</sup> Thatcher, *History of Anesthesia*, 49.

<sup>43</sup> Barbara M. Duncum, *The Development of Inhalation Anesthesia: With Special Reference to the Years 1846-1900* (London: Oxford University, 1947) 11-12.

<sup>44</sup> W. T. G. Morton, “Remarks on the Proper Mode of Administering Sulphuric Ether by Inhalation” (Boston: Dutton and Wentworth, 1847) reprinted in *Milestones in Anesthesia: Readings in the Development of surgical Anesthesia, 1665-1940*, ed. Frank Cole (Lincoln, Nebr: University of Nebraska, 1965) 50 (page citation is to the reprint edition).

using at least two or three ounces initially followed by liberal additional applications with the ether literally running down the side of the patient's face. Excessive administration of ether with a closed cone was later found to be a cause of unfavorable outcomes.<sup>46</sup>

The smaller amount of ether reported by Sister Marie was facilitated by the use of a preoperative dose of morphine. She wrote that a premedication of one-sixth to one-fourth, referring to grains, of morphine with atropine sulphate was given about one half hour before the anesthetic. An injection of morphine and atropine as an adjunct to ether anesthesia gradually gained acceptance between 1891 and 1906. The anesthetic technique at Immanuel Hospital in 1898 was progressive with the use of the premedication. Less ether was required due to the sedation produced by the morphine, the patient was calmer and accepted the anesthetic easier, and the atropine reduced the airway secretions stimulated by the irritating ether.<sup>47</sup>

The ether cone was placed tight on the face of the patient to induce anesthesia. "Dr. B. B. Davis gave me a few pointers and then turned to operate." Sister Marie received scant preparation or instruction for her first anesthetic, and reported great relief at the conclusion of the operation.<sup>48</sup> She evidently remained in contact with the patient as she concluded the description of her first anesthetic by stating "she did wake up and was still living in 1950." If this case was in 1898, then she could not have received much experience prior to moving to Dr. Dearborn's hospital in Wakefield. The time frame does not allow for much further experience as she moved in January of 1898. Sister Marie did not include any discussion of her anesthetic

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<sup>45</sup> The February 15, 1898 editorial in the *Western Medical Review* discusses the key points of an article published by a Dr. Brouner on the administration of ether anesthesia. George H. Simmons, "Ether as an Anesthetic" in *Western Medical Review*, 3 No 2 (1898): 65-66.

<sup>46</sup> Thatcher, *History of Anesthesia*, 20, 49.

<sup>47</sup> Intermuscular injection of morphine and atropine anesthetic premedication in early twentieth century practice is discussed in Duncum, *Inhalation Anesthesia*, 395-404, and Raper, *Man Against Pain*, 188.

<sup>48</sup> Gullotta, "Forty-four Years," 353.

experiences in Wakefield in her notes, likely due to the short duration of her stay at <sup>41</sup> the small hospital.

She was only assigned to Dr. Dearborn's hospital until Easter of the same year, but her anesthesia experience in Wakefield was briefly mentioned in Thatcher's 1953 history of nurse anesthesia. Thatcher documented a Sister Marie S. Anderson (1872- ) who entered the Omaha diaconate in 1895, providing anesthetics at Dr. Dearborn's Hospital in Wakefield, Nebraska in 1898. Sister Marie and another Lutheran deaconess, Sister Lena Nelson of Minnesota, were identified as examples of Protestant nursing sisters functioning as anesthetists during the 1890's. The consistency of the dates and biographical details support the conclusion that the Sister Marie S. Anderson referenced in Thatcher's work is the same individual discussed in this research.<sup>49</sup>

#### *Chloroform Anesthesia*

Sister Marie returned from Wakefield after a few months so she could transfer to Bethesda Lutheran Hospital in St. Paul, Minnesota, another deaconess hospital. Many deaconesses from the Immanuel diaconate in Omaha transferred to the Minnesota hospital in the late 1800's and early 1900's.<sup>50</sup> In the spring of 1898 she moved to Minnesota and cared for Spanish-American War soldiers ill with typhoid fever.<sup>51</sup> A typhoid outbreak in the military training camps in 1898 overwhelmed the

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<sup>49</sup> A personal communication with Pastor V. Serenius is the reference for Thatcher's (64) documentation and no details beyond the year and location are given pertaining to Sister Marie's anesthetic experience. A Rev. Vernon Serenius is the author of "Immanuel Reports" published in *The Deaconess Banner*, 35 No 2 (1956), 2-4, 13-16. The report details the services provided by the hospital and Rev. Vernon Serenius is likely the Pastor V. Serenius in Thatcher's reference.

<sup>50</sup> Lenida Sandahl, member of the Bethesda Hospital, St. Paul, Minn. Archive Committee, personal communication, Nov 4, 2006.

<sup>51</sup> Tom Lee, "Immanuel Deaconess Still Busy, 'God Helped' in 65-year Career," *North Omaha Sun*, 27 October 1960. See also handwritten note, "In the summer 1897..." signed Sister Marie S. Anderson. Marie Anderson collection found at Evangelical Lutheran Church of America archives, Chicago, Ill.

Medical Corps and proved over ten times more deadly than military combat.<sup>52</sup> 42

Trained nurses were recruited throughout the country to care for ill soldiers as the Army Nurse Corps was not yet established.<sup>53</sup> Intestinal perforation, a common consequence of late typhoid infection, required emergency surgery to remedy.<sup>54</sup> Sister Marie began administering anesthesia during 1899 in Minnesota where she worked with surgeons from Sweden and Norway. The surgeons were accustomed to chloroform anesthesia rather than ether.<sup>55</sup>

In Europe and Scandinavia chloroform was widely used at this time, while in the United States ether was the more common anesthetic. The southern region of the United States was an exception due to the influence of French surgeons. Chloroform was introduced in 1847 by Simpson, a Scottish physician, a year following the introduction of ether in Boston. The resultant nationalism was partly responsible for the variation in practice.<sup>56</sup> The perceived safety and effectiveness of the agents were other factors. The ignition of ether vapor had caused several explosions, and some considered the nonflammable chloroform safer to administer.<sup>57</sup> Chloroform would not ignite but was implicated in numerous deaths, many of them in minor procedures

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<sup>52</sup> David F. Trask, *The War with Spain in 1898* (Lincoln, Nebr: University of Nebraska, 1981).

<sup>53</sup> Congress authorized the surgeon General to secure nurses for the military hospitals. Each nurse was credentialed by evaluation of a statement from their training program and a certificate of good reputation. Dolan, *Goodnow's*, 264-266. Sister Marie moved to another deaconess hospital and she may not have been credentialed.

<sup>54</sup> Bryon B. Davis, the Immanuel surgeon who first taught Sister Marie the basics of ether anesthesia, stated intestinal perforation occurring during typhoid fever was one of the very common surgical emergencies. Bryon B. Davis, "The Emergency Element in Abdominal Surgery" *Western Medical Review* 9 (1904) 30.

<sup>55</sup> Anderson, "Article Written by Myself".

<sup>56</sup> Duncum, *Inhalation Anesthesia*, 9-23.

<sup>57</sup> Several case reports of ether explosions can be found in Sykes, "Thirty-Seven Little Things" 5-8. See also Ronald Woolmer, *The Conquest of Pain: Achievements of Modern Anaesthesia* (New York: Alfred A. Knopf) 230-232.

such as tooth extraction.<sup>58</sup> By some estimates chloroform caused four or five times the number of deaths compared to ether anesthesia.<sup>59</sup> 43

The Chloroform Committee of 1864 was formed by the Royal Society of Medicine in England to investigate these deaths attributed to chloroform anesthesia. The committee found that in cases where the patient was said to take the anesthetic poorly, chloroform primarily depressed the heart, while ether caused a respiratory arrest with the heart function continuing for some time. With an ether arrest, the patient could often be revived with artificial respirations while the heart function depressed by chloroform could not be restored with the resuscitative methods available.<sup>60</sup> Chloroform was reexamined in the late 1940's at the University of Wisconsin by Waters and was found to produce ventricular arrhythmias, explaining the effects found by the Chloroform Committee in 1864.<sup>61</sup> The Chloroform Committee findings supported the belief that ether was safer than chloroform, but the Committee approved the use of chloroform as it was more convenient than ether.<sup>62</sup> Many surgeons discounted the findings of the Chloroform Committee by asserting that chloroform was safe in educated hands.<sup>63</sup> Ether anesthesia certainly had reports of

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<sup>58</sup> Thatcher (26) summarized several case reports of deaths attributed to chloroform. See also Duncum, *Inhalation Anesthesia*, 195-198.

<sup>59</sup> By all accounts the statistical analysis of early anesthetic deaths was greatly complicated by inconsistent records and lack of standardized reporting. Some estimates were made with various methodologies, and largely indicated a higher death rate with chloroform compared to ether. Duncum, 412-415. See also W. Stanley Sykes "Anesthetic Deaths in the First Hundred Years" in *Essays on the First Hundred Years of Anesthesia, Vol II* (Teviot Place, Edinburgh: E. & S. Livingstone LTD.) 26-43.

<sup>60</sup> Duncum, 253-255.

<sup>61</sup> W. Stanley Sykes "The Renaissance of Chloroform" in *Essays on the First Hundred Years of Anesthesia, Vol II* (Teviot Place, Edinburgh: E. & S. Livingstone LTD.) 48-50.

<sup>62</sup> Duncum, *Inhalation Anesthesia*, 255.

<sup>63</sup> *Ibid*, 542.

fatalities, and surgeons chose the anesthetic primarily based on their training and personal experience.<sup>64</sup> 44

Patients tolerated a chloroform inhalation induction with relative ease as chloroform was more potent and less pungent compared to ether. Early experiments found the average amount of chloroform needed to induce a patient was twelve drops compared to four teaspoons of ether. The increased potency resulted in a more rapid induction, albeit with a reduced margin for error. Ten to thirty minutes of continuous inhalation of ether was required to reach the overdose, or fourth stage of anesthesia, shock and possible death. Chloroform required only four to twelve minutes of inhalation to reach this stage.<sup>65</sup> Chloroform also had a pleasant odor and produced no irritation with inhalation which promoted patient acceptance. The rapid induction, often with only six or seven inspirations, would usually prevent the excitement stage and allow the surgeon to begin operating quickly.<sup>66</sup> A rapid emergence, or a reduced duration of post-operative effect, was another advantage of a chloroform anesthetic from the surgeon's point of view.<sup>67</sup> As the surgeon dictated the choice of anesthetic, Sister Marie was forced to learn to administer chloroform. She again received minimal instruction from the surgeon and used the same cone mask she was familiar with, but without placing cotton inside.<sup>68</sup>

The chloroform was dropped on the outside of the mask and Sister Marie was instructed on the importance of allowing plenty of air at the beginning of the anesthetic and when the patient lost consciousness "...as a deep breath at that stage

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<sup>64</sup> Pernick, *Pain, Professionalism*, 204-205.

<sup>65</sup> Raper, *Man Against Pain*, 185-186.

<sup>66</sup> James Young Simpson, *Account of a New Anaesthetic Agent, As a Substitute for Sulphuric Ether in Surgery and Midwifery* (Edinburgh: Sutherland and Knox, 1847) reprinted in *Milestones in Anesthesia: Readings in the Development of Surgical Anesthesia, 1665-1940*, ed. Frank Cole (Lincoln, Nebr: University of Nebraska, 1965) 92-101.

<sup>67</sup> Duncum, *Inhalation Anesthesia*, 170-171.

<sup>68</sup> Anderson, "Article Written by Myself."



may be fatal.”<sup>69</sup> Using a mask without cotton to soak up chloroform, and allowing for the entrainment of a large proportion of air protected against an overdose of the more potent anesthetic. Administering the anesthetic drop by drop as Sister Marie describes was the method eventually adopted and promoted by Simpson. The drop method was believed to improve the safety of chloroform.<sup>70</sup> Sister Marie reported “...very little trouble with these patients as it was more pleasant to inhale.”<sup>71</sup> It is unknown how many chloroform anesthetics Sister Marie administered in Minnesota, but she returned to Omaha and to administering ether after this experience.

#### “Now and Then” Anesthetist

Sister Marie probably did not administer anesthesia for several years after returning from Minnesota in late 1899 or early 1900. She returned to Omaha due to poor health and was suspected to be suffering from a lung disease, possibly typhoid. She was sent to Kansas City in the spring of 1900 where she spent three years as a parish deaconess. In the summer of 1904 following her stay in Kansas City, she was assigned to home mission work in Salt Lake City, Utah for a year and one-half. She also taught Swedish summer school at Madrid, Iowa and Stromsberg, Nebraska during this period. She returned to nursing at the Immanuel Hospital in Omaha some time around 1906, and again she occasionally administered ether anesthetics.<sup>72</sup> A new hospital building was completed in 1910 and Sister Marie was placed in charge of the hospital in addition to “...giving anesthesia whenever needed”.<sup>73</sup>

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<sup>69</sup> Ibid.

<sup>70</sup> Duncum, *Inhalation Anesthesia*, 192-193.

<sup>71</sup> Anderson, “Article Written by Myself.”

<sup>72</sup> In Kansas City she was a roving missionary-nurse where her duties including walking at night into the packinghouse district to care for patients. Lee, “Immanuel Deaconess Still Busy.” See also Anderson, “In the summer 1897...”

<sup>73</sup> In the unsigned handwritten note “I entered the Deaconess calling...” she wrote she returned to Immanuel and giving anesthesia whenever needed. The 1910 date of the new hospital building with Sister Marie placed in charge is found in “Back

“As I was nursing and only was called now and then to give anesthetic, I learned from the patients their fear for the Anesthesia” Sister Marie wrote. The patients told her they feared the anesthetic more than the actual surgical procedure. This prompted Sister Marie to begin searching for information about anesthesia. “I looked for literature on Anesthesia but found only a small book.”<sup>74</sup> It is unknown if someone, perhaps a surgeon, had shown her a copy of the book, or if she located the book through some other method. She wrote to the publisher and was told the book was out of print.<sup>75</sup> She may have been referring to Henry Lyman’s *Artificial Anaesthesia and Anesthetics* published by William Wood of New York in 1881. It was a well known general text of the time and would have been out of print. Another possibility was Charles Jackson’s *Manual of Etherization* published in Boston in 1861. Jackson’s manual is described as a “little book” by himself and others. In any event, several current books had been published and were available.<sup>76</sup> Whatever the reason, Sister Marie was not able to obtain a text on anesthesia “So it was up to me to find a way.” Sister Marie placed a mask tightly on her face, found that it gave a feeling of suffocation, and concluded she had found the reason for the patient’s fear of anesthesia. She experimented and developed her own anesthetic technique using an open drop method.<sup>77</sup>

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Through Time to the Immanuel of 65 Years Ago,” *North Omaha Sun*, 25 June 1959. See also “Recall Early Days,” *Deaconess Banner* 38 No 4 (1959) 6.

<sup>74</sup> Anderson, “Article Written by Myself.”

<sup>75</sup> Ibid.

<sup>76</sup> A 2006 search of WorldCat finds a 1901 text by Heineck and a 1905 text by Patton, both published in Chicago. Several anesthesia manuals were published after 1880. A well known American publication by Henry M. Lyman of Boston, *Artificial Anesthesia and Anesthetics* was published in 1881. John Farquhar Fulton, *The Centennial of Surgical Anesthesia: An Annotated Catalogue of Books and Pamphlets Bearing on the Early History of Surgical Anesthesia, Exhibited at the Yale Medical Library, October 1946* (New York: Henry Schuman, 1946) 90. Charles Jackson’s description of his *Manual of Etherization* is found in Fulton, *The Centennial*, 70-71.

<sup>77</sup> Anderson, “Article Written by Myself.”

The “open drop” method of administering ether anesthesia gained proponents in the United States in the late nineteenth century. Chloroform had been dropped onto an open mask covered by gauze for some time, and the technique was transferred to ether with favorable results.<sup>78</sup> Alice Magaw, a nurse anesthetist to the renowned Mayo brothers of St. Mary’s Hospital in Minnesota, in 1899 published a report in the *Northwestern Lancet* detailing the open drop method. The report was republished in the Nebraska medical journal, *Western Medical Review*, in the same year.<sup>79</sup> She published another report in 1906 of 14,380 anesthetic cases during the previous ten years without a death. The open drop technique was described in detail and Magaw gave practical advice on avoiding common pitfalls of the method.<sup>80</sup> When Sister Marie returned to Immanuel Hospital and administering anesthetics, open drop ether was becoming well known as an attractive alternative to the familiar ether cone. The factor(s) that influenced Sister Marie in developing an open technique are unknown, but her experience with chloroform in Minnesota and contemporary publications such as Alice Magaw’s were likely influences.

Sister Marie “...had factory made masks,” probably an Esmarch mask.<sup>81</sup> The Esmarch mask had a bell shaped rim to fit around the nose and mouth with wire supports curved over the top of the nose. Layers of gauze were loosely draped on top of the wire supports and liquid ether was dropped on the gauze creating an ether

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<sup>78</sup> Duncum, *Inhalation Anesthesia*, 592-594. See also Thatcher, *History of Anesthesia*, 57-58.

<sup>79</sup> St. Mary’s Hospital in Rochester, Minnesota, the Mayo Clinic, was one of the first to adopt the open drop method. Duncum, 592. The publication of Alice Magaw’s report in the Nebraska medical journal increased the likelihood the open drop method was known to Nebraska physicians. The association with the Mayo surgeons would have lent credibility to the technique. Alice Magaw, “Observations in Anesthesia,” *Western Medical Review* 4 no. 8 (1899): 277-279.

<sup>80</sup> The review documented the remarkable record of both the open drop method, as well as, the St. Mary’s nurse anesthetist. Alice Magaw, “A Review of Over Fourteen Thousand Surgical Anesthetics,” *Surgery, Gynecology and Obstetrics* 3 (1906) 795-799.

<sup>81</sup> Anderson, “Article Written by Myself.”

vapor inside the mask.<sup>82</sup> The open mask held loosely over the face solved the problem of the fear inducing feeling of suffocation Sister Marie's patients had described to her. Sister Marie experimented with the method stating "Dr. B. B. Davis allowed me plenty of time" but soon found that she could actually anesthetize the patient more quickly than with the older ether cone method. A quick anesthetic induction was an advantage for a busy surgeon. The patient was also more relaxed so everyone involved benefited, or as Sister Marie wrote "So far so good."<sup>83</sup>

### Training in Modern Techniques

"...but now Nitrous Oxide appeared on the Anesthesia field and new trouble started."<sup>84</sup> Nitrous Oxide became commonly used in dental practice for short anesthetics in the later nineteenth century, especially after a system of liquid storage of the gas made it commercially available by 1870.<sup>85</sup> It was slow to be used in longer surgical anesthetics as the lack of potency required high percentages, up to 100 percent, to induce anesthesia. The high percentage required of nitrous oxide anesthesia had two undesirable effects, it deprived the patient of oxygen, and it was expensive.<sup>86</sup> Several machines designed to administer nitrous oxide, and other gases, with oxygen were introduced beginning in 1910. Dentists gave short anesthetics of

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<sup>82</sup> The Esmarch mask used for ether was made larger than the mask for chloroform. A drawing and description of the mask is found in Thatcher, *History of Anesthesia*, 58-59.

<sup>83</sup> Anderson, "Articles Written by Myself."

<sup>84</sup> Ibid. Nitrous oxide actually was proposed as an anesthetic by Wells in 1844 prior to Morton's 1846 ether demonstration, but the public demonstration did not convince the observers of the effectiveness of the gas. Duncum, *Inhalation Anesthesia*, 273-310.

<sup>85</sup> Duncum, *Inhalation Anesthesia*, 289-294.

<sup>86</sup> In 1915 Dennis E. Jackson developed an experimental rebreathing system for nitrous oxide and oxygen which reduced the cost from an estimated \$2.50 per hour to \$0.32 per hour. Thomas E. Keys, *The History of Surgical Anesthesia* (Boston: Milford House, 1945; reprint Boston: Milford House, 1971) 69 (page citation is to the reprint edition).

100 percent nitrous oxide for tooth extractions, but the associated anoxia and short 49  
duration of action made it impractical for surgical anesthesia. The development of  
anesthesia machines allowing for adequate oxygen levels promoted the use of nitrous  
oxide in surgery.<sup>87</sup>

A Cleveland surgeon, Dr. George Crile, utilized a technique of nitrous oxide-  
oxygen anesthesia combined with local anesthetic and a preoperative dose of  
morphine for most of his cases by 1913. Nitrous oxide-oxygen anesthesia gained  
further attention during World War I as the technique was more suitable for  
anesthetizing patients in shock.<sup>88</sup> The interns at Immanuel Hospital began using gas-  
oxygen anesthesia, and in Sister Marie's words "They liked to give it but did not  
know much about the machine and less about the mixture." She could not learn about  
the new technique from the interns, and was frightened to use it. The nitrous-  
oxide/oxygen techniques could be dangerous in unskilled hands. In some hospitals  
training consisted of a note card with instructions for the interns attached to the  
machine, resulting in poor outcomes.<sup>89</sup> Sister Marie was driven to find a way to  
become educated on the technique when the Immanuel surgeons requested "...to  
place me in charge of Anesthesia..." sometime during 1925. She would be required to  
administer gas-oxygen and "I had no knowledge about it."<sup>90</sup>

Sister Marie, concerned about her lack of knowledge, was told she could go to  
a local dentist office to learn. Dentists had been using nitrous oxide for some time and

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<sup>87</sup> Thatcher, *Inhalation Anesthesia*, 68-70. Several nitrous oxide machines  
were developed beginning in 1867, but it would be many years before practical  
nitrous oxide and oxygen machines were available. Keys, *History of Surgical  
Anesthesia*, 83-86.

<sup>88</sup> Dr. Crile's nurse anesthetist, Agatha Hodgins, taught many visitors to  
Lakeside Hospital the gas-oxygen technique and the anesthetic technique gained a  
following. Thatcher, *Inhalation Anesthesia*, 74-75, 94-95.

<sup>89</sup> D. A. Buxton Hopkin, "Open Drop Ether versus Relaxant Techniques in  
Obstetrics" in *Anesthesia: Essays on Its History*, ed. Joseph Ruprecht, Marius Jan van  
Lieburg, John Alfred Lee and Wilhelm Erdmann (Berlin: Springer-Verlag, 1985), 95-  
96.

<sup>90</sup> Anderson, "Article Written by Myself."

many dentists, including Morton and Wells, were early innovators in anesthesia. Dentists had taught much to the medical community about anesthesia but “I did not go there” was Sister Marie’s response to the idea.<sup>91</sup> Administering a short anesthetic for a tooth extraction was much different than administering an anesthetic for the increasingly complex surgical procedures performed, so she was likely wise in her response.

### *Learning From the Experts*

Prior to training programs, education in anesthesia was commonly obtained through one of three methods; training in the hospital in which the nurse was to provide anesthesia, visiting another hospital to observe and occasionally give a few anesthetics under supervision, and being trained by the manufacturer of the anesthesia machine bought by the hospital.<sup>92</sup> Sister Marie traveled to Minneapolis to the Heidbrink company first to learn about the anesthesia machine.<sup>93</sup> Dr. Heidbrink, a dentist, had developed a gas-oxygen machine which became available in 1924.<sup>94</sup> His wife was a nurse anesthetist, and together they taught many nurse anesthetists the gas-oxygen technique in Minneapolis. The type of gas-oxygen machine used at Immanuel is unknown, but the Lundy-Heidbrink machine was constructed in the United States in 1924 and Sister Marie was asked to become the full time anesthetist at Immanuel Hospital in 1925. This combined with her traveling to the Heidbrink company to receive training supports the conclusion that she used this machine. Heidbrink and his wife taught a one-week course in nitrous oxide anesthesia to anesthetists who had bought the machine after World War I.<sup>95</sup>

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<sup>91</sup> Ibid.

<sup>92</sup> Thatcher, *History of Anesthesia*, 93.

<sup>93</sup> Anderson, “Article Written by Myself.”

<sup>94</sup> Keys, *Surgical Anesthesia*, 71, 115.

<sup>95</sup> Thatcher, *History of Anesthesia*, 71, 93.

Sister Marie also traveled to Chicago, where she received some information<sup>51</sup> about the properties of nitrous oxide and oxygen at Presbyterian Hospital.<sup>96</sup> It is unknown what drew Sister Marie to the Chicago hospital, how long she was there, or what type of training she received.<sup>97</sup> Presbyterian Hospital was the location of advances in anesthetic techniques which may have been a factor. Ethylene was introduced into clinical practice at Presbyterian Hospital during approximately the same time period, 1923. Ethylene was the first new inhalational anesthetic to compare with ether and nitrous oxide, and the first to result from deliberate scientific inquiry.<sup>98</sup> Luckhardt published his research in 1923 reporting the administration of ethylene to a series of 106 cases at Presbyterian Hospital in Chicago.<sup>99</sup> The introduction and subsequent acceptance of the new anesthetic would have contributed favorably to Presbyterian's reputation as a leader in anesthetic technique. Reputation often influenced practitioners seeking education in the latest techniques, and Presbyterian's reputation may have influenced Sister Marie.

#### *Full Time Anesthetist*

Sister Marie began administering anesthesia more consistently once the surgeons at Immanuel Hospital asked her to take charge of the anesthesia department.

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<sup>96</sup> Anderson, "Article Written by Myself."

<sup>97</sup> There were active Lutheran deaconess motherhouses in both Minneapolis and Chicago in the 1920's which would have facilitated Sister Marie's travel to these cities. Weiser, "The Origins", 430-431.

<sup>98</sup> Dr. Arno B. Luckhardt with a medical student, J. B. Carter, conducted animal experiments with ethylene in 1921 and 1922. Dr. W. Easson Brown of the University of Toronto was conducting his own animal experiments at the same time and actually published the first paper on ethylene's effects on animals. Raper, *Man Against Pain*, 193-195.

<sup>99</sup> Arno B. Luckhardt, "Ethylene as a Gas Anesthetic: Preliminary Communication," *Journal of the American Medical Association* 80 no. 20 (1923) 1440-1442 reprinted in *Milestones in Anesthesia: Readings in the Development of Surgical Anesthesia, 1665-1940*, ed. Frank Cole (Lincoln, Nebr: University of Nebraska, 1965) 218-224.

The latest inhalational anesthetics, ethylene and cyclopropane were administered by<sup>52</sup> her at Immanuel.<sup>100</sup> She likely became familiar with ethylene during her trip to Presbyterian Hospital in Chicago, but the first clinical report of cyclopropane anesthesia in humans was published in 1930. This was well after the time she traveled to Chicago. The developers of cyclopropane were concerned the potent anesthetic could be dangerous in untrained hands, and the anesthetic was not widely available until late 1934 or 1935. The increased potency of cyclopropane allowed for oxygen concentrations of greater than eighty percent.<sup>101</sup> The high oxygen levels allowed with cyclopropane compared with nitrous oxide and ethylene were an advantage in the long operations necessary to repair World War II injuries. Cyclopropane then began to be used in civilian practice as well.<sup>102</sup> Cyclopropane was first made available to a selected group of anesthetists in 1933 and quickly became a popular anesthetic agent until the release of halothane in the 1960's.<sup>103</sup> It is unknown how Sister Marie became trained in the administration of cyclopropane, but she interacted with other Nebraska nurse anesthetists and may have exchanged clinical techniques.<sup>104</sup> "So again I had managed another step in the progress of Anesthesia."<sup>105</sup>

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<sup>100</sup> Anderson, "Article Written by Myself".

<sup>101</sup> G. H. W. Lucas and V. E. Henderson, "A New Anesthetic Gas: Cyclopropane, A Preliminary Report," *Canadian Medical Association Journal* 21 (1929) 173-175 reprinted in *Milestones in Anesthesia: Readings in the Development of Surgical Anesthesia, 1665-1940*, ed. Frank Cole (Lincoln, Nebr: University of Nebraska, 1965) 247-253.

<sup>102</sup> Raper, *Man Against Pain*, 196-197.

<sup>103</sup> Betty Bamforth, "Cyclopropane Anesthesia: Its Introduction at Wisconsin in *Anesthesia: Essays on Its History*, ed. Joseph Ruprecht, Marius Jan van Lieburg, John Alfred Lee and Wilhelm Erdmann (Berlin: Springer-Verlag, 1985), 274-275.

<sup>104</sup> Sister Marie became a member of the National Association of Nurse Anesthetists in 1934 and a charter member of the Nebraska Association of Nurse Anesthetists in 1936. Gulotta, "Forty-four years", 353.

<sup>105</sup> Anderson, "Article by Myself."



Avertin was the final anesthetic discussed by Sister Marie in her article. “I was pleased to learn about this more pleasant way of getting a patient to sleep.” Avertin was administered prior to the patient entering the operating room, allowing the patient to avoid “...the unpleasant experience of entering the operating room and being fastened down on the table while yet awake.”<sup>106</sup> It was used as the sole anesthetic in minor operations and as a premedication prior to an inhalational induction.<sup>107</sup>

Sister Marie retired from anesthesia in 1937 with an anesthesiologist career spanning close to four decades. She served as the head anesthesiologist at Immanuel Hospital from 1925 until her retirement.<sup>108</sup> At the end of her career she reported administering thousands of anesthetics without a death on the operating table.<sup>109</sup> “I still think Ether properly administered is a good all around Anesthetic.” Ether was the first anesthetic she administered in 1898 and it remained her favorite throughout her career.

### Professional Development

Sister Marie did not choose to be trained in the administration of ether anesthesia in 1898. “...I was not very happy about what was before me.” Again in 1925 she did not choose to head the anesthesia department at Immanuel Hospital, the surgeons asked the hospital administrator to place Sister Marie in charge, and “...then my trouble really began.”<sup>110</sup> She was chosen to be trained in anesthesia to meet the surgeon’s need for a reliable anesthesiologist, rather than due to interest on her part in

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<sup>106</sup> Ibid.

<sup>107</sup> Avertin was an alcohol solution administered by enema. The first clinical report was in 1926 from Germany. Keys, *Surgical Anesthesia*, 48, 95. See also Raper, *Man Against Pain*, 235-236.

<sup>108</sup> “Open House Cite Sister” See also obituary found in the Sister Marie Anderson collection at the ELCA Archives.

<sup>109</sup> Gulotta, “Forty-four years”, 354. Lee, “Immanuel Deaconess Sill Busy”.

<sup>110</sup> Anderson, “Article Written by Myself.”

becoming an anesthetist. This was similar to the experience of many early nurse anesthetists. Gustaf W. Olson, a hospital administrator, stated “A fact which should never be lost...nurses were *drafted* to give anesthetics under the instruction and supervision of surgeons, after it had been found that medical graduates were often inept...” (emphasis original).<sup>111</sup> Her first teacher was the surgeon at Immanuel Hospital, Dr. B. B. Davis, and subsequently the surgeons in St. Paul, Minnesota. It was typical for surgeons in the 1890’s to give instruction in anesthetics.

Anesthesia was the responsibility of the early surgeons, including the choice of anesthetic agent, administration techniques, and anesthetist. Dr. Davis included caveats about appropriate anesthetic techniques in one of his published papers on various types of surgical emergencies. He clearly assumed the anesthetic technique was chosen by the surgeon.<sup>112</sup> Surgeons continued to serve in the dual role of surgical and anesthesia expert well into the twentieth century.<sup>113</sup> Dr. Charles Arnold, a Lincoln, Nebraska surgeon lectured and published extensively. Four of his thirteen major publications between 1930 and 1945 were focused on anesthesia topics. He held a position as a special lecturer in surgery at the Creighton University Medical School in Omaha, Nebraska from 1941 through 1946. Detailed lecture notes for a series of six lectures on anesthesia were found with his personal papers.<sup>114</sup> Dr. Hull Cook, a rural Nebraska surgeon for fifty years began his practice in 1937. Although he had limited anesthesia training, he supervised nurses, and even patient family members in administering ether and chloroform during his practice.<sup>115</sup> The training

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<sup>111</sup> Gustaf W. Olson, “The Nurse Anesthetist—Past, Present and Future,” *Bulletin of the American Association Nurse Anesthetists*, 8 (1940): 297.

<sup>112</sup> Bryon B. Davis, “The Emergency Element in Abdominal Surgery,” *Western Medical Review* 9 (1904): 20-32.

<sup>113</sup> Larry R. Hutson and Claude A. Vachon, “Dr. Rudolph Matas: Innovator and Pioneer in Anesthesiology,” *Anesthesiology* 103, no. 4 (2005): 885-889.

<sup>114</sup> The Charles Arnold Collection, Nebraska State Historical Society, RG 2159.am.

<sup>115</sup> Hull Cook, *50 Years a Country Doctor* (Lincoln, NE: University of Nebraska Press, 1998).

the surgeons gave Sister Marie was minimal, “a few pointers” and “I was left on my own.”<sup>116</sup><sup>55</sup>

Sister Marie administered anesthesia occasionally during the first years of her career, 1898 through 1925. It was a secondary activity to her other nursing duties with the extent of her anesthesia experience unknown.<sup>117</sup> She may not have administered anesthesia for a five to six year period beginning in 1900 when she served as a parish deaconess.<sup>118</sup> Once she was placed in charge of the anesthesia department in 1925 she would have administered anesthesia more consistently although she was also in charge of the drug room.<sup>119</sup>

### *Specialization in Anesthesia*

The reason, or reasons, the surgeons felt the need to change the practice of interns, or the nursing staff, acting as occasional anesthetists is not known. From the 1890 founding, the hospital had been affiliated with the Omaha Medical College and served as a clinical site for training medical doctors. Immanuel was a leading hospital in the region and the desire to maintain a high standard, particularly as the hospital

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<sup>116</sup> Anderson, “Article Written by Myself.”

<sup>117</sup> After returning to Omaha from Minnesota in the early 1900’s she states “As I was nursing and only was called now and then to give anesthetic...”, “Article Written by Myself”. In 1910 Sister Marie was placed in charge of Immanuel Hospital. “Recall Early Days, 6.

<sup>118</sup> Anderson, “In the summer 1897...”

<sup>119</sup> Sister Marie’s dual role was documented by a former nursing student and in a newspaper article. Martha Kurtz Nestander, “Days of Training Recalled by Member of First Immanuel Nursing Class” *Deaconess Banner*, 36, no. 5 (1957): 11. See also “Immanuel to Cite Lutheran Sister” *Omaha World Herald*, 26 October 1960. For the year 1935, Sister Marie Anderson and Miss Mabel Owens were the anesthetists at Immanuel Hospital. The anesthetics given were listed as gas-99, ether-149, gas and ether-549, local-520, local and gas-16, spinal-91, sacral-96, ethylene-128, avertin-7, avertin and ether-240, avertin and gas-19, chloroform-2, evipal-24, sodium amyral-24, none-83, with a total of 2047. The list is included in the 1935 annual report of the Immanuel Hospital School of Nursing found in the Nebraska State Historical Society, Lincoln, Nebraska, RG027.1, SG4, S3, SS3, Box one.

continued to grow, may have influenced the surgeons.<sup>120</sup> A new, larger building with 130 patient beds and “one of the finest medical and surgical staffs in the city” was completed in 1926.<sup>121</sup> Immanuel Hospital was one of the few Nebraska hospitals in 1928 fully approved under the survey of the American College of Surgeons, a significant accomplishment.<sup>122</sup> The Minimum Standard for Hospitals was formulated by the American College of Surgeons in 1918 as voluntary standards to recognize and promote quality hospital patient care.<sup>123</sup> The standards for the department of anesthesia discouraged the physician with “casual training in the administration of anesthetics, and whose experience is limited to an occasional case” as “a dangerous practice.” A trained nurse anesthetist who specialized was considered an acceptable alternative by the college.<sup>124</sup> The surgeons may have been motivated by the increasing complexity of delivering anesthetics with the advancing technology of the anesthesia machines. A basic instruction in the administration of ether could be given in a few minutes to an inexperienced anesthetist, but the newer techniques required more training. Poor patient outcomes, or the influence of publications in the medical journals calling for specialization may have also played a role.

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<sup>120</sup> Tyler, 268. Rev. Chinlund, the head of Immanuel, was elected the first president of the Nebraska Hospital Association in 1927. Tyler, 481.

<sup>121</sup> *Ibid.*, 485.

<sup>122</sup> There were 69 Nebraska hospitals with 14 fully approved first class hospitals under the survey of the American College of Surgeons. Omaha hospitals numbered 17 with 7 fully approved first class hospitals. The designation “includes certain required organization, equipment, records, personnel and procedures which insure the most accurate diagnosis and best possible treatment.” Tyler, *History of Medicine*, 481.

<sup>123</sup> The first survey in 1918 approved 89 hospitals of 692 hospitals with 100 or more beds. The number grew to 879 approved hospitals of the 995 surveyed in 1925. American College of Surgeons, *Manual of Hospital Standardization*, (Chicago: American College of Surgeons, 1938), 7-8.

<sup>124</sup> *Ibid.*, 42.

Repeated calls for improvement in anesthesia through specialization appeared in the *Western Medical Review*, an early medical journal published in Lincoln, Nebraska. Dr. B. Gay in 1897 wrote:

That the anesthetic may be, and often is, entrusted to the hands of those unskilled in its use in general surgery, no one will deny. Why...so little importance usually assigned to the anesthetizer...ha(s) not as yet been satisfactorily explained. That the safety of the patient may depend fully as much on the skill of the anesthetizer as that of the surgeon...and the necessity of using at least a moderate degree of skill in the giving of all anesthetics is at once apparent.<sup>125</sup>

Several subsequent publications during the following three decades, 1890 through 1930, in the Nebraska medical journal illustrated the matter of specialization in anesthesia remained unresolved. An editorial by Dr. George Simmons written in 1898 stated: "In our cities and larger towns the giving of anesthetics is being more and more entrusted to those with special skill, so much so that a new specialty is growing up among us." The editorial continued: "That etherization should be entrusted only to experienced hands".<sup>126</sup> A short item on operative shock was reprinted from the *International Journal of Surgery*. Poor patient outcomes in spite of advances in the treatment of shock were attributed to "The deplorable fact..." interns, or "...the nearest friend or acquaintance..." were acting as the anesthetist in hospitals.<sup>127</sup> In a 1908 article, Dr. Burkard of Omaha stated: "We all know that the administration of anesthetics, as practiced today, is often far from ideal." He continued: "Why is this so? The surgeon usually gets his anesthetics given gratis by students, interns, or nurses." His solution to "...many fatalities in comparatively healthy individuals

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<sup>125</sup> B. F. Gay, "Chloroform in Surgery," *Western Medical Review* 2 (1897): 128.

<sup>126</sup> "Ether as an Anesthetic," *Western Medical Review* 3 (1898): 65-66.

<sup>127</sup> "Operative Shock and Stimulants," *Western Medical Review* 5 (1900): 93.

during trifling operations...” was specialization in the administration of anesthetics.<sup>128</sup>

Another article on the topic was printed in *Western Medical Review* in 1924; the same time period Sister Marie was requested to take charge of anesthesia at Immanuel Hospital. Reprinted from *Colorado Medicine*, the author asserted: “The day when the administration of the anesthetic was relegated to whomsoever might be present, without regard to experience o(r) qualification as an anesthetist, has passed.”<sup>129</sup> The specialized anesthetist the author, and the others before him, proposed was a graduate in medicine.

A nurse specialist was not proposed by any of the physicians published in *Western Medical Review*, but Alice Magaw, a nurse specializing in the administration of anesthetics was also published in the Nebraska journal. Magaw clearly identified herself as a nurse and documented her exemplary record as an anesthetist.<sup>130</sup> Undoubtedly her association with the well-regarded Mayo Clinic lent her a high degree of credibility with Nebraska surgeons. Nationally numerous hospital administrators and surgeons supported the nurse specialist in opposition to some in the medical community. Nurses as anesthetists gained recognition during World War I. Many nurse anesthetists volunteered for overseas war duty with civilian hospital units and proved invaluable in providing highly skilled anesthesia care in difficult cases.<sup>131</sup> The development of a few postgraduate training programs further supported the adoption of nurse anesthetists.<sup>132</sup>

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<sup>128</sup> Burkard, “Specialism in Anesthesia,” *Western Medical Review* 13 (1908): 556-558.

<sup>129</sup> Lloyd R. Allen, “The Choice of the Anesthetic Agent and the Most Suitable Method of Administration,” *Western Medical Review* 27 (1924): 333.

<sup>130</sup> Magaw, “Observations”.

<sup>131</sup> Thatcher, 97-102.

<sup>132</sup> Documentation of the expansion of nurse anesthesia throughout the United States during the first decades of the twentieth century is found in Thatcher’s *History of Anesthesia*, 75-89.

Sister Marie became educated in the administration of anesthesia without the benefit of a formalized ‘school’ or training program. The opportunities for training in anesthesia in the 1920’s were limited and inconsistent. In 1909 a paper read by Florence Henderson at the Twelfth Annual Convention of the Nurses’ Associated Alumnae of the United States titled “The Nurse as an Anesthetist” was published. The discussion at the convention following the paper soon turned to training for nurses in anesthesia with a Miss Palmer stating “We have had quite a number of calls from different nurses in the country for opportunities for such instruction...there was no place...where a woman could go to receive that kind of instruction.”<sup>133</sup> Accreditation of training programs by the American Association of Nurse Anesthetists did not begin until 1952 so Sister Marie designed an educational plan to meet her needs.<sup>134</sup> Sister Marie was not licensed as a Registered Nurse by the state which further limited her choice in a postgraduate nursing program.<sup>135</sup> Although eligible for registration in 1910, as a deaconess bound to the church she likely did not appreciate any personal need for state registration at the time. The Nebraska registration act for nurses was passed in 1909 and Sister Marie could have registered during the 1910 ‘grandfather’ period. The act allowed currently practicing nurses with verified training and work experience to register during a one year period. An amendment to the registration law exempted religious order nurses, which was another likely influence on Sister Marie’s decision to not pursue state registration.<sup>136</sup>

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<sup>133</sup> The American Journal of Nursing, 9 (1909): 952. In 1924 fourteen schools of nursing were listed by the American Nurses’ Association in *A List of Schools of Nursing Accredited by the State Boards of Nurse Examiners* as offering post-graduate courses in anesthesia, 50-51. Twenty-nine courses were listed in 1928 with none offered in Nebraska in either 1924 or 1928. Copies of the 1924 and the 1928 lists can be found in the Nebraska Historical Society Archives, RG027.1, SG4, S3, SS1, Box Three.

<sup>134</sup> Bankert, *Watchful Care*, 136.

<sup>135</sup> Oderkirk, 179-180.

<sup>136</sup> Thirty-three states had enacted nurse-practice acts by 1912 but none of the laws made registration mandatory for the practice of nursing. An examination of candidates was required by each of the thirty-three states prior to licensure.

Her education in anesthesia was a combination of the three methods identified by Thatcher.<sup>137</sup> Sister Marie administered ether and chloroform with the simple methods common in America during the first half of her career, but nitrous oxide anesthesia was more complex. She recognized her own lack of expertise, as well as that of the interns she observed administering nitrous oxide with an anesthesia machine. More than 25 years after first administering ether, she devised a plan to learn from experts of the day on the new machine and anesthetic. Although ‘they’ told her to learn from a dentist, she refused and traveled to Minneapolis and Chicago.

### *Professional Identity*

Although anesthesia was not her only responsibility, Sister Marie began to identify herself as a professional nurse anesthetist during her career.<sup>138</sup> She sought membership in 1934 to the newly formed professional organization, the National Association of Nurse Anesthetists.<sup>139</sup> Speaking of her application Sister Marie stated “...I ventured to write to the president, stating all the facts of my anesthetic career, and I waited a bit nervously. It was a pleasant surprise when the answer came...”<sup>140</sup>

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Gwendoline MacDonald, *Development of Standards and Accreditation in Collegiate Nursing Education* (New York: Teachers College Press, 1965), 48.

<sup>137</sup> Thatcher lists three types of anesthesia education for nurses prior to the development of training programs “(1) that given graduate nurses in a hospital in which they were to be employed as anesthetists; (2) that provided gratuitously to visitors—physicians and nurses—who went to a hospital to observe and sometimes gave a few anesthetics under supervision; and (3) that given by the manufacturers and the demonstrators of gas machines, ...” . *History of Anesthesia*, 93.

<sup>138</sup> Even after becoming head of the anesthesia department in the mid 1920’s, she also was in charge of the drug room at the hospital. Nestander, “Days of Training,” 11. See also “Immanuel to Cite.”

<sup>139</sup> The National Association of Nurse Anesthetists, later to become the American Association of Nurse Anesthetists (AANA), is a professional organization founded to distinguish between untrained, and trained, nurse anesthetists. Bankert, *Watchful Care*, 81.

<sup>140</sup> Gulotta, “Forty-four Years,” 353.



The membership requirements in effect in 1934 required the applicant to have graduated from an accredited school of nursing and passed a state board examination for nurses, to have continued her registration if so required by the state, to have three years experience in the administration of anesthetic drugs prior to 1934, and to be engaged in the administration of anesthesia at the time of application. The first draft of the Bylaws in 1931 included active membership eligibility requirements of graduation from an accredited Training School for nurses, a certificate from an approved school of Anesthesia or from a qualified instructor, one year's experience in the administration of anesthetic drugs, and active engagement in the practice of anesthesia. The Bylaws were changed in early 1932 following application to affiliate with the American Nurses' Association to include the registration requirement.<sup>141</sup> Lack of state registration would account for Sister Marie's apprehension concerning her application. The leadership of the fledgling organization was anxious to increase membership and allowed flexibility in the interpretation of the membership requirements in the early years.<sup>142</sup> Helen Lamb, one of the early leaders, wrote prior to the incorporation of "...making some necessary present provision perhaps for nurse anesthetists who have been practicing for several years but who are not graduates of recognized courses. This while not entirely desirable, might be necessary."<sup>143</sup> One of the four major concerns of the association in the summer of 1933 was "...building up the membership..."<sup>144</sup> Thatcher documents several anesthetists who were not nurses but were admitted to the professional

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<sup>141</sup> Thatcher, *History of Anesthesia*, 186, 191-92, 205.

<sup>142</sup> The National Association of Nurse Anesthetists was incorporated in March of 1932 with 49 members, grew to 100 by the end of the 1932, 362 in May 1933, 503 in September 1933, and more than 700 in February 1934. Ibid., 197, 200, 201, 205, 210.

<sup>143</sup> Ibid., 189.

<sup>144</sup> Ibid, 203.

organization.<sup>145</sup> Evidentially Sister Marie was found qualified; “It was a pleasant surprise...followed by my membership card in due time.”<sup>146</sup>

Sister Marie was admitted to active membership in the national organization and soon after a charter member of the Nebraska Association of Nurse Anesthetists (NANA).<sup>147</sup> The NANA was accepted for affiliation in September of 1936 as the fifteenth state association affiliated with the National Association of Nurse Anesthetists.<sup>148</sup> Marie S. Anderson was a witness to the signing of the affiliation and one of the thirteen members on the first Nebraska membership list.<sup>149</sup> She retired within a few years of the formation of the NANA becoming ineligible for active membership, but was conferred an Honorary Membership at the twentieth anniversary in 1956. The members and Board of Trustees recognized “...a member who was a true pioneer in the specialty of anesthesia, is a charter member of our state association, and who has devoted self, time, and effort to the art and science of alleviating pain—Sister Marie S. Anderson.”<sup>150</sup> She remained in contact with the NANA until late in life and was an honored guest at the silver anniversary banquet in June 1961.<sup>151</sup>

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<sup>145</sup> Ibid., 76-77.

<sup>146</sup> Gulotta, “Forty-four Years,” 353. Anderson lists her membership #1203 in “I entered the Deaconess calling...”.

<sup>147</sup> Gulotta, “Forty-four Years,” 353.

<sup>148</sup> Bankert, *Watchful Care*, 207.

<sup>149</sup> A typed one page document lists the signers of the application for affiliation, the witnesses, the members and a note published in the Bulletin. The document is in a scrapbook which can be found in the Nebraska Association of Nurse Anesthetists Archives, Lincoln, Nebraska.

<sup>150</sup> A letter to Sister Marie S. Anderson, Immanuel Deaconess Institute, dated October 24, 1956 and signed by Olga R. Schulz, President 1954-1956 is in a scrapbook which can be found in Nebraska Association of Nurse Anesthetists in Lincoln, Nebraska.

Professional participation was important to Sister Marie but it is unknown if<sup>63</sup> she participated in teaching other nurses to administer anesthesia. There is little evidence to support such a conclusion. A five-by-nine inch notebook containing twenty-one pages of notes pertaining to anesthesia can be found in Sister Marie's file at the Lutheran Deaconate Archives.<sup>152</sup> The notebook does not appear to be designed to provide instruction on the administration of anesthesia, but rather information about anesthesia and the care of patients who receive anesthesia. The first nine pages are notes on the history of anesthesia and are divided into sections on the pre-anesthetic period, before 1842, and the anesthetic period beginning in 1842. The next four pages are notes describing the anatomical division of the nervous system affected by the three types of anesthesia; general, local, and spinal anesthesia. The remaining seven pages are devoted to the preoperative and postoperative care of surgical patients.<sup>153</sup> Sister Marie may have used the notes to lecture Immanuel nursing students about some aspects related to anesthesia and the care of surgical patients.<sup>154</sup>

A review of materials related to the Immanuel Hospital School of Nursing fails to support a teaching role. Sister Marie as the anesthetist, and in charge of the drug room, is referenced by Immanuel nursing students but no mention of teaching is

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<sup>151</sup> Two pictures of Sister Marie at the silver anniversary are included in a scrapbook which can be found in Nebraska Association of Nurse Anesthetists in Lincoln, Nebraska. See also "People and Events," (1961) *AANA News Bulletin*, 22.

<sup>152</sup> Although the notebook is undated and unsigned the handwriting is similar to handwriting found on documents found in the Sister Marie Anderson collection in the ELCA Archives in Park Ridge, Illinois and in the Immanuel Archives in Omaha, Nebraska.

<sup>153</sup> A notation at the top of the first page of this section reads "22 pages on Pre & Post op. care" and another in the top right corner of the page reads "By Webster Anesthesia for Nurses".

<sup>154</sup> Immanuel was a nurses training site for the duration of Sister Marie's career. The deaconess training at Immanuel Hospital included nursing training until the start of the nursing program for lay students. The Immanuel Hospital School of Nurse began in 1922 and continued for many years after her retirement.

made.<sup>155</sup> Annual reports filed for the years 1926 through 1936 by the Immanuel Hospital School of Nursing indicated the nursing students were not taught to administer anesthetics during training. Sister Marie Anderson and beginning in 1930 a second anesthetist, Mabel Owens, are listed as anesthetists in the reports filed with the state but neither are included as faculty of the nursing program.<sup>156</sup> Likewise, none of the written materials found related to Sister Marie's career and life contains a description of her teaching anesthesia to others.<sup>157</sup> It is unlikely teaching played an extensive role in Sister Marie's career, but it is possible she may have failed to record teaching a limited number of individuals. Mabel Owens, the second Immanuel Hospital anesthetist, had no post graduate anesthesia training recorded in the annual reports. Sister Marie may have trained others to administer anesthesia but not recognized the significance, or was self conscious of the appropriateness of doing so.

Sister Marie may not have chosen the anesthetist role but it became a primary role in her life work as a deaconess. "Sister Marie has calmed many anxious and frightened hearts and made an anesthetic seem as though it were just a sleep—to dream—and awakening with troubles over soon." This quote was found in "Inspirations," the 1928 student nurse yearbook of the Immanuel Hospital School of Nurses, in reference to Sister Marie.<sup>158</sup> Her career was an illustration of an early

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<sup>155</sup> Martha Kurtz Nestander was a student from 1922 through 1925 and mentions "...the drug room under Sister Marie Anderson's care, who also was the anesthetist." Nestander, "Days of Training," 11.

<sup>156</sup> The annual reports filed with the Nebraska Department of Health can be found at the Nebraska State Historical Society, Lincoln, Nebraska, RG027.1, SG4, S3, SS3, Box one. Mabel Owens was a Registered Nurse and in the 1936 report is listed as faculty.

<sup>157</sup> Several articles on Sister Marie's deaconess career were published including Gulotta, "Forty-four Years," Lee, "Immanuel Deaconess," "Immanuel to Cite"; and "Open House Cites Sister". Neither the published articles nor the unpublished autobiographical notes found in the Sister Marie Anderson collection at the ELCA Archives contain any reference to teaching.

<sup>158</sup> A member of the first class of the Immanuel Hospital School of Nurses wrote of her nursing school experiences. Found in the ELCA Archives in Park Ridge, Illinois.

anesthetist growing in skill and dedication although anesthesia may not have been a<sup>65</sup> path chosen by Sister Marie, but rather chosen by circumstance and necessity.

Surgeons often trained religious nursing Sister's to administer anesthesia, primarily between the middle of the 1880's and the turn of the Twentieth Century. The role of the Catholic Sister's has been documented, but less has been written about the Lutheran Deaconess in the anesthetist role. The evidence found related to the apprenticeship training of Sister Marie S. Anderson in the Immanuel Hospital in Omaha, Nebraska supports the finding that Nebraska surgeons and religious Sisters participated in the earliest development of the professional nurse anesthetist.

## CHAPTER 3

## THE ANESTHESIA EDUCATION OF STUDENT NURSES

A large number of Nebraska nurses training schools documented the training of student nurses in the administration of anesthesia, primarily between 1915 and 1930. It is difficult to determine when anesthesia was first included in the basic nursing curriculum as the documentation available for the years prior to 1915 is scant. Post-graduate nurse anesthesia training programs have been in existence in the United States since early in the twentieth century. Documentation is available in the literature related to the early post-graduate training programs, but little has been written of training student nurses to administer anesthetics as a component of a basic nurse's training curriculum. A discussion of early nurse anesthesia training that touches on training student nurses is included in Thatcher's *History of Anesthesia: With Emphasis on the Nurse Specialist* published in 1953.<sup>1</sup> Bankert, in *Watchful Care: A History of America's Nurse Anesthetists*<sup>2</sup>, also discusses the origins of the education of nurse anesthetists, but neither Thatcher nor Bankert detail the systematic education of student nurses in anesthesia. An analysis of late nineteenth century and early twentieth century historical records from nurse's training schools in Nebraska supports the hypothesis that student nurses were systematically taught to administer anesthetics.

The historical record of Nebraska nurses training schools prior to the turn of the century is negligible. A review of the history related to a well known early nurse anesthetist, Florence Henderson, provided information related to the education of a nurse in Nebraska during the last decade of the nineteenth century. Henderson became a specialist in anesthesia after first learning to deliver anesthetics as a student nurse in Omaha, Nebraska during 1897 and 1898.

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<sup>1</sup> Virginia Thatcher, *History of Anesthesia: With Emphasis on the Nurse Specialist* (Philadelphia: J.B. Lippincott, 1953) 90-93.

<sup>2</sup> Marianne Bankert, *Watchful Care: A History of America's Nurse Anesthetists* (New York: Continuum, 1989) 40-43.

## Florence Henderson

Florence Henderson was an influential early nurse anesthetist best known for her work at the Mayo Clinic in Rochester, Minnesota. Although the majority of her career transpired in Rochester and later California, Henderson's experience in anesthesia began in Nebraska. She was first trained to deliver anesthesia while a student nurse at the Bishop Clarkson School of Nursing in Omaha, Nebraska.<sup>3</sup> Henderson began the two year nurses' training in 1898 ten years after the founding of the nursing school in 1888. She was one of five nurses graduating from the nursing school in 1900.<sup>4</sup> Henderson became the Bishop Clarkson Hospital superintendent following her graduation, continuing to administer anesthetics there.<sup>5</sup>

While in Nebraska, anesthesia was one facet of Henderson's nursing career. The hospital superintendent was responsible for the management of the patient wards as well as the nurse's training school. Administration of anesthesia would have been one of numerous responsibilities Henderson assumed in the superintendent role.<sup>6</sup> During her student nurse days and the approximately three years she spent overseeing the hospital, Henderson had many additional concerns beyond the administration of anesthetics. Either intentionally or accidentally, Henderson subsequently gained a position where she could significantly develop her skills and ability in nurse anesthesia.

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<sup>3</sup> Henderson gave testimony in the 1934 *Chalmers-Francis v. Nelson* case tried before the Superior Court of Los Angeles. She was asked "When did you first begin to administer anesthetic?" A copy of the testimony can be found at the AANA Archives in Chicago. See also Marianne Bankert, *Watchful Care: A History of America's Nurse Anesthetists* (New York: Continuum, 1989), 90-92.

<sup>4</sup> Wendell W. Oderkirk, *Learning To Care: A Century of Nursing Education Bishop Clarkson College* (Omaha: privately printed, 1988), 280.

<sup>5</sup> Virginia Thatcher, *History of Anesthesia: With Emphasis on the Nurse Specialist* (Philadelphia: J. B. Lippincott), 60.

<sup>6</sup> For a discussion of the scope of the superintendent's duties, see Ann Bradshaw, *The Nurse Apprentice, 1860-1977* (Burlington, VT: Ashgate, 2001), 60.

In late 1903 Henderson obtained employment at St. Mary's Hospital of the Mayo Clinic in Rochester, Minnesota.<sup>7</sup> The Mayo brothers and other clinic surgeons had a large, progressive surgical practice that frequently attracted American and European surgeons to observe their techniques.<sup>8</sup> Prior to the turn of the twentieth century, the Mayo brothers had begun to rely on graduate nurses to administer their anesthetics.<sup>9</sup> Surgeons came to observe the surgical techniques and often noticed the proficiency of the nurses administering the anesthetics.<sup>10</sup> Henderson received additional anesthesia training at St. Mary's hospital prior to joining Alice Magaw as nurse anesthetist in the fall of 1904.<sup>11</sup> Henderson may have been hired as an anesthetist, or she may have come in another capacity and then transferred to the anesthetist position.<sup>12</sup> As the number of operations and surgeons at the clinic grew, the number of nurse anesthetists grew proportionately.<sup>13</sup> By 1908 there were four nurse anesthetists and Henderson was named the senior anesthetist.<sup>14</sup> Henderson taught anesthetic technique to nurses who became members of the Mayo staff of anesthetists, as well as visitors to the clinic.<sup>15</sup> The skill of the St. Mary's anesthetists

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<sup>7</sup> Ibid.

<sup>8</sup> Helen Clapesattle, *The Doctors Mayo* (Minneapolis: University of Minnesota Press, 1941), 411-412.

<sup>9</sup> *Sketch and History of the Mayo Clinic and the Mayo Foundation* (Philadelphia: W. B. Saunders, 1926), 92-93.

<sup>10</sup> Thatcher, 60-62.

<sup>11</sup> *Sketch and History*, 92.

<sup>12</sup> Nancy A. Harris and Joan Hunziker-Dean, "Florence Henderson: The Art of Open-Drop Ether," *Nursing History Review* 9 (2001): 163.

<sup>13</sup> The number of operations performed at the Mayo Clinic more than doubled between 1904 and 1908, from 3131 to 6454. *Sketch and History*, 31.

<sup>14</sup> Harris and Hunziker-Dean, 170.

<sup>15</sup> Jeanne Pougiales, "The First Anesthetizers at the Mayo Clinic," *Journal of the American Association of Nurse Anesthetists* 38 (1970): 239.



was renowned with many physicians and nurses traveling to Rochester to be trained in anesthesia. As senior anesthetist, Henderson was in charge of the approximately six months of training these visitors received.<sup>16</sup>

Henderson remained at the Mayo clinic until 1917 during which time she administered more than twenty-two thousand anesthetics. She subsequently moved to California where she administered anesthetics for several surgeons in the Los Angeles area until her retirement in 1923. She authored several publications, spoke at professional meetings, and was active in professional organizations including the Red Cross. During World War I she spent six months at a military base teaching anesthesia to nurses to prepare the nurses for overseas duty.<sup>17</sup> Henderson achieved an unusual degree of professional development, becoming an early leader in the nurse anesthesia profession.

Henderson's anesthetic career in Nebraska was relatively brief, but she received her initial training and experience in Omaha. Little is known of the Clarkson nursing school curriculum during her time as a student, 1898 through 1900, as no permanent records were kept prior to 1909.<sup>18</sup> Nursing training school curricula at the turn of the century were typically informal and based upon learning through apprenticeship.<sup>19</sup> Henderson likely learned anesthetic technique through apprenticeship with the Clarkson surgeon, Dr. John E. Summers, or a nurse serving as the teacher.<sup>20</sup> It is unknown if all nursing students were trained in anesthetics, or if Henderson was selected for the training. The extent of the student nurses' experiences

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<sup>16</sup> Thatcher, 62.

<sup>17</sup> Harris and Hunziker-Dean, 175-178.

<sup>18</sup> Oderkirk, *Learning to Care*, 27.

<sup>19</sup> Philip A. Kalisch and Beatrice J. Kalisch, *American Nursing: A History*, 4<sup>th</sup> ed., (Philadelphia: Lippincott Williams & Wilkins, 2004), 108.

<sup>20</sup> The Clarkson physicians taught much of the nursing curriculum in the early years of the nursing school. Oderkirk, *Learning to Care*, 28-29.

in the various specialty areas of a hospital often differed between students in the turn of the century nursing schools. Student nurses typically comprised almost the entire nursing staff of the hospital that sponsored the nursing school. Institutional needs largely took precedence over the student nurses' learning needs in determining student assignments.<sup>21</sup>

Henderson's training in anesthesia typically would have occurred primarily to meet the need of the hospital surgeon for an anesthetist. Considering her future path, Henderson must have shown an aptitude as an anesthetist that may have impacted her assignment to the anesthetist role.<sup>22</sup> It is unlikely she could have provided all the anesthetics for operations conducted at Clarkson, so other nurses may have participated. Although other Clarkson nurses may have administered anesthetics, only one anesthetist was identified among the early Clarkson graduates. The 1916 Bishop Clarkson Memorial Hospital Annual Report included a summary of the occupations of the ninety-eight graduates of the nursing school through 1915. A single anesthetist in Rochester, Minnesota, presumably Henderson, is listed indicating that if others were trained, Henderson was unique in making anesthesia a career.<sup>23</sup>

#### The Anesthetic Training at Bishop Clarkson School of Nursing

With little documentation of the student nurse experience at Clarkson in the first decade of the twentieth century, it is difficult to reach a conclusion concerning the prevalence of student nurses administering anesthetics. There is evidence that Clarkson nursing students commonly administered anesthetics in the second decade of the twentieth century. A memoir written by Blanche Udey, a 1918 graduate, indicated that student nurses gave anesthetics for all tonsillectomies performed at the hospital. The surgeons were credited with supervising the student nurses during their

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<sup>21</sup> Kalisch and Kalisch, 114-116.

<sup>22</sup> A physician often requested a particular student nurse to continue in a service if he liked her work. *Ibid.*, 114.

<sup>23</sup> Oderkirk, *Learning to Care*, 76.

experiences related to surgery.<sup>24</sup> Almost 600 tonsillectomies a year were performed in 1917-1918, but it is unknown if every student participated in administering anesthetics.<sup>25</sup> The average number of student nurses per class at this time was eleven, allowing for more than fifty anesthetics per student if the tonsillectomies were divided fairly equally.<sup>26</sup> The student nurses' anesthetic experience may not have been limited to the tonsillectomies.

Another 650 surgeries in addition to the tonsillectomies were performed at Clarkson during the year as well.<sup>27</sup> A surgery intern was assigned to Clarkson and usually one of the duties of the intern included the administration of anesthetics.<sup>28</sup> The volume of surgery and the typical surgical intern's desire to learn surgical techniques would make it difficult for one intern to administer all the additional anesthetics. The hospital superintendent or the student nurses may have provided some of these anesthetics. Remembering her experiences in surgery during 1917, Udey wrote "We only had two interns, one on surgery and the other on medicine; so when we were very busy, which was most of the time, the senior nurses helped to fill the gap."<sup>29</sup> The senior nurses were senior student nurses who provided service to the hospital where needed. Anesthetics administered by student nurses were a service to the hospital, but gaining skill in anesthesia was considered important to the student nurse's education as well.

Adequate experience in anesthetics for the student nurses was a priority of the Clarkson superintendent. In 1920 a request by the Clarkson Hospital Superintendent for an affiliation with the University of Nebraska Hospital expressed a desire to "give

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<sup>24</sup> Ibid., 72.

<sup>25</sup> Ibid., 65.

<sup>26</sup> Ibid., 280-282.

<sup>27</sup> Ibid., 65.

<sup>28</sup> Ibid., 72.

<sup>29</sup> Ibid.

our nurses (during) their period of training sufficient work in anesthesia—under supervision—to prepare them for minor emergency cases as in nose and throat work...as they may be called upon to do after their training is finished.”<sup>30</sup> As the number of students per class had not changed during the preceding decade, and assuming the number of operations was stable, the superintendent did not consider 50 anesthetics adequate. The request further stated the Board of Clarkson Hospital wished the medical staff of the University to give an opinion on the advisability of instruction in anesthesia.<sup>31</sup> State and national forces were influencing nursing schools to adopt a standardized curriculum and apparently the leadership at Clarkson was uncertain of the course to take in educating student nurses in anesthetics.<sup>32</sup> An affiliation with the University of Nebraska Hospital was not achieved, and it is not known whether the University medical staff offered an opinion on anesthesia education for the student nurse.

#### Nebraska Schools of Nursing, The First Decades

The first two decades of the twentieth century saw a proliferation of nursing schools in Nebraska with little regulation. There were nine nursing schools located in Nebraska at the beginning of 1900 with the number growing to sixty by 1920.<sup>33</sup> The passing of progressively strengthening legislation related to the licensure of nurses, and the inspection of nursing schools, by the Nebraska legislature resulted in the

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<sup>30</sup> Ibid., 80.

<sup>31</sup> Ibid., 81.

<sup>32</sup> For a discussion of the standardization of nursing education between 1919 and 1927 in Nebraska, see Wendell W. Oderkirk, “Organize or Perish: The Transformation of Nebraska Nursing Education 1888-1941” (Ph.D. diss., University of Nebraska, 1987), 232-254. For a discussion of the national standardization forces, see Gwendoline MacDonald, *Development of Standards and Accreditation in Collegiate Nursing Education* (New York: Teachers College Press, 1965), 46-50, 64-65.

<sup>33</sup> Schools were formed by doctors, hospitals and religious groups with no outside oversight. Oderkirk, “Organize or Perish,” 152, 154.

closure of a large number of these schools. The first legislative nursing registration act was passed in 1909, with revisions in 1915, 1919, and 1927.<sup>34</sup> Thirty-two nursing schools closed in Nebraska prior to 1925 with another twenty closing by 1941.<sup>35</sup> A few additional schools were opened during the 1920's and the number of schools began to stabilize with the increased oversight. There were fourteen nursing schools operating in Nebraska in 1935, and with the 1938 closure of the Evangelical Covenant school, thirteen remained.<sup>36</sup> The number of nursing programs stabilized in approximately 1935 with five of the programs in existence at that time surviving into the twenty-first century.<sup>37</sup>

Little is known of the students, or the curriculum of those schools closed prior to 1925. Nursing leaders and the legislation influenced hospital superintendents in charge of schools to improve record keeping beginning in 1910, but there was no consistent standardization of records until the 1930's.<sup>38</sup> Many hospital based nurse's training schools began keeping student records in large ledgers followed the 1909 legislation. These student ledgers for thirteen schools which closed after 1924 were found in the Nebraska State Historical Society Archives, providing a picture of the student nurse experience in these schools.<sup>39</sup>

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<sup>34</sup> Ibid., 181, 232.

<sup>35</sup> Ibid., 445-448.

<sup>36</sup> Sister Mary John O'Connor, "The Development of the Professional Curricula of the Schools of Nursing in the State of Nebraska" (Master's thesis, Creighton University, 1935), 19. See also Oderkirk, "Organize or Perish", 446 for the closing date of the Evangelical Covenant school.

<sup>37</sup> The BryanLGH College of Health Sciences (Lincoln), Clarkson College (Omaha), Creighton University (Omaha), Nebraska Medical Center (Omaha), and Nebraska Methodist College (Omaha) nursing schools are the only nursing schools in existence before 1930 to have survived to the 21<sup>st</sup> Century.

<sup>38</sup> Oderkirk, "Organize or Perish," 171.

<sup>39</sup> Nurses training school ledgers and student files can be found at the Nebraska State Historical Society Archives (NSHS), Lincoln, Nebr. RG 027.1, SG4, S3, SS1, Box Two, Three, Four and RG 027.1, SG4, S3, SS2. The 13 schools are

The thirteen early Nebraska schools of nursing which had records placed in the Nebraska State Historical Society Archives all closed between 1924 and 1938. An additional six Nebraska nurses training schools failed during this time but do not have records available.<sup>40</sup> The student records were placed with the State after the closure of the schools, where graduates could write to verify their nurses training.<sup>41</sup> The records are missing, or very brief, for the years prior to 1910, and the record is scant prior to the 1920's for several schools. Each student nurse's educational experiences typically were recorded on a two-page ledger format. Student records were initiated on the date the student entered training. Often the students entering a school in the same month would graduate in different years due to either disciplinary actions or a leave of absence. In the discussion of the failed school records below, students are grouped into classes by the year they started training rather than graduation.

There is inconsistency both between the ledgers of the different schools, and between the records of different years in the same school. Frequently the hospital superintendent, who was also in charge of the nursing school, changed every year or two. Many superintendents recorded little beyond the number of lecture hours in the various subjects, and the number of days in the different types of nursing service areas.

A second collection of records was examined to evaluate the curriculum of early Nebraska nurses training schools that did not close during this time period. Student records from most of the nursing schools that remained open through the

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Baily Sanatorium (Lincoln), Beatrice Lutheran, Beatrice Sanatorium, Evangelical Covenant (Omaha), Lincoln Orthopedic, Lincoln Sanatorium, Lord Lister (Omaha), Nicholas Senn (Omaha), Norfolk Lutheran, Omaha Presbyterian, Paxton Memorial, Wise Memorial (Omaha), and York Lutheran.

<sup>40</sup> Oderkirk's "Organize or Perish," 446-448, indicated six additional schools of nursing closed in Nebraska between 1924 and 1938. The schools and the year they closed are: Lincoln Hospital, 1928; Dr. Stewart's (Stratton), 1933; Grand Island General, 1925; Mennonite Deaconess (Beatrice), 1933, Norfolk General, 1927; and Wayne, 1937.

<sup>41</sup> Copies of letters written to verify graduation from the school of nursing are paper clipped to several individual records.

1940's are not available at the Nebraska Historical Society Archives, but reports completed by the superintendents of these schools provide information related to the program of study. The first legislation to impact the regulation of nursing education passed in 1909, and resulted in the first reports filed with the state by the nursing schools.<sup>42</sup> Initially the reports consisted of a single page and the information solicited was primarily related to the administration of the training schools. Filing the training school report with the Nebraska State Board of Health was voluntary, but the thirteen nursing schools to survive after 1938 were the only schools that filed the reports.

The training school report became progressively more detailed and in 1925 it was expanded to include accounts of the curriculum and faculty. Two items added in 1925 were a question that specifically asked if the student nurses were permitted to give anesthetics, and to name the individual in charge of anesthetics. The items remained in the report through 1940 when they were eliminated with another revision. These training school reports filed by the thirteen Nebraska schools of nursing to survive, and eventually become accredited, were reviewed.<sup>43</sup> The final source of evidence reviewed was a 1935 study that detailed the curricula of the Nebraska schools of nursing in operation at that time.<sup>44</sup>

Student nurses attending the Bishop Clarkson School of Nursing were not unique in administering anesthetics during early twentieth century nurses' training in Nebraska. A review of Nebraska student nurse's records, nursing school records, and nursing school reports dating from 1909 through 1940 found in the Nebraska State Historical Society Archives revealed student nurses attending several Nebraska nursing schools administered anesthetics. Anesthesia continued in the curriculum of several schools of nursing until between 1935 and 1940. It is difficult to assess the extent and exact nature of the student nurses' anesthetic education due to the inconsistency in the information recorded within the records. Additionally, no records

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<sup>42</sup> Oderkirk, "Organize or Perish," 180.

<sup>43</sup> NSHS, RG027.1, SG4, S3, SS3, Box one

<sup>44</sup> O'Connor, "Professional Curricula".

are available for many early Nebraska nursing schools. The records that are available disclose a variety of evidence documenting Nebraska nursing schools, both small and large, and located throughout the state, as providing lecture and clinical training in the administration of anesthetics.<sup>45</sup>

#### Anesthesia Lectures in the Nursing Curriculum

A 1935 Master's thesis written by Sister Mary John O'Connor was an examination of the curriculum of the surviving Nebraska schools of nursing. Five of the fourteen Nebraska schools of nursing remaining by 1935 included anesthesia in the curriculum as an addition to the standard curriculum encouraged by the Nebraska Board of Nurse Examiners. The five schools included from three to eight hours of anesthesia lecture in the course of study, usually during the second year of the three year program. The schools found to teach didactic anesthesia lectures to student nurses were the Bishop Clarkson, Evangelical Covenant, St. Catherine, and St. Joseph's Schools of Nursing located in Omaha, and the Bryan Memorial School of Nursing located in Lincoln.<sup>46</sup>

Reports filed with the state by the schools of nursing provide further evidence related to the inclusion of anesthesia in the nursing school curriculum during this period of time. Training school reports were submitted to the Nebraska Board of Nurse Examiners by thirteen of the fourteen schools of nursing studied by O'Connor, with Evangelical Covenant the single exception.<sup>47</sup> The training school report forms were revised and significantly expanded in 1925 with a representative from the Board

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<sup>45</sup> Nurses training school ledgers and student files can be found at the Nebraska State Historical Society Archives (NSHS), Lincoln, Nebr. RG 027.1, SG4, S3, SS1, Box Two, Three, Four and RG 027.1, SG4, S3, SS2. Nursing training school reports filed with the state between 1909 and 1937 can be found at NSHS, RG 027.1, SG4, S3, SS3 Box 1.

<sup>46</sup> O'Connor, "Professional Curricula", 26, 38, 56, 71, and 143.

<sup>47</sup> NSHS, RG 027.1, SG4, S3, SS3, Box one. Evangelical Covenant closed in 1938. Oderkirk, "Organize or Perish," 446.



of Nurse Examiners conducting visits to the schools. Another revision in 1940 reduced the detail contained within the reports which eliminated information on the specifics of the school's curriculums. The training school reports filed by the thirteen surviving schools of nursing, for the years 1925 through 1940, contain additional information on the didactic education of student nurses in anesthesia.<sup>48</sup>

The training school reports for the Bishop Clarkson, St. Catherine, St. Joseph's and Bryan Memorial Schools of Nursing documented the inclusion of anesthesia lectures up to the 1940 reports. This was consistent with O'Connor's research as the schools were four of the five schools found to include anesthesia in their curriculum in O'Connor's thesis. The fifth nursing school identified in the 1935 thesis was Evangelical Covenant, which did not file the training school reports with the Nebraska Board of Nurse Examiners.<sup>49</sup> The Bryan Memorial School first reported anesthesia in the curriculum in 1932, while the other three schools included anesthesia in the revised 1925 report through the 1940 report.<sup>50</sup> Information found in the training school reports indicate that anesthesia was taught in an additional three of the surviving Nebraska schools of nursing during the same approximate period of time.

Training school reports for Lincoln General, located in Lincoln; Nebraska Methodist, located in Omaha; and West Nebraska Methodist, located in Scottsbluff; Schools of Nursing also indicated the schools taught anesthesia for a few years. The

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<sup>48</sup> Ibid. The training school reports were annual reports, but none of the schools were visited, or had reports completed, on a strictly annual basis. For example, reports for Bishop Clarkson (Omaha), Nebraska Methodist (Omaha), St. Catherine (Omaha), St. Joseph's (Omaha), University of Nebraska (Omaha), Mary Lanning (Hastings), and St. Francis (Grand Island) were completed in 1925; the 3 Lincoln schools (Bryan Memorial, Lincoln General, and St. Elizabeth) and Immanuel in 1926, and all 13 schools including St. Joseph's (Alliance) and West Nebraska Methodist (Scottsbluff) in 1927. None of gaps in the reports was longer than 2 years.

<sup>49</sup> Evangelical Covenant was the 5<sup>th</sup> school found to include anesthesia in the curriculum. O'Connor, "Professional Curricula," 38.

<sup>50</sup> NSHS, RG 027.1, SG4, S3, SS3, box one.

information contained in the training school reports for these three schools contrasted with O'Connor's research. The Lincoln General reports first indicated 3 hours of anesthesia lecture in 1932, and the 1933 and 1934 reports stated that anesthesia was taught by the anesthetist.<sup>51</sup> The Bryan Memorial School, also in Lincoln, had begun including anesthesia the same year as the Lincoln General School. The Nebraska Methodist School of Nursing included six hours of anesthesia lecture in 1925, 1927, and 1928, and indicated the anesthetist taught anesthesia in 1931, 1933, and 1934.<sup>52</sup> The 1930 report from the West Nebraska Methodist school was the first from that school to include anesthesia lectures. The 1930 report indicated the nursing students were given 4 hours of anesthesia lectures and the reports in 1931, 1933, 1934, and 1936 all stated the anesthetist taught anesthesia.<sup>53</sup> The later reports from the schools give no indication that anesthesia was taught beyond 1934 at Lincoln General or Nebraska Methodist, and 1936 at West Nebraska Methodist. An explanation for the conflict with O'Connor's thesis could be that the schools had eliminated, or were planning to eliminate, anesthesia from their didactic curriculum by the time O'Connor conducted her research in 1935.

Four Nebraska schools of nursing included anesthesia in addition to the standard curriculum up to 1940 compared to nine schools that did not include anesthesia.<sup>54</sup> The number of Nebraska schools of nursing that did not include anesthesia by 1940 was greater than the number that did, but that was not always the case.

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<sup>51</sup> Ibid. There was no Lincoln General report for 1935.

<sup>52</sup> Ibid. There were no reports for 1926, 1929, 1930, or 1932.

<sup>53</sup> Ibid. The 1932 West Nebraska Methodist report stated the anesthetist "refuses to teach." There was no report for 1935.

<sup>54</sup> Ibid. Immanuel (Omaha), Lincoln General (Lincoln), Mary Lanning (Hastings), Nebraska Methodist (Omaha), St. Elizabeth (Lincoln), St. Francis (Grand Island), St. Joseph's (Alliance), St. Joseph's (Omaha), University of Nebraska (Omaha), and West Nebraska Methodist (Scottsbluff) were the 9 schools which did not include anesthesia lectures.

The majority of the failed Nebraska schools of nursing with records available in the Nebraska Historical Society Archives included lectures on anesthesia in their student records. Ten of the thirteen schools specifically recorded from one to twenty hours of anesthetic lecture for some, or all, student nurses. Unique to the anesthesia lectures, the number of hours of anesthesia lecture often varied among student nurses within a class in a school. For example, five of the second-year nursing students at Bailey Sanatorium in Lincoln had one hour of anesthesia lecture during 1919. Four Bailey student nurses had four hours, two students had two hours, and two students from the same class had no anesthesia lectures.<sup>55</sup> Four third-year nursing students at the Norfolk Lutheran Hospital school had 10 hours of anesthesia lectures in 1924 while two of their classmates had none.<sup>56</sup> Four of the second-year students in the Wise Memorial Hospital school had ten hours of anesthesia lecture during 1923, one student had twenty hours, and two graduated with no anesthesia lectures.<sup>57</sup> An individual student nurse's capability or interest may have determined the number of anesthetic lecture hours taught by the schools.

Grades were rarely recorded for the anesthesia hours in contrast to the other topics taught by the schools. Typically anesthesia was the only area of instruction included in the record that did not have a grade recorded. Although the Evangelical Covenant school in Omaha did not record grades for anesthesia, two student's were marked "failed" next to the anesthesia entries on their record.<sup>58</sup> Evidently an unfavorable assessment was made of the student nurses' anesthetic knowledge and/or ability.

The inclusion of anesthesia lectures, and the number of hours of lecture recorded also varied from year-to-year for the same school in several cases. Five

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<sup>55</sup> NSHS, RG 027.1, SG4, SS2, v. 3, v. 4.

<sup>56</sup> *Ibid.*, v. 20, v. 21, v. 22.

<sup>57</sup> *Ibid.*, v. 34, v. 35.

<sup>58</sup> *Ibid.*, v. 8.

schools; Paxton, Lincoln Sanitarium, Bailey Sanitarium, Norfolk Lutheran, and Nicholas Senn recorded anesthesia lectures for a time, had a gap in the record, and then had records of anesthesia lectures reappear. The Paxton Memorial Hospital school records document the education of students who began nurses' training in the years 1916 through 1926. Although anesthesia lectures are recorded for the 1919 through 1924 classes, the 1922 class is the exception with none recorded. The school closed in 1927 without graduating the classes beginning in 1925 and 1926, neither of which had any recorded anesthesia lectures.<sup>59</sup> It does not appear the lack of an instructor was the reason for the break in the anesthesia lectures. The instructor listed as giving the anesthesia lectures, Dr. Pulver, was listed as lecturing in other subjects for the year in question.<sup>60</sup> A change in documentation may account for the gap in the record rather than an actual variation in the training.

The student records of the Bailey Sanatorium Nursing School of Lincoln date to 1902. Anesthesia was first documented in the curriculum for those beginning the school in 1915. The two following classes, 1916 and 1917, have no record of anesthesia lectures and then each student entering the school between 1918 through 1922 had anesthesia lecture hours recorded. All students for five consecutive classes between 1918 and 1922 had anesthesia lectures recorded, then in 1923 the anesthesia lectures were reduced to two of thirteen students, and finally to none in 1924.<sup>61</sup> Anesthesia was consistently included in the Bailey nurses training from 1918 through 1922 and publicized through literature published by the school.

An informational pamphlet for prospective students was printed by the Bailey Sanatorium Training School for Nurses and included a description of the three-year curriculum.<sup>62</sup> The pamphlet included a listing of graduates from 1904 to 1925,

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<sup>59</sup> *Ibid.*, v. 29. See Oderkirk, "Organize or Perish," 446 for closing date.

<sup>60</sup> *Ibid.*

<sup>61</sup> *Ibid.*, v. 3, v. 4.

<sup>62</sup> The 18 page pamphlet was found loose in NSHS Box Two of RG 027.1, SG4, S3, SS1.

establishing the approximate printing date of 1926.<sup>63</sup> The printed curriculum included twelve hours of Special Lectures in the third year with a choice of three subjects: Anesthesia, Hydrotherapy, and Electrotherapy.<sup>64</sup> Anesthesia had become an elective choice in the curriculum and evidently few in the class beginning in 1923, and none in 1924, made the choice. It is also possible students were not encouraged by faculty to choose the anesthesia elective. The number of anesthesia lecture hours recorded for a student never exceeded four, short of the twelve hours publicized in the pamphlet. Students may not have thought training in anesthesia valuable, or faculty may have discouraged it, but the school presented nurse anesthesia as a viable career to prospective students. The school pamphlet included twenty-five suggested Vocations for Nurses with Anesthetist one of the options.<sup>65</sup>

The curriculum records found for the Nicholas Senn school were the most detailed of the fourteen schools. Typed lists of courses with the corresponding instructors for the years 1912 through 1923 were preserved. The documentation through 1928 then changed to typed curricula with course listings. A faculty roster including courses taught by each individual was recorded beginning in 1920 through 1925. Individual student files were found for students who began training in 1928 through 1932. The 1932 class was the final class accepted prior to the 1935 closure of the school. Anesthesia content was included in these records until the class of 1930 with the exception of two periods of time. The first period included the years 1917, 1918, and 1919, with the second gap occurring in 1922.<sup>66</sup> The relatively thorough records render it unlikely the interruptions were due to a simple lack of documentation.

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<sup>63</sup> Ibid., 14-18.

<sup>64</sup> Ibid., 12.

<sup>65</sup> Ibid., 13.

<sup>66</sup> NSHS Box Three of RG 027.1, SG4, S3, SS1.

The United States was involved in World War I during the years beginning in 1917, and the impact of the war could account for the temporary change in the curriculum at that time. A large number of medical personnel were called to overseas and state-side duty with the entry of the United States into World War I. The physicians teaching the Nicholas Senn nursing students were likely either temporarily out of the state, or standing in for physicians who enlisted during the war. Omaha physicians were actively recruited to war service with “every available medical man that could be spared” enlisting.<sup>67</sup> Two Omaha affiliated medical units, University of Nebraska Base Hospital No. 49 and Omaha Ambulance Company No. 335, were formed in 1917 and demobilized in mid-1919.<sup>68</sup> In the Nicholas Senn course lists for the two years prior to 1917, Dr. Nuckolls taught anesthesia, and Dr. Nuckolls again taught anesthesia in the years immediately following the war. No record of a Dr. Nuckolls is found with the Omaha units, but he may have served through another avenue.<sup>69</sup> In the event Dr. Nuckolls remained in Omaha, other responsibilities could have prevented his teaching in the nurses training. The physicians remaining in Nebraska had to compensate for those physicians who were gone, reducing the amount of time available for nonessential tasks. The school’s commitment to educating student nurses in anesthesia was illustrated by their informational pamphlet, and anesthesia was returned to the post-war curriculum.

The 1922 interruption in the inclusion of anesthesia in the Nicholas Senn nurses training may have been related to the lack of an instructor. An anesthetist was first identified in the school faculty list in 1923. Prior to this, graduate nurses and medical doctors were listed as faculty, a medical doctor had taught the anesthesia lectures, and no one was listed as an anesthetist. Two graduate nurses, 1917 graduates

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<sup>67</sup> Albert F. Tyler, ed., *History of Medicine in Nebraska*, comp. Ella F. Auerbach (Omaha: Magic City Printing, 1928; reprint, Omaha: University of Nebraska Library of Medicine, 1977) 156 (page citation is to the reprint edition).

<sup>68</sup> *Ibid.*, 162-168.

<sup>69</sup> *Ibid.*, 165-166, 171-173.

of the Nicholas Senn school Ada Bulin and Emma Bulin, were included in the 1923 faculty roster and designated as anesthetists. The anesthetist responsibility was in addition to Ada's position of Assistant Superintendent, and Emma's position of Head Nurse on Floors recorded on prior lists. Ada taught several subjects in 1920 through 1922, but first taught anesthesia in 1923. Anesthesia courses prior to 1922 had been taught by a medical doctor, no anesthesia courses were taught in 1922, and 1923 was the first year a nurse taught the course. The following four years beginning in 1924, the curriculum included the description, "Anesthetics, Six lectures. Each nurse to have six ether anesthetics under supervision."<sup>70</sup>

The Lincoln Sanatorium and Norfolk Lutheran records had a pattern similar to the 1922 Nicholas Senn interruption in anesthesia lectures. A nurse first began teaching the anesthesia lectures following a one or two year interruption in the anesthesia lectures, with a physician teaching the anesthesia lectures prior to the interruption. Dr. Harry taught the anesthesia lectures for five classes of the Lincoln Sanatorium School, those classes beginning in 1924 through 1928. Anesthesia was not included for the 1929 class, with anesthesia appearing again in 1930 with a nurse, B. Hoare, teaching the anesthesia lectures.<sup>71</sup> The Norfolk Lutheran Hospital Nurses' Training School records include ten classes, 1918 through 1928. The first three classes, 1918 through 1920, and the last two classes, 1927 and 1928, have no records of anesthesia lectures. Anesthesia lectures taught by Dr. Sigworth are recorded for some student nurses who began training in 1921 and 1922. No anesthesia lectures are recorded for those starting the program in 1923 and 1924, and then anesthesia lectures are again recorded for three of the seven students in the 1925 class and for the entire 1926 class of nine students. A graduate nurse, Miss Pratt, taught the 1925 and 1926 anesthesia lectures.<sup>72</sup>

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<sup>70</sup> NSHS Box Three of RG 027.1, SG4, S3, SS1.

<sup>71</sup> NSHS, RG 027.1, SG4, SS2, v. 10.

<sup>72</sup> *Ibid.*, v. 20, v. 21, v. 22.

Anesthesia training at the Nicholas Senn Nurses Training School began to be phased out after 1928. In 1929 only two of fifteen students were trained and in the final three years of the school, 1930 through 1932, none of the students were trained in anesthesia.<sup>73</sup> Nicholas Senn was one of several nurses' training schools to eliminate anesthesia from their curriculum for a period of time prior to closing.

The records of the Beatrice Lutheran School and the Lincoln Orthopedic Hospital School both contain anesthesia lectures for a brief time. The Beatrice Lutheran records document classes beginning at the school from 1913 through 1932 in three volumes.<sup>74</sup> The third volume with records of the final three classes of the school, 1930 through 1932, is the only to contain a record of anesthesia lectures.<sup>75</sup> Anesthesia lecture hours are included for one Lincoln Orthopedic Hospital class, the class starting in 1922. The records span students starting in 1920 through 1928, but anesthesia lectures are recorded for the 1922 class only.<sup>76</sup> Interestingly, both Beatrice Lutheran and Lincoln Orthopedic documented student nurses administering anesthetics in years other than the years anesthesia lectures were documented.

Three schools consistently included lecture hours in anesthesia during the earlier years of the school and then later appear to stop including anesthesia in their curriculum. The Lord Lister Hospital of Omaha records document students beginning training in 1919 through 1930. Anesthesia lectures were recorded for students in the first three classes, stopping with the 1922 class.<sup>77</sup> The Wise Memorial school records span 1919 through 1928. Students who started training in the years 1919 through 1925 had ten hours of anesthesia lectures recorded, with none recorded for the 1926

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<sup>73</sup> NSHS Box Three of RG 027.1, SG4, S3, SS1.

<sup>74</sup> NSHS, RG 027.1, SG4, SS2, v. 15, v. 16, and v. 18.

<sup>75</sup> *Ibid.*, v. 16.

<sup>76</sup> *Ibid.*, v. 26.

<sup>77</sup> NSHS, RG 027.1, SG4, SS2, v. 11.



through the 1928 classes.<sup>78</sup> The Omaha Evangelical Covenant School of Nursing records included students beginning training in 1916 through 1935. Anesthesia lectures were present in the record through the 1932 class. The last three classes accepted into the school, 1933, 1934, and 1935, did not have lectures in anesthesia.<sup>79</sup>

The dates of the elimination of anesthesia from the didactic curriculum varied between the nursing schools but there was a trend of excluding anesthesia in later years. Nineteen twenty-two was the last year anesthesia was included in the Lord Lister curriculum, 1926 in Wise Memorial curriculum, and 1933 in the Evangelical Covenant curriculum. Four schools discussed excluded anesthesia prior to the closure of the schools as well. Bailey Sanatorium last taught anesthesia in the curriculum in 1923, Paxton in 1924, Norfolk Lutheran in 1926, and Nicholas Senn in 1929. None of the nursing school records included an explanation for the elimination of anesthesia from their curriculum.

#### Are They Permitted to Give Anesthetics?

Lecture hours devoted to the topic of anesthesia could have had several purposes in the education of early Twentieth Century Nebraska nursing students. The anesthesia content may have been related to the preparation of the patient who was to receive an anesthetic, the post anesthetic recovery of patients, or to assisting the anesthetist. The inclusion of anesthesia in the nursing didactic curriculum did not denote conclusively that the student nurses were trained to clinically administer anesthetics. In some instances the anesthesia lectures were likely not necessarily associated with student nurses administering anesthetics, but in some cases Nebraska student nurses did administer anesthetics. The student ledgers and the training school reports found in the Nebraska Historical Society Archives provide evidence related to the clinical training of the nursing students in anesthesia. Several Nebraska schools of nursing that closed between 1925 and 1938, as well as schools of nursing that

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<sup>78</sup> *Ibid.*, v. 34, v. 35.

<sup>79</sup> NSHS Box Two of RG 027.1, SG4, S3, SS1.

survived to become accredited, had student nurses administer anesthetics prior to the mid-1930's.

There is evidence that student nurses attending six of the thirteen Nebraska schools of nursing that closed between 1925 and 1938, and who had student records in the Nebraska Historical Society Archives administered anesthetics during training. Four schools specifically recorded individual student nurses giving a number of anesthetics. These include two schools with limited anesthesia lectures, Beatrice Lutheran and Lincoln Orthopedic, and two schools with no record of anesthesia lectures, Presbyterian of Omaha and Beatrice Sanatorium. Informational pamphlets produced by two additional schools, the Bailey Sanatorium and Nicholas Senn Training Schools for Nurses, advertised the availability of anesthesia training to student nurses attending the schools. These two schools did not record student nurses administering anesthetics, but the Nicholas Senn records in particular are conclusive that student nurses did administer anesthetics. Most schools documented anesthesia in the didactic curriculum while a smaller number left evidence of the clinical training of the student nurses in the administration of anesthetics. It is difficult to draw conclusions related to the nursing student's clinical experiences at most of the schools as little beyond the number of days spent in each service was typically documented in the ledgers.

One student admitted to the Beatrice Lutheran school in 1913 had the notation "Giving Anesthetics June 28 – '15" written on her clinical record. There were no other notations of student nurses administering anesthetics other than the one student in the first class admitted to the school. Anesthesia lectures were first documented for Beatrice Lutheran students from 1930 through 1932, well after the student had graduated.<sup>80</sup> Eight hours of "Practice and Theory in anesthesia" was recorded for two Lincoln Orthopedic students in 1922, while the third student that year had "Lectures only" recorded for anesthesia. The student nurses all had six months of operating room duty recorded, but there were no details of their experiences as was typical of

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<sup>80</sup> NSHS Box Two of RG 027.1, SG4, S3, SS1, v. 18.

the student records from all the schools. The Lincoln Orthopedic student nurses had a relatively detailed account of their 1923 clinical experiences recorded compared to the records of other years.<sup>81</sup> The hospital superintendent, Elizabeth E. H. Moore, recorded next to the days of operating room service the number of operations scrubbed, assisted, and the number of anesthetics given. One record included “anesthetics 23 cases,” another student record had “Anesthetics 27,” and a third had “12 anesthetics given” noted. A fourth student that year had the number of cases scrubbed and assisted recorded, but no anesthetics recorded. Anesthesia lecture hours were not documented for the 1923 Lincoln Orthopedic students, or for any year other than 1922. Moore kept more detailed records of the clinical experiences during her one year tenure compared to the Lincoln Orthopedic superintendents before and after.<sup>82</sup>

The Omaha Presbyterian Nurses Training School records were similar to the Lincoln Orthopedic Hospital training school records. The superintendent of the hospital in 1921 through 1924 wrote a more detailed record of the student nurse’s clinical experiences. One student’s record was marked with the following dates and numbers of anesthetics: “April ‘21, gave 20 anesthetics; May ‘21, gave 15 anesthetics; June ‘21, 33 (anesthetics).” Similar notations were made on the record of two other Presbyterian student nurses for 1922 and 1924.<sup>83</sup> The remaining Presbyterian students had details of the number of surgical cases scrubbed, number of obstetric cases, and the number of medical cases recorded, but there were no anesthetics recorded. A meticulous superintendent was a characteristic of both the Omaha Presbyterian and Lincoln Orthopedic school records that provided the most

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<sup>81</sup> *Ibid.*, v. 26, v. 28.

<sup>82</sup> *Ibid.*, v. 28.

<sup>83</sup> *Ibid.*, v. 31. “anes 5, May ’22, 31 anes, June ’22, 33 anes July ’22, 9 anes August ’22” was written for a student record in the Presbyterian student ledger book. Another student administered anesthetics in the summer of 1924 with the following notes: “6 anesthetics May ’24, 19 anesthetics June ’24, 11 anesthetics July ’24, 6 anesthetics August ’24.”

detailed evidence of student nurses actually administering anesthetics. The documentation was not specific but the records of Beatrice Sanatorium indicated student nurses were administering anesthetics in the late 1920's.<sup>84</sup>

Informational pamphlets printed by the Bailey Sanitarium and the Nicholas Senn Schools both advertised the education of the student nurses in anesthesia. There was no documentation of Bailey student nurses administering anesthetics but there was practically no information related to the student nurses' clinical experiences in the records. The inclusion of Anesthetist as a possible vocation for graduates of the nursing school in the informational pamphlet leads to the supposition that at least some of the Bailey student nurses administered anesthetics during training.<sup>85</sup>

The Nicholas Senn School printed an informational pamphlet for prospective students several years prior to the Bailey school.<sup>86</sup> The list of graduates contained in the Nicholas Senn pamphlet was from the years 1912 through 1919, dating the printing of the pamphlet to approximately 1920. Anesthesia training is discussed in a section describing the lectures and class work. "Each nurse receives instruction, theoretically and practically, in the administration of anesthetics. If she wishes to become an expert anesthetist, she has an opportunity in the Nicholas Senn Hospital."<sup>87</sup> Anesthesia training was highlighted to prospective students as an important element of the nurses' training at Nicholas Senn. The curriculum printed in the pamphlet included 'Anesthesia, Six lectures with practical work.' during the third year. The typed curriculum for 1924 through 1928 found with the student records included "Each nurse to have six ether anesthetics under supervision." The student records did not include any documentation of clinical experiences so the number of anesthetics administered by the student nurses is unknown.

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<sup>84</sup> Ibid., v. 7.

<sup>85</sup> Printed in approximately 1926. Found loose in NSHS Box Two of RG 027.1, SG4, S3, SS1.

<sup>86</sup> Found loose in NSHS Box Three of RG 027.1, SG4, S3, SS1.

<sup>87</sup> Ibid.

Student nurses in at least six of thirteen early Nebraska schools of nursing to close between 1924 and 1938 administered anesthetics prior to 1930. The only record in the case of two of the schools was in the informational pamphlets published by the Bailey Sanatorium and Nicholas Senn schools. Several other schools with considerable documentation of anesthesia lectures also did not document student nurses administering anesthetics. A second group of 6 of the schools documented anesthesia lectures in the didactic curriculum without documenting student nurses administering anesthetics.<sup>88</sup> Four schools left evidence of both anesthesia lectures and administration of anesthetics by students, but only one of the thirteen schools has neither anesthesia lectures nor anesthetic administration recorded.<sup>89</sup> The frequency with which Nebraska student nurses administered anesthetics but with no record of the event is unknown. The Nebraska Board of Nurse Examiners began to gather information concerning the administration of anesthetics by student nurses through the training school reports in 1925. The training school reports filed with the state between 1925 and 1940 by thirteen Nebraska schools of nursing provide further evidence regarding the clinical training of student nurses in the administration of anesthetics.

The 1925 revision of the training school report filed with the Nebraska Board of Nurse Examiners included the addition of questions which specifically addressed student nurses administering anesthetics. The schools of nursing were queried whether student nurses were permitted to give anesthetics and if so, to name the supervisor. The inclusion of the questions in itself is significant and evidence that the Board considered the practice widespread enough to warrant monitoring. Six of the thirteen schools responded in the affirmative to the question “Are they (student

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<sup>88</sup> Evangelical Covenant (Omaha), Lincoln Sanatorium, Lord Lister (Omaha), Norfolk Lutheran, Paxton (Omaha), and Wise Memorial (Omaha) all recorded anesthesia lecture hours, but there is no record of student nurses administering anesthetics.

<sup>89</sup> York Lutheran recorded neither anesthesia lecture hours nor anesthetic administration.

nurses) permitted to give anesthetics?" for at least one year between 1925 and 1931.<sup>90</sup>

There was little correlation between the schools that taught anesthesia lectures and those that permitted student nurses to administer anesthetics. The majority of those with anesthesia in the didactic curriculum did not permit students to administer anesthetics.<sup>91</sup> The St. Catherine and St. Joseph's Schools of Nursing located in Omaha were the only schools to both include anesthesia lectures and to permit student nurses to administer anesthetics. St. Catherine and St. Joseph's student nurses administered anesthetics from 1925 through 1930 although anesthesia remained in the didactic curriculum through 1940. The Immanual and Mary Lanning Schools of Nursing were the only to exclude anesthesia from both the didactic curriculum and clinical experiences.

Four schools of nursing permitted nursing students to administer anesthetics but did not include anesthesia in the didactic curriculum. The four schools included the remaining three Nebraska schools of nursing affiliated with the Catholic church; St. Elizabeth located in Lincoln, St. Francis located in Grand Island, and St. Joseph located in Alliance, and the University of Nebraska school in Omaha the fourth. The St. Elizabeth student nurses were permitted to administer anesthetics through 1928, St. Francis through 1925, and 1928 was the only year St. Joseph of Alliance indicated student nurses gave anesthetics. Student nurses attending the University of Nebraska school continued to administer anesthetics through 1931, the latest of the schools. A University bulletin for the 1931 academic year, the last year student nurses

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<sup>90</sup> NSHS, RG 027.1, SG4, S3, SS3 Box one.

<sup>91</sup> Five schools reported including anesthesia in the didactic curriculum for several years but not permitting student nurses to give anesthetics in the years 1925 through 1940. The schools were; Bishop Clarkson (Omaha), Bryan Memorial (Lincoln), Lincoln General (Lincoln), Nebraska Methodist (Omaha), and West Nebraska Methodist (Scottsbluff).

administered anesthetics, included anesthesia as one of several electives student nurses could choose in the senior year of the program.<sup>92</sup>

The creation of an anesthesia elective course by the University of Nebraska School of Nursing was similar to the Bailey Sanatorium Training School for Nurses anesthesia elective. The elective anesthesia course was quickly followed by the elimination of anesthesia lectures in both of the schools, serving as a transition phase. Another similarity between the failed nursing schools, that closed between 1924 and 1938, and those that became accredited, was the lack of correlation between the didactic anesthesia lectures and of student nurses administering anesthetics. Most of the accredited nursing schools that reported anesthesia in the didactic curriculum, did not report student nurses administering anesthetics. The specific inquiry by the Board of Nurse Examiners pertaining to student nurses administering anesthetics provides strong evidence that students received didactic lectures in anesthesia without administering anesthetics in several of the schools. The Bishop Clarkson School of Nursing was one of the schools, although students in the school prior to 1925 did administer anesthetics.<sup>93</sup> The St. Catherine and St. Joseph's schools in Omaha also continued anesthesia lectures through 1940 even though student nurses last administered anesthetics in the schools during 1930.

#### The Prevalence of Anesthesia Training

The majority of early Twentieth Century Nebraska schools of nursing included some instruction in anesthesia. Twelve of the thirteen failed Nebraska nursing schools with records available, and eleven of the thirteen surviving schools that filed training school reports, recorded evidence of training student nurses in

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<sup>92</sup> Ibid. The 1931 bulletin for the University of Nebraska School of Nursing included the following paragraph: "Courses have been arranged that give students in their senior year experience in one or more special branches of nursing, administrative work, the giving of anesthetics, and additional experience in the Hospital and Dispensary laboratories, in the out-patient, receiving, psychiatric, pediatric, dietary, and physical therapy departments."

<sup>93</sup> Oderkirk, *Learning to Care*, 72, 80-81.

anesthesia. The earliest documentation from the failed schools was in 1912 and the latest was in 1932. Although seven of the failed schools began training student nurses prior to 1912, records dating earlier than 1912 were only available from the Bailey Sanatorium and Wise Memorial schools. The absence of records combined with the limited information found in the available records, particularly in the early records, may be primarily responsible for the lack of documentation prior to 1912. Six of the failed schools recorded student nurses administering anesthetics, with four schools recording evidence in the individual student records and two schools in an informational pamphlet. The failed schools' student nurse ledgers indicate ten of the thirteen schools provided anesthesia lecture hours to student nurses. This was in spite of the fact that anesthesia was not included as one of the thirty-nine areas in which hours of instruction were reported to the Nebraska Bureau of Education and Registration for Nurses. Some of the schools did not file the certificate with the state, but the schools that did generally made no reference to anesthesia lecture hours. Most school superintendents did not document the anesthesia lecture hours on the certificate, even though the lectures were recorded in the student ledgers. Although anesthesia lectures were ignored in most cases, in 1920 the Wise Memorial superintendent added anesthesia to the list of areas of instruction, and recorded the hours on the certificate.<sup>94</sup>

The training school reports included information from the thirteen Nebraska schools of nursing to survive after 1940. Didactic instruction in anesthesia was documented in the training school reports during the entire time span of the revised reports, 1925 through 1940, for three of the surviving schools. Four of the surviving schools that taught anesthesia eliminated anesthesia from the didactic curriculum between 1934 and 1936. The clinical instruction of student nurses administering anesthetics was last documented in 1931 by the University of Nebraska with the St. Catherine and St. Joseph schools ceasing in 1930. The most common period of time to find evidence of student nurses administering anesthetics in both the failed, and surviving schools, was the mid-1920's.

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<sup>94</sup> NSHS, RG 027.1, SG4, SS2, v. 34.



Anesthesia was taught in schools of nursing located throughout the Nebraska. Records were reviewed for a total of twelve Omaha schools, six which failed and six surviving, with all of the schools except the Immanuel Hospital school teaching anesthesia at some time. The six Lincoln schools and eight schools outside of the metropolitan area were also equally divided between those that failed and those that survived. There is evidence that the Lincoln schools all taught anesthesia in some manner between 1915 and 1940. Two schools outside of Lincoln or Omaha, Mary Lanning in Hastings and York Lutheran, were the only small town schools with no evidence of teaching anesthesia in the records reviewed. Anesthesia was included in the curriculum of a wide range of Nebraska schools of nursing.

It was common for Nebraska schools of nursing to include some manner of anesthesia training in the curriculum prior to approximately 1940. Student nurses attending schools of nursing in others regions of the United States were also given some education related to anesthesia, although the practice may have been less pervasive. As the number of operations performed in hospitals increased, student nurses were required to assist in the operating rooms which could include administering the anesthetic.<sup>95</sup> In the 1934 *Chalmers-Francis v Nelson* court case appealed to the California Supreme Court, nurse anesthetist Dagmar Nelson was tried for practicing medicine without a license. A component of her successful defense was testimony that anesthesia was taught in nursing school and the nursing school curriculum mandated by the state of California included anesthetic content.<sup>96</sup>

Several members of the Nurses' Associated Alumnae of the United States discussed the appropriate training of nurses who specialized in anesthesia during the 1909 annual convention. It was reported that the Maine General Hospital had "always considered anaesthetizing as part of the training."<sup>97</sup> A representative of another school

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<sup>95</sup> Kalisch and Kalisch, 132.

<sup>96</sup> Ronald L. Van Nest, "The Life and Trial of Dagmar Nelson-Part 2," *AANA Journal* 74 (2006): 261-263.

<sup>97</sup> Florence Henderson, "The Nurse as an Anesthetist," *The American Journal of Nursing* 9 (1909): 951.

of nursing stated she had been requested to include anesthesia in the course. “I opposed it strongly because I felt it was an injustice to the women. According to my mind there was not opportunity even if we could give them proper instruction.”<sup>98</sup> It was then suggested to “give certain pupils instruction in giving anesthetics.”<sup>99</sup> Several Nebraska schools of nursing appear to have provided anesthesia instruction to selected students, in line with the suggestion. The president of the nurses’ association concluded the discussion: “The nurse who was inclined toward that work might take it up as it has been done, until the happy day comes when we can cover it in our training schools.”<sup>100</sup>

The 1909 president of the Nurses’ Associated Alumnae may have thought including anesthesia training in nurses training a worthy goal, but there was no consensus among nursing leaders. A published course of study of a typical 1918 United States school of nursing did not include anesthesia in the didactic or clinical curriculum.<sup>101</sup> A short section on the administration of anesthesia was contained in a nursing text published in 1916. The 555 page text included five pages of basic information contained in a chapter “Surgical Principles and Procedures.” The introduction articulates the author’s ambivalence toward training student nurses in anesthesia:

The administration of anesthetics is decidedly in the physician’s rather than in the nurse’s province, and nurses should remember that the fact that nurses have been taught to do the work successfully, or that prominent surgeons insist on having a nurse to assist as anesthetist does not make the practice legal for nurses.

However, any nurse may be called to assist in this way in emergency, and nurses are expected to understand something regarding methods of administration and danger signals....Nurses have not sought this responsibility. They have had it thrust upon them and, as before stated, the legality of the procedure has yet to be

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<sup>98</sup> Ibid., 952.

<sup>99</sup> Ibid.

<sup>100</sup> Ibid.

<sup>101</sup> Kalisch and Kalisch, 184-187.

decided. The nurse who undertakes this work treads on dangerous ground, and this fact should never be forgotten.<sup>102</sup>

A small section on general anesthetic agents was included in the third edition of *A Quiz Book of Nursing for Teachers and Students* published in 1919. Four questions related to the basic properties of ether, chloroform and nitrous oxide were covered in one section.<sup>103</sup> Anesthesia content was given greater emphasis in another early nursing text. An analysis of the first three editions of Robb's *Nursing: Its Principles and Practice for Hospital and Private Use*, a popular text published in 1893, 1897, and 1907, was recently presented. Robb's text included a chapter devoted to the administration of anesthesia. The anesthesia content was updated in the revised editions to reflect contemporary anesthesia practice and Harris concluded anesthesia was considered by Robb to be appropriate content for a school of nursing curriculum.<sup>104</sup>

#### Why Teach Anesthesia? Why Stop?

There were multiple factors present in early Nebraska schools of nursing that encouraged the instruction of student nurses in the administration of anesthesia. Student nurses were a cheap source of labor and provided almost all the nursing care in hospitals as few graduate nurses were employed prior to the 1930's.<sup>105</sup> It was not

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<sup>102</sup> Charlotte A. Aikens, *Clinical Studies for Nurses: Text-Book for Second and Third Year Pupil Nurses and a Hand-Book for All Who Are Engaged in Caring for the Sick*, 3d ed., (Philadelphia: W.B. Saunders, 1916), 306-307.

<sup>103</sup> Amy E. Pope and Thirza A. Pope, *A Quiz Book of Nursing for Teachers and Students*, 3d ed., (New York: G. P. Putnam's Sons, 1919), 409-411.

<sup>104</sup> Nancy Harris, "Isabel Hampton Robb: Educating Nurses to Deliver Anesthesia" (paper presented at the annual conference of the American Association for the History of Nursing, Atlanta, Georgia, 23-25 September 2005).

<sup>105</sup> Kalisch and Kalisch, *American Nursing*, 238-239. See also Susan M. Reverby, "Training as Work: The Pupil Nurse as Hospital Machine," *Ordered to Care: The Dilemma of American Nursing, 1850-1945* (Cambridge: Cambridge University, 1987), 60-76.

unusual for a family member of the patient to act as the anesthetist; surgeons were accustomed to untrained personnel administering anesthetics.<sup>106</sup> Willa Cather, a well known Nebraska author, administered at least one anesthetic while a teenager in rural Nebraska during the 1880's. She made calls with the local physician due to an interest in medicine, and administered chloroform to a boy while an amputation of his leg was performed.<sup>107</sup> Student nurses provided anesthetics because the surgeon needed an anesthetist and the student nurse was available. The Bishop Clarkson student nurses administered anesthetics during 1917 as a service to the hospital, one of the ways the student nurses assisted to "fill the gap" when the surgical intern was busy.<sup>108</sup>

The proposal written in 1920 by the Bishop Clarkson superintendent to affiliate with the University of Nebraska reveals another rationale for teaching student nurses to administer anesthetics. A graduate nurse, especially if she took a position in a small hospital, could be asked to administer anesthetics occasionally. The Bishop Clarkson superintendent wished to give the student nurses adequate experience in anesthesia to prepare them for this possibility.<sup>109</sup> Student nurses initially administered anesthesia for the benefit of the hospital sponsoring the nursing school, and later anesthesia training was thought to benefit the student. One Nebraska nurse recalled

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<sup>106</sup> Thatcher, *History of Anesthesia*, 23. See Hull Cook, *50 Years a Country Doctor* (Lincoln, Nebr.: University of Nebraska, 1998), 91, for one example of a husband administering anesthesia to his wife in Nebraska. A 16 year old high school student routinely administered anesthetics during 1910 for a North Dakota surgeon. John S. Lundy, "From This Point in Time: Some Memories of my Part in the History of Anesthesia," *Journal of the American Association of Nurse Anesthetists* 34 (1966): 95.

<sup>107</sup> James Woodress, *Willa Cather: A Literary Life* (Lincoln, Nebr.: University of Nebraska Press, 1987), 52.

<sup>108</sup> Oderkirk, *Learning to Care*, 72.

<sup>109</sup> *Ibid.*, 80-81.

nurses administering anesthetics for surgery in 1950. “I think that most everybody in nurses training had some kind of (anesthesia) training.”<sup>110</sup>

Anesthesia training may also have been a recruitment tool for some of the schools as the number of schools proliferated. After the surge of women who entered nurses training during World War I, it was difficult for schools of nursing during the 1920’s to fill their classes. The hospital sponsoring a nursing school was dependent on student nurses to provide nursing care, and the schools began to compete for the more qualified students.<sup>111</sup> The informational pamphlets printed in the 1920’s by two Nebraska schools of nursing, Bailey Sanatorium and Nicholas Senn, advertised anesthesia training for the student nurses. “If she wishes to become an expert anaesthetist, she has an opportunity in the Nicholas Senn Hospital.”<sup>112</sup> There were few opportunities prior to the 1930’s for graduate nurses to obtain hospital employment. The schools, motivated by the cheap labor the student nurses provided, produced more graduates than there were jobs available. An anesthetist position was one of a few institutional positions available to a graduate nurse with most struggling to survive by finding private duty work.<sup>113</sup> The schools promoted anesthesia as a possible career to prospective students, possibly to support their enrollment numbers.

Several unrelated factors could have played a role in the eventual phasing out of anesthesia education in the Nebraska schools of nursing. The National League of Nursing Education (NLNE) published a Standard Curriculum for schools of nursing in 1917 that was revised in 1927 and 1937. The Standard Curriculum was prescriptive which allowed little variation between schools in the interpretation of the

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<sup>110</sup> Lois O’Nele of Lincoln, Nebraska, interview by author, 14 August 2006, Lincoln, Nebraska, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>111</sup> Kalisch and Kalisch, *American Nursing*, 222-224.

<sup>112</sup> Found loose in NSHS Box Three of RG 027.1, SG4, S3, SS1.

<sup>113</sup> Susan M. Reverby, “Nursing as Work: Divisions in the Occupation,” *Ordered to Care: The Dilemma of American Nursing, 1850-1945* (Cambridge: Cambridge University, 1987), 95-117.

curriculum.<sup>114</sup> Nebraska nursing leaders encouraged the schools to adopt the NLNE curriculum following the lead of national forces.<sup>115</sup> The Standard Curriculum did not include anesthesia, and while the schools were free to add anesthesia content, the exclusion discouraged anesthesia education.

Another important factor was the increased complexity in the administration of anesthesia with the introduction of nitrous oxide and anesthesia machines. The administration of open-drop ether anesthetics was relatively simple compared to the new technology of the anesthesia machines. The new techniques were not safe in unskilled hands and more difficult to learn.<sup>116</sup> It has been proposed that nurse anesthetist Florence Henderson retired in 1923 at age 49 partially due to the increased complexity of the new technology. She had considered herself an ether specialist and found the new anesthesia machines complicated.<sup>117</sup> New methods of anesthesia administration were required as new anesthetic gases were introduced into clinical practice. Ethylene was introduced in 1923, cyclopropane in 1930, and divinyl ether in 1931.<sup>118</sup> The new agents and techniques were soon adopted in several Nebraska hospitals.<sup>119</sup> Cyclopropane “should be handled with the utmost care by a well-trained

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<sup>114</sup> MacDonald, *Development of Standards*, 65.

<sup>115</sup> Oderkirk, “Organize or Perish,” 284-285.

<sup>116</sup> D. A. Buxton Hopkin, “Open Drop Ether Versus Relaxant Techniques in Obstetrics,” in *Anaesthesia: Essays on Its History*, ed. Joseph Ruprecht, Marius Jan van Lieburg, John Alfred Lee, and Wilhelm Erdmann (Berlin: Springer-Verlag, 1985), 95-98.

<sup>117</sup> Harris and Hunziker-Dean, “Florence Henderson,” 179.

<sup>118</sup> Howard Riley Raper, *Man Against Pain: The Epic of Anesthesia* (New York: Prentice-Hall, 1945), 191-197.

<sup>119</sup> It was reported in the 1925 Bishop Clarkson training school report that a “new gas machine for OR” was an improvement for the past year. The 1931 training school report by St. Elizabeth stated that nitrous oxide and ethylene anesthetics were used. Immanuel Hospital obtained a gas machine that was used to administer nitrous-oxide and oxygen in the mid-1920’s, and subsequently ethylene and cyclopropane

anesthetist who has taken the considerable time and effort necessary to master the technique of its administration” was one recommendation pertaining to the new anesthetics.<sup>120</sup> It was becoming impossible for a school of nursing to provide the training necessary in the expanding subject of anesthesia.

Information describing the anesthetic experience of the University of Nebraska student nurses gives some indication of one reason the clinical anesthesia training of nursing students ceased there. A note written on the 1930 University training school report stated the student nurses only administered anesthetics during the summer, when medical students were not present. It was also noted that few general anesthetics were given as spinal anesthetics were used whenever possible.<sup>121</sup> Typically the surgeon administered the spinal anesthetics. There were few opportunities for the student nurses to obtain clinical experience in general anesthetics and anesthesia training was soon eliminated.

Post-graduate training programs in anesthesia began to be offered and promoted as the appropriate avenue for anesthesia training rather than training during a nursing program. Aikens in her nursing text proposed “Postgraduate training under a competent instructor, continued for several weeks or months, is necessary for the nurse who expects to become an anesthetist.”<sup>122</sup> Some of the Nebraska nurse anesthetists identified in the 1925 through 1940 training school reports obtained post graduate anesthesia training. There were no anesthesia programs in Nebraska, so several of the nurse anesthetists were trained outside of Nebraska.<sup>123</sup> Other nurses

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were used at Immanuel. Marie Anderson, “Article by Myself,” Marie Anderson Collection, Evangelical Lutheran Church of America Archives, Chicago, Ill.

<sup>120</sup> Ibid, 196.

<sup>121</sup> NSHS, RG 027.1, SG4, S3, SS3 Box one.

<sup>122</sup> Aikens, *Clinical Studies*, 307.

<sup>123</sup> Ibid. The following nurse anesthetists were listed as receiving post graduate training in anesthesia. The name of the nurse, year of report, and the site of anesthesia training are listed for each nursing school that included the information. Bryan Memorial: Miss D. Bredenburg, 1931 & 32, Lakeside Cleveland; M. Parrish,

identified as anesthetists had no post graduate training listed on the form, which may have been an oversight.<sup>124</sup> In at least two instances, the nurse anesthetists had received post graduate training that was not included in the training school reports. Sr. Mary Kevin Corcuran of St. Catherine's has no post graduate training listed in the training school reports, but she attended a six month post graduate course at St. Mary's Hospital in Rochester, Minnesota in 1925.<sup>125</sup> Sr. Marie Anderson of Immanuel Hospital also had anesthesia training that was not included in the training school reports.<sup>126</sup>

Post graduate training programs for nurse anesthetists were supported by the fledging professional organization, the National Association of Nurse Anesthetists.

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1933, Sokinde (sp); Miss Vera Anderson, 1934, Grace Hospital New York; Dolly Bennett, 1936, Barnes Hospital, St. Louis; Mrs. Manzer Tomsik, 1937, Ravenswood Hospital; Bishop Clarkson: Agnes Hain, 1925, 27, 28, 30, 31, 32, 34, 35, 36, 37, 40, Northwestern Hospital, Minneapolis, Minn.; Lincoln General: Barbara Huxtable, 1927, Grad Falls Sanitarium, Beatrice, Nebr.; Marguerite Leosing, 1928, 30, 31, 32, 36, Augustana Hospital, Chicago; Bernice Hoare, 1928, 30, 31, 32, 36, Augustana Hospital, Chicago; Mary Lanning: Olga Peterson, 1934, 35, 37, Grace Hospital, Detroit; St. Elizabeth: Ellen Brogan, 1931, 34, 37, Grace Hospital and with McCurdy, Chicago; Sr. Asella, 1927, 28, 37, Mayo Clinic; St. Francis: Helen Seni, 1939, St. John's Hospital, Springfield, Ill., West Nebraska Methodist: Harriet O'Donnell, 1930, 31, 32, University of Pennsylvania; Ada Kemp, 1933, 34, Lakeside Hospital, Cleveland; Amy Bird, 1937, Presbyterian, Chicago .

<sup>124</sup> Ibid. The following nurse anesthetists did not have post graduate training listed. Bryan Memorial: F. Parks, 1930; Immanuel Hospital: Mabel Owens, 1933, 35; Lincoln General: Olga Schreiber, 1926; Mary Lanning: Edythe Merritt, 1925, 32; Charlotte McKenzie, 1927, 28; Nebraska Methodist: Claire Wisner, 1925; May Schaffer, 1927, 28, 31, 32, 35; Lucile Crosswall, 1927; St. Catherine's: Sr. M. Scholastica, 1930; Marcella Brich, 1932, 33, 34, 40; Kathryn Svoboda, 1932; Sr. M. Therese Bannon, 1937; Sr. Rose Ellen, 1939; St. Elizabeth; Sr. Mathildus, 1926; Anna Breznia, 1926, 27; St. Francis: Sr. Asella, 1925; Sr. M. Sarah, 1927, 28; Jessie Tvrs, 1927, 28, 32, 34; St. Joseph: Sr. Chrysentia, 1927, Sr. Mary Adelberta Reiche, 1928; Sr. Bonitia, 1928; Sr. M. Benedicta, 1930; Elizabeth Dugan, 1932, 33, 37, 39; West Nebraska Methodist: Florence Sonnichsen, 1927, 28; Florence Hollingsworth, 1929, Mildred Herker, 1932; Straudia Brown, 1936.

<sup>125</sup> Sr. Mary Kevin Corcuran file, Sister's of Mercy Archives, Omaha, Nebr.

<sup>126</sup> See pp. 43-64 above.



When the organization was formed in 1931, one of the primary objectives was to standardize the education of nurse anesthetists.<sup>127</sup> A primary requirement for membership in the professional organization was specialized anesthesia training.<sup>128</sup> Nebraska nurse anesthetists in 1936 formed the fourteenth state association to affiliate with the national organization.<sup>129</sup> Nebraska nurse anesthetists who had obtained post graduate training, and/or were members of the professional organization, were unlikely to support the training of nursing students in anesthesia within their hospital. The professionalization of nurse anesthesia discouraged including anesthesia in the curriculum of the nursing schools.

The original Training School ledgers reviewed from the Nebraska Nurses' Training Schools provided specific primary evidence that student nurses administered anesthetics while student nurses in several Nebraska hospitals. The Training School Reports revealed similar findings, with additional evidence provided by individual records and memoirs of Nebraska student nurses. There were multiple factors that promoted the training of Nebraska student nurses in the administration of anesthesia, and multiple factors that led to the abandonment of the practice. Post-graduate training programs were first developed in other areas of the United States, and eventually in Nebraska, with the elimination of anesthesia content from the basic nursing school curriculum between 1930 and 1940.

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<sup>127</sup> Bankert, *Watchful Care*, 76-77, 80-81.

<sup>128</sup> Thatcher, *History of Anesthesia*, 186.

<sup>129</sup> Bankert, *Watchful Care*, 207.

## CHAPTER 4

## THE ESTABLISHMENT OF POST GRADUATE TRAINING

A small number of nurses were trained in the delivery of anesthesia through apprenticeship methods between approximately 1885 and 1910. These nurses began to specialize in anesthesia and often informally trained other nurses. Some nurses who were trained during their basic nurses' training in anesthesia may have also chosen to specialize in anesthesia. A few post graduate training programs began to be developed within hospitals in the United States between 1910 and 1930, but there was no consistency between the programs. Early nurse anesthesia leaders organized a professional organization in 1931 with a primary goal of promoting the standardization of post graduate training for nurse anesthetists. The professional organization, the American Association of Nurse Anesthetists (AANA) was instrumental to achieving greater consistency in nurse anesthesia education. An accreditation program was instituted by 1952, leading to steady growth in the number of nurse anesthetists trained in the United States during the next twenty years. The AANA continued to accredit nurse anesthesia programs and to set the standards for the education of nurse anesthetists until 1974.

## The Genesis of Nurse Anesthesia Training Courses

An assortment of specialty post graduate courses for nurses began to be offered by hospitals in the United States early in the twentieth century. The courses emphasized various aspects of nursing work but were often created to provide needed service to the hospital.<sup>1</sup> Post graduate courses specializing in anesthesia training for nurses began to be developed around 1910 in the United States. Thatcher documents the establishment of four programs between 1909 and 1914.<sup>2</sup> The 1917 entry of the

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<sup>1</sup> Philip A. Kalisch and Beatrice J. Kalisch, *American Nursing: A History*, 4<sup>th</sup> ed. (Philadelphia: Lippincott Williams & Wilkins, 2004), 180-182.

<sup>2</sup> The four programs were St. Vincent's Hospital in Portland, Ore. established in 1909, St. John's Hospital in Springfield, Ill. established in 1912, New York Post-Graduate Hospital in New York City established in 1912, and the Long Island College Hospital in Brooklyn established in 1914. Virginia S. Thatcher, *History of*

United States into the first World War resulted in a marked increase in the demand for trained nurse anesthetists and the subsequent establishment of a relatively large number of training programs. The armed forces also began to train nurses as anesthetists for the first time. Many of the anesthesia programs that began during this time, similar to other post graduate nursing courses, were focused on meeting the sponsoring hospital's need for anesthesia personnel, with the educational needs of the student secondary.<sup>3</sup>

The initial four nurse anesthesia programs were soon augmented by an additional sixteen post graduate nurse anesthesia training programs that came into existence between 1915 and 1920 as documented by Thatcher. The four earlier programs were all six months in length but the later programs ranged from three to six months duration.<sup>4</sup> The training was primarily through apprenticeship with the inclusion of variable amounts of theoretical content depending upon the inclination and aptitude of the head of the program. There were no standards to be met in order to claim the designation of School of Anesthesia. Often a program first began with an individual nurse asking to be taught anesthesia by a nurse anesthetist at a hospital. The informal apprenticeship of one or two nurses subsequently was developed into an ongoing course. Some hospitals provided an organized program of study, but the quality of instruction varied and was primarily dependent upon the abilities of the individual nurse anesthetists who began the training programs.<sup>5</sup>

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*Anesthesia: With Emphasis on the Nurse Specialist* (Philadelphia: Lipincott, 1953) 95.

<sup>3</sup> Ibid., 96-97.

<sup>4</sup> Hospitals with anesthesia courses identified by Thatcher were Barnes, St. Louis; Charity, New Orleans; Evanston, Evanston, Ill.; Grace, Detroit; Johns Hopkins, Baltimore; Lakeside, Cleveland; Presbyterian, Chicago; St. Anthony's, Chicago; St. Joseph's, Chicago; St. Joseph's, Tacoma, Wash.; St. Mary's, Milwaukee; St. Mary's, Minneapolis; St. Vincent's, Worcester, Mass.; University of Michigan, Ann Arbor; Vassar Brothers, Poughkeepsie, New York; and Washington Park, Chicago. Ibid., 103-107.

<sup>5</sup> Ibid.

Post graduate nursing courses, including anesthesia courses, continued to proliferate in the United States in the decade following World War I. There was no regulation of the courses, and no official body to track the courses. The American Nurses' Association (ANA) published a list of schools of nursing accredited by the State Board of Nurse Examiners in the same time period. The schools of nursing were accredited to provide basic nursing education leading to the qualification necessary for a registered nurse (RN). A listing of post graduate courses extended by the accredited schools of nursing was included in the 1924 and 1928 publications.<sup>6</sup> The State Boards of Nurse Examiners did not accredit the post graduate courses, but compiled the list of courses voluntarily provided by the sponsoring institutions. In 1924, ninety-three hospitals in twenty-four states and the District of Columbia, reported a variety of post graduate courses ranging from two weeks to fifteen months duration.<sup>7</sup> Anesthesia was not one of the eight categories of post graduate courses in the 1924 table of the over 160 courses, but anesthesia along with several other services were typed into the list.<sup>8</sup>

Sixteen hospitals with anesthesia courses were identified in the 1924 ANA list, with seven of the courses also identified by Thatcher as existing prior to 1920.<sup>9</sup> The hospitals with anesthesia courses were located in ten states and the District of Columbia. Four of the courses were located in Chicago, the largest geographic

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<sup>6</sup> Copies of the publications were found in the Nebraska State Historical Society Archives (NSHS).

<sup>7</sup> Eight hospitals did not report a length for their courses.

<sup>8</sup> The identified eight categories were written as abbreviations: Chil., Com., Diet., Med., M.&N., Obs., OpR., and Sur. Also typed into the table were additional categories: T.B., Anesthesia, Laboratory Technic, X-Ray, All services, General services, Soc. Serv., Field work in public health, Hydrotherapy & Massage, Radiology, and Instructing. 'All services' may have included anesthesia, but only hospitals that specifically identified anesthesia were counted as offering a post graduate anesthesia course.

<sup>9</sup> See APPENDIX J.

concentration. Michigan and New York both had two courses offered within the state with a single course in seven other states and the District of Columbia.<sup>10</sup> The courses ranged from one to fifteen months long, but ten of the sixteen were between three and six months. St. Vincent's Hospital in Portland, Oregon and St. Joseph's Hospital in Tacoma, Washington were the only courses shorter than three months. The courses may have actually been three to six months, as a range of months was given for the two northwest courses. The duration of the St. Vincent's course was listed as one to four months and the St. Joseph's course was from one to three months. The courses at Providence Hospital in Washington D.C. and Grace Hospital in Detroit did not have a length indicated.

The overall list of post graduate nursing courses compiled by the ANA for 1928 had grown considerably in four years. The list included 132 hospitals in thirty states and the District of Columbia, offering more than 300 courses for graduate nurses in numerous specialty areas. The length of the courses, when indicated, was reported in weeks and ranged from one week to sixty weeks. The number of anesthesia courses had grown proportionately and the anesthesia category was no longer an addition to the table. Anesthesia was one of seventeen categories of courses in the table with several additional categories again typed into the table under Miscellaneous.<sup>11</sup>

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<sup>10</sup> The seven hospitals with anesthesia courses identified by both Thatcher and in the 1924 ANA publication were: Barnes, St. Louis; Charity, New Orleans; Grace, Detroit; St. Joseph's, Chicago; St. Joseph's, Tacoma, Wash.; St. Vincent's, Portland, Ore.; and Washington Park, Chicago. See appendix 5 for a complete list of the anesthesia courses.

<sup>11</sup> The 17 categories in 1928 were: General Medical, Pediatric, Communicable, Tuberculosis, Psychiatric and Neurological, General Surgical, Gynecological, Orthopedic, Op. Room Tech., Obstetric, Anesthesia, Out Pt. Dept., Laboratory, X-ray, Dietetics, E.E.N.T. and Administration. Typed under Miscellaneous were: Electrotherapy, Public Health, Physical therapy, Prin. Of Nursing Ed., Teaching Supervision, Physiotherapy, Heliotherapy, General course, Supervision, and Occupational therapy. Some hospitals indicated "Any course and for any length of time depending upon the individual need" or a similar statement.

Thirty-eight hospitals located in fourteen states reported offering anesthesia courses from six to sixty weeks long. The majority of the courses were from twelve to twenty-four weeks long, one course was six weeks, and five were between thirty-two to sixty weeks. The courses were again geographically concentrated in Chicago, with Philadelphia a second city of concentration. Almost forty percent of the anesthesia courses documented in the 1928 ANA publication were offered in the two cities, nine by Chicago hospitals and five by Philadelphia hospitals.<sup>12</sup>

In the four years between 1924 and 1928, five post graduate anesthesia courses were eliminated from the ANA list while eleven were listed in both years. Twenty-seven, the majority of the 1928 courses, were new compared to 1924. It is unknown if the twenty-seven were all newly formed courses or if they had failed to be reported to the ANA prior to 1928. A review of other documentation of early anesthesia courses indicated the ANA list of post graduate anesthesia courses was incomplete, but the extent is difficult to assess. Anesthesia courses were offered during 1924 at St. John's Hospital in Springfield, Illinois and Lakeside Hospital in Cleveland, Ohio.<sup>13</sup> Neither hospital was listed in the ANA publications as offering an anesthesia course, although both hospitals were included with other post graduate courses for nurses by the ANA in 1924. In 1924 St. John's Hospital in Springfield, Illinois offered courses of four to six months in X-Ray, Lab., Diet., and Obs.; in 1928 Obstetric, Laboratory, and X-ray courses were offered but Anesthesia is not listed in either year. In 1924 Lakeside Hospital in Cleveland offered a four month course in OpR.; it is conceivable that this may have been an anesthesia course. Thatcher reported that the anesthesia course at Lakeside had been reduced to four months in World War I and since anesthesia was not a predetermined choice in 1924 list published, a hospital administrator may have chosen operating room as the closest category. Lakeside Hospital was not in the 1928 list for any postgraduate courses.

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<sup>12</sup> See APPENDIX K.

<sup>13</sup> See Thatcher, *History of Anesthesia*, 95-96 for the St. John's Hospital course, and 105-107 for the Lakeside course.

Undoubtedly there were other anesthesia courses that failed to be included in the ANA publications.

#### Inconsistency in Post Graduate Anesthesia Training

The growing demand for trained anesthetists during, and following, World War I provided the basis for the expansion in post graduate anesthesia training programs, some of high quality and some poorly designed. Hospital administrators, surgeons, and nurse anesthesia leaders were all interested in differentiating the well trained nurse anesthetist. Local and state organizations of nurse anesthetists began to be formed in the 1920's with a variety of objectives.<sup>14</sup> Agatha Hodgins, a nurse anesthetist leader of the Alumnae Association of the Lakeside School of Anesthesia in Cleveland, initiated the formation of a national professional organization in 1931.<sup>15</sup> The constitution of the fledgling organization outlined six objectives. The second objective included the development of educational standards.<sup>16</sup>

Standardization of post graduate anesthesia training programs through accreditation was a primary goal of Hodgins and the professional organization that eventually became the American Association of Nurse Anesthetists (AANA).<sup>17</sup> An education committee appointed in 1934 by the AANA was charged with preparing a standard curriculum for nurse anesthesia training programs. There was also discussion concerning the appropriate avenue to approve, or accredit, training programs that met the minimum requirements as determined by the education

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<sup>14</sup> Thatcher, *History of Anesthesia*, 181-182.

<sup>15</sup> The organization was known as the National Association of Nurse Anesthetists until October, 1939 when the name was changed to the American Association of Nurse Anesthetists. *Ibid.*, 234.

<sup>16</sup> *Ibid.*, 184-186.

<sup>17</sup> Agatha Hodgins, "The Nurse Anesthetist," *American Journal of Nursing* 30 (1930): 863.

committee.<sup>18</sup> The realization of the accreditation goal was to take some time with the economic depression of the 1930's, and World War II, key factors that acted to slow progress.

Educational standards were established at the organizational meeting of the AANA in 1931, and these standards were strengthened and revised in 1935 by the education committee.<sup>19</sup> The difficulty was first in publicizing the standards, and second in compelling those in charge of the anesthesia programs to comply with them. The medical director of a Philadelphia hospital summarized his view of the educational system for nurse anesthetists in 1935:

I do not know that anybody knows, I am sure that I do not, whether there are any recognized standards for nurse anesthetist training. I know that here in Philadelphia there are several institutions offering courses in anesthesia. These schools have come into being like some hospitals. Somebody has simply conceived the idea that it would be a good thing to establish a school. Usually this is done because more persons are needed in the operating room and the hospital has not the money to pay for them. So the school is drawn up on a mimeographed form and, lo and behold, some Monday morning it is in existence....

...schools vary over the country almost as in their number in effectiveness of training, in supervision of actual work performed and even in the extent of the experience given.<sup>20</sup>

Although concerned about the state of nurse anesthesia education, the medical director of a prominent hospital was not aware of the standards that had been developed by nurse anesthesia leaders. This illustrated the first challenge to the adoption of the standards. The medical director also acknowledged the second

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<sup>18</sup> Thatcher, *History of Anesthesia*, 215-219.

<sup>19</sup> Report of the National Commission on Nurse Anesthesia Education, "A Brief Historical Context of Nurse Anesthesia Education: Introduction," *Journal of the American Association of Nurse Anesthetists* 58 (1990): 390. For a detailed description of the revised curriculum see Report of Educational Committee, by Helen Lamb, chairman, *Bulletin of the National Association of Nurse Anesthetists* 4 (1936): 56-65.

<sup>20</sup> Joseph C. Doane, "Essentials in the Training of Nurse Anesthetists," *Bulletin of the American Association of Nurse Anesthetists* 3 (1935): 8-9.



challenge, persuading hospitals to change "...because hospitals are inclined to take the easiest way."<sup>21</sup> The leadership of the AANA contemplated the difficulties, proposing "...if we establish an accrediting committee that we should invest great authority in that committee and that it should be a potent committee."<sup>22</sup>

### National Qualifying Exam

A movement to appoint a National Examining Board with the authority to grant membership in the professional organization gained momentum in the later years of the 1930's. The leadership of the Education Committee proposed that applicants would be required to complete an approved nurse anesthesia training program in order to be eligible for the national certifying examination. The potency of the Education Committee, and the proposed National Examining Board, would lie in the value given to membership in the professional nurse anesthetist organization. It was imperative that the nurse anesthesia community, as well as the greater medical community including surgeons and hospital administrators, recognize professional membership as the highest mark of competence. The time and expense of obtaining state legislative recognition for nurse anesthetists from each of the states was thought to be unworkable. A National Examining Board, while not holding any legal authority, would be able to promote consistency in the educational programs relatively quickly.<sup>23</sup> The initial action of the Education Committee toward approving the training programs was to gather information from those already in existence.

The AANA's first list of nurse anesthesia schools had been compiled in 1937.<sup>24</sup> The list consisted of seventeen schools, and the recorded information

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<sup>21</sup> Ibid., 12.

<sup>22</sup> Thatcher, *History of Anesthesia*, 223.

<sup>23</sup> Ibid., 224, 226-227.

<sup>24</sup> Ibid., 232.

included the name of the sponsoring hospital, the city, and state.<sup>25</sup> There was no reference to the listing of post graduate anesthesia courses during 1924 and 1928 by the ANA in the AANA materials or in Thatcher's *History of Anesthesia*. The AANA leadership may have been unaware of the ANA publications or may not have considered it valuable. In January of 1939, questionnaires were sent to 106 hospitals in the United States by the AANA Education Committee. The aim of the questionnaire was to create a picture of the nurse anesthesia schools as they functioned at that time.<sup>26</sup> The 1939 survey revealed that thirty-nine courses located in eighteen states were training approximately 263 Graduate Nurse Anesthetists annually. The Education Committee report detailing the survey results noted the "...striking feature of the survey...is the great variation presented..."<sup>27</sup>

The length of the courses varied from four months to two years, but thirty-five of the thirty-nine were between six and twelve months duration. Almost half of the courses were six months long, producing sixty percent of the annual graduates.<sup>28</sup> The average length of the courses was increased compared to the data reported in the 1920's by the ANA, when most of the courses were between three and six months long. In the 1935 revision of the education standards, the length of an approved anesthesia course had been increased from four to six months.<sup>29</sup> All but one of the courses met the new standard by 1939. Similar to the 1920's ANA data, a large number of courses were located in the states of Illinois, with seven, and Pennsylvania, with four. The states of New York and Massachusetts also had four courses in each

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<sup>25</sup> "Original Schools List Compiled November 1937," AANA Archives, American Association of Nurse Anesthetists, Chicago, Illinois, Education Committee Collection.

<sup>26</sup> *Ibid.*, 233-234.

<sup>27</sup> "Report read at Toronto 1939" by Helen Lamb, Chairman, AANA Archives.

<sup>28</sup> *Ibid.*

<sup>29</sup> "Report of the National Commission," 390.

state. It was noted in the report that factors "...such as the scope, variety and activity of the surgical service within the teaching institution, the number of students enrolled in the course during one time, the intensiveness of the didactic system, and many other factors..." were important to the educational experience. The next step was a plan for an association member to visit, or inspect, the active schools to gather more detailed information. More careful study of the issues was recommended in order that appropriate guidance could be given to promote "...progressive developments..."<sup>30</sup>

Progressive development of the schools was impeded by events resulting from the involvement of the United States in World War II.<sup>31</sup> Once again the war precipitated a shortage of nurse anesthetists, as well as the initiation of training programs primarily motivated by the desire to obtain the service of student nurse anesthetists rather than the desire to educate. Onsite visits to twenty-three Schools of Anesthesia were conducted by members of the AANA by the later part of 1942.<sup>32</sup> The purpose of the visits was to gather information from the Schools, but this was misunderstood by some of the Schools. Some of the school administrators thought the visitors were gathering information to accredit the schools.<sup>33</sup> The Education Committee continued to work toward the development of an accreditation program and the information from the visits provided a basis from which to proceed. The challenge was in balancing the need to train nurse anesthetists quickly to meet the war time demand with the need to improve the consistency and quality of nurse anesthesia education.<sup>34</sup>

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<sup>30</sup> "Report Read at Toronto."

<sup>31</sup> Thatcher, *History of Anesthesia*, 242.

<sup>32</sup> "Report of the Educational Committee," Gertrude Fife, Chairman, *Bulletin of the American Association of Nurse Anesthetists* 10 (1942): 249-253. Twenty additional schools were listed that had not been visited.

<sup>33</sup> *Ibid.*, 252-253.

<sup>34</sup> Marianne Bankert, *Watchful Care: A History of America's Nurse Anesthetists* (New York: Continuum, 1989), 113.

The 1943 Education Committee report described the year as "...one of flux."<sup>35</sup> The goal of raising the level of nurse anesthesia education became a goal of "...defending the important gains that have been heretofore achieved in the standards of our education..."<sup>36</sup> The Army trained approximately 600 nurse anesthetists between the end of 1941 and 1945. The training became abbreviated to meet battle front needs as the war intensified, varying from three to six months.<sup>37</sup> Anesthesia training for physicians was abbreviated in a similar fashion. Beginning in early 1942, the armed services sponsored twelve-week anesthesia courses for physicians with no prior anesthesia experience.<sup>38</sup> The shortened duration of training was considered a regression, but the war had a positive effect on nurse anesthesia education as well. The increased governmental awareness of the importance of nurse anesthesia service resulted in the inclusion of nurse anesthesia education in the Bolton Act. A provision in the act allowed nurses attending civilian nurse anesthesia educational programs to receive governmental funding. Throughout the war years the AANA remained firmly committed to establishing educational standards and to the accreditation of the schools of nurse anesthesia.<sup>39</sup>

The onsite visits to the schools were suspended in 1944 due to the war, effectively placing the accreditation process on hold.<sup>40</sup> The AANA Board of Trustees, concerned about graduates of abbreviated nurse anesthesia programs, encouraged the Education Committee to concentrate on the development of a national certification

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<sup>35</sup> "To the Board of Trustees, A.A.N.A.," Committee on Education, Helen Lamb, Chairman, AANA Archives.

<sup>36</sup> Ibid.

<sup>37</sup> Bankert, *Watchful Care*, 113.

<sup>38</sup> David P. Martin and others, "The Mayo Clinic World War II Short Course and Its' Effect on Anesthesiology," *Anesthesiology* 105 (2006): 209-210.

<sup>39</sup> Bankert, *Watchful Care*, 124-125.

<sup>40</sup> Ibid., 126.

exam.<sup>41</sup> A national exam was a tool for the Association to exert influence over the schools of anesthesia. In 1944 the Education Committee prepared and published “Essentials of an Accepted School of Anesthesia for Graduate Nurses.” The Essentials document provided guidance detailing nurse anesthesia education acceptable to the AANA. The schools were motivated to meet the AANA standards so that their graduates would be eligible for the national examination, and for active membership in the Association once the exam was passed. The first AANA plan for a national certification exam met with resistance. The certification plan had grandfathered all current active members of the AANA into certification status, which raised some objections. The plan was revised to make provision for a national qualifying exam. The qualifying exam did not grant certification status, but new members were required to complete an approved anesthesia course and pass the written exam to become qualified members of the professional organization.<sup>42</sup> The members could establish their professional status by indicating active membership in the organization. Active members of the AANA were designated Certified Registered Nurse Anesthetist, or CRNA, with a bylaw change effective in 1956.<sup>43</sup> Although the CRNA credential was effectively granted by the Qualifying Exam with this change, the name of the exam did not officially become the Certification Exam until 1982.<sup>44</sup>

In June of 1945, ninety-two applicants participated in the first Qualifying Exam for AANA membership. The exam was administered at thirty-nine hospitals

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<sup>41</sup> Thatcher, *History of Anesthesia*, 247.

<sup>42</sup> *Ibid.*, 247-248.

<sup>43</sup> Kathy Koch, comp., and Christopher Bettin, ed., *Advancing the Art and Science of Anesthesia for 75 Years* (Park Ridge, Ill.: American Association of Nurse Anesthetists, 2006), 71.

<sup>44</sup> Karen L. Zaglaniczny and Susan Smith Caulk, “Professional Regulation of Nurse Anesthesia Practice,” in *A Professional Study and Resource Guide for the CRNA* eds. Scot D. Foster and Margaret Faut-Callahan (Park Ridge, Ill.: AANA Publishing, 2001), 136.

throughout the United States.<sup>45</sup> Each School of Anesthesia submitted an account of the classroom and clinical instruction received by their graduates on the application form for the Qualifying Exam.<sup>46</sup> The Education Committee was able to use the process to efficiently collect current information on the state of nurse anesthesia education. The great variation in the schools began to be controlled, although accreditation had yet to be achieved. The final obstacle to overcome was a mechanism to fund the administration of the accreditation process and the on-site visits to the programs.

The Essentials document developed by the Education Committee in 1944 provided the standards for nurse anesthesia education, but there was no oversight of the programs. Verna Bean, a nurse anesthesia leader who was to be elected president of the AANA in 1950, addressed this issue in a letter. “These standards, of necessity, have been accepted almost solely by trusting the integrity of the schools applying for recognition. We have not truly had a program of standards, nor have we had the personnel for checking the veracity of the applicant.”<sup>47</sup> Bean and other nurse anesthesia leaders including Helen Lamb, Chairman of the Advisory to the Approval Committee, urged AANA members to fund accreditation through an increase in membership dues.<sup>48</sup> The membership at the September, 1950 annual meeting of the AANA voted to fund the accreditation initiative. The dues of an active member increased from twelve to twenty dollars a year, with five dollars of the increase allocated to accreditation activities. The AANA Board of Trustees was also authorized to appoint a salaried accrediting advisor to further develop and lead the

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<sup>45</sup> Bankert, *Watchful Care*, 128.

<sup>46</sup> Thatcher, *History of Anesthesia*, 250.

<sup>47</sup> Verna E. Bean, “Opinion Review: The Question of Accreditation,” *Journal of American Association of Nurse Anesthetists* 18 (1950): 146.

<sup>48</sup> See “Opinion Review: The Question of Accreditation,” *Journal of American Association of Nurse Anesthetists* 18 (1950): 144-146.

accreditation program.<sup>49</sup> The funding and appointment of the advisor allowed the accreditation of nurse anesthesia programs to be realized.

#### The Growth of Nurse Anesthesia Education through Accreditation

The accreditation of schools of nurse anesthesia became effective in January of 1952, over six years after the first Qualifying Exam.<sup>50</sup> It was also greater than twenty years after the organizational meeting of the AANA, where raising educational standards was given as a primary objective for the formation of the Association. The progress leading toward accreditation was deliberate with the Education Committee seeking input from the AANA membership, the schools of anesthesia, the American Hospital Association, and experts in education.<sup>51</sup> The leadership of the AANA was conscious of the possible legal liabilities of endorsing some schools while withholding endorsement from others.<sup>52</sup> Consideration of the legal implications, and the desire to "...develop a program which will be helpful to the schools..." precluded quick action.<sup>53</sup> Broad support for the accreditation program was sought prior to the eventual implementation, important to the long term success of the program.

The accreditation program was successful, and instrumental in the professional development of nurse anesthesia. Nurse anesthesia leaders wished to

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<sup>49</sup> "The News: Accrediting Advisor to be Named," *Journal of American Association of Nurse Anesthetists* 18 (1950): 281.

<sup>50</sup> Bankert, *Watchful Care*, 136.

<sup>51</sup> Thatcher, *History of Anesthesia*, 257-259.

<sup>52</sup> "...endorsing certain schools while rejecting others, the Association would incur not only moral but perhaps legal liabilities as well, the potential extent of which should be weighed by the Association before undertaking such activity..." See "Report of the Educational Committee," Helen Lamb, Chairman, *Bulletin of the National Association of Nurse Anesthetists* 4 (1936): 189.

<sup>53</sup> "Report of the Educational Committee," Gertrude Fife, Chairman, *Bulletin of the American Association of Nurse Anesthetists* 10 (1942): 253.

raise the quality of education while also recognizing the importance in increasing the number of well trained nurse anesthetists. Verna Bean in 1950 stated "...there are hospitals operating schools of anesthesia purely to fill their own needs for anesthesia service....This statement is not meant to be uncharitable. We full well realize the acute shortage of anesthetists of any sort."<sup>54</sup> A study conducted in 1950 by the Board of Trustees of the AANA estimated 16,815 nurse anesthetists were needed in the United States, but less than a third of the number, 5,515 were available.<sup>55</sup> A discussion of "Anesthetists for the Future" was introduced in February 1952 issue of the *Journal of the American Association of Nurse Anesthetists*. The focus was the shortage of nurse anesthetists and the possibility of training anesthesia technicians as a solution.<sup>56</sup> Published replies to the suggestion were not supportive of the idea; "...it is taking the easy way out" was one response. Another proposed there would be little advantage; "The minimum of education that the anesthesia technician would need to administer anesthesia safely would so closely approximate the educational requirements of the graduate nurse anesthetist...On the other hand, the education and experience obtained in a school of nursing is invaluable..."<sup>57</sup> Many individuals with various educational preparations were administering anesthesia in hospitals and nurse anesthetists did not wish to lower the quality of nurse anesthetists entering the field.

A series of surveys of hospital administrators was initiated in 1955 in an effort to determine the qualifications of the personnel administering anesthetics.<sup>58</sup> The first was a 1955 survey which was duplicated in 1965 and 1971 with the results

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<sup>54</sup> Bean, "Opinion Review: The Question of Accreditation."

<sup>55</sup> Jessie L. Compton and others, "Survey of Anesthesia Service: 1955," *Journal of American Association of Nurse Anesthetists* 23 (1955): 223.

<sup>56</sup> See "Opinion Review: Anesthetists for the Future," *Journal of American Association of Nurse Anesthetists* 20 (1952): 2.

<sup>57</sup> *Ibid.*, 82-86.

<sup>58</sup> Compton and others, "Survey of Anesthesia Service: 1955," 223.



compared.<sup>59</sup> Trained nurse anesthetists administered an estimated thirty-four percent of anesthetics in operating rooms in 1955, the portion increased to forty-six percent in 1965, and to over forty-eight percent in 1971. Anesthesiologists were estimated to administer eighteen percent of the anesthetics in 1955, thirty-nine percent in 1965, and a slight decrease to thirty-eight percent in 1971. In 1955 a large portion, almost fifty percent, of the anesthetics were administered by physicians or nurses without recognized qualification and two percent were administered by other personnel, neither physicians nor nurses. The 1965 survey found that the portion administered by unrecognized physicians or nurses decreased to fourteen percent, and the 1971 survey found a further decrease to approximately twelve percent. Anesthetics administered by other personnel also decreased, but were not eliminated with the incidence at one percent in 1965 and 0.66 percent in 1971. The 1955 and 1965 studies also attempted to estimate the coverage of the anesthetics administered in the obstetrical departments. It was concluded that obstetrical anesthesia was more commonly administered by untrained personnel compared to anesthetics administered in operating rooms.

Although smaller hospitals were more likely to have anesthesia administered by unrecognized nurses or physicians, the largest hospitals had a larger percentage of anesthetics administered by other personnel, neither physician nor nurse, compared to smaller hospitals. The percentage of anesthetics administered in operating rooms by trained personnel steadily gained, but a significant number continued to be administered by personnel without formal training. In 1952 it was proposed "...the only solution to the problem of the present shortage of trained anesthetists is to be found in increasing the number of training programs for nurse anesthetists and recruiting more nurses to the field."<sup>60</sup> This solution was reiterated in 1971. "The

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<sup>59</sup> Carma E. Mohler, Dolores E. Biggins, and Jo Ann Kaiser, "Survey of Anesthesia Service: 1965, A Ten-Year Comparison," *Journal of American Association of Nurse Anesthetists* 33 (1965): 298. See also Dolores e. Biggins and others, "Survey of Anesthesia Service: 1971," *Journal of American Association of Nurse Anesthetists* 39 (1971): 371.

<sup>60</sup> "Opinion Review: Anesthetists for the Future," 82.

AANA ... should encourage an increase in the number of schools and students to help meet the present need and provide for the future need...”<sup>61</sup>

The AANA leadership had a close relationship with the American Hospital Association (AHA) from the founding of the AANA. The AHA Council on Professional Practice was involved with the development of the accreditation program<sup>62</sup> and the annual meeting of the AANA was held in conjunction with the AHA annual meeting until 1976.<sup>63</sup> Hospital administrators and the AHA were keenly interested in assuring adequate numbers of trained nurse anesthetists to meet the needs of surgeons who brought patients to their hospitals. Nurse anesthesia training programs were sponsored by hospitals rather than academic institutions in much the same fashion as the early nursing schools. Many hospitals were successfully recruited to open a nurse anesthesia training program. The number of recognized schools more than doubled between 1946 and 1956, from forty-eight to ninety-nine. In a description of the status of the schools in 1953, it was reported that five schools closed, but the general trend over time was an increasing number of schools.<sup>64</sup> The ninety-nine schools operating in 1956 were increased to 172 by the beginning of 1965,<sup>65</sup> and to 194 in 1976.<sup>66</sup>

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<sup>61</sup> Biggins, Bakutis, Nelson, and Petraitis, “Survey of Anesthesia Service: 1971,” 378.

<sup>62</sup> Ira P. Gunn, “The History of Nurse Anesthesia Education: Highlights and Influences,” *Journal of American Association of Nurse Anesthetists* 59 (1991): 55.

<sup>63</sup> Koch and Bettin, *Advancing the Art*, 91.

<sup>64</sup> AANA Archives, accreditation file.

<sup>65</sup> Ruth P. Satterfield, “Anesthesia Needs of Society and the Indispensable CRNA,” *Journal of American Association of Nurse Anesthetists* 34 (1966): 103.

<sup>66</sup> “National Commission on Nurse Anesthesia Education, Final Report of the Task Force,” Sandra Maree Ouellette, chairman (Park Ridge, Ill: American Association of Nurse Anesthetists, 1994), 4.

The geographic location of the programs continued to be concentrated in primarily eastern states of the country. The ninety-five programs open to civilian applicants during 1954 were located in twenty-seven states. Twenty-three of the ninety-five programs were located in Pennsylvania with another nine in New York State. A small number, eighteen, were in cities west of the Mississippi River with nine of those in Minnesota. Two, one each in Oregon and Washington State, were the only programs in the Pacific Time zone.<sup>67</sup> The eastern concentration of programs continued even as the number of programs almost doubled. In June of 1976 less than a quarter of the programs, 42 of the 182 civilian programs, were west of the Mississippi River. The number of programs in the Pacific Time zone did increase; four programs were operating in California in addition to two in Washington State. Pennsylvania continued to maintain a large number of programs with thirty-eight located in the state.<sup>68</sup> Although the geographic disparity was not corrected, a large number of hospital based nurse anesthesia training programs were initiated in the twenty-five years following accreditation.

Recruiting an adequate number of RNs to fill the additional training positions created by the new programs was another concern. Practicing nurse anesthetists were urged to visit local schools of nursing to present the possibility of a nurse anesthesia career to prospective students. Other suggestions included publicizing nurse anesthesia careers with posters or brochures intended for RNs, and offering scholarships to interested senior nursing students.<sup>69</sup> A series of recruitment brochures were developed by the AANA during the 1950's and 1960's,<sup>70</sup> and the number of

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<sup>67</sup> "Approved Schools of Anesthesia for Nurses: January 1954," *Journal of American Association of Nurse Anesthetists* 22 (1954): 8-12.

<sup>68</sup> American Association of Nurse Anesthetists Council on Accreditation, *List of Recognized Educational Programs for Nurse Anesthetists June, 1976*, (Chicago: American Association of Nurse Anesthetists Council on Accreditation, 1976).

<sup>69</sup> "Opinion Review: Anesthetists for the Future," 84, 86.

<sup>70</sup> Koch and Bettin, *Advancing the Art*, 63, 65, 71, 79, 84.

nurse anesthesia graduates grew progressively with the number of training programs. Approximately 500 graduates were produced annually in 1949,<sup>71</sup> 835 graduates were reported in 1956<sup>72</sup> and by 1976 the number of graduates produced had grown and stabilized at close to 1100.<sup>73</sup> The increase in the number of graduates was maintained through the 1960 increase in the required length of nurse anesthesia programs from twelve months to eighteen months. The constant pressure to produce an adequate number of trained nurse anesthetists continued as anesthesia was administered in significant amounts by untrained personnel.

#### Evolution of the Standards of Accreditation

The growth in nurse anesthesia education was not limited to the number of schools and graduates, but extended to progressively raising the level of education. The scientific knowledge base and technical skills relative to the administration of anesthesia rapidly developed in the thirty years following the advent of the accreditation program. The inhalation techniques with a limited number of anesthetic agents were augmented with a rapid expansion in the utilization of intravenous agents from several drug classifications. "In 1942, Lundy devoted fifty-seven pages in his book *Clinical Anesthesia* to the choice of anesthetic agents and anesthetic methods. In 1956, Adriani devoted an entire 538 page book to a discussion of techniques and procedures."<sup>74</sup> The Assistant Director of the American College of Surgeons in 1956 spoke of the training of nurse anesthetists in modern agents and techniques; "If her

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<sup>71</sup> Virginia S. Thatcher, "An Analysis of Anesthesia Service in the United States for 1949," *Journal of American Association of Nurse Anesthetists* 17 (1950): 265.

<sup>72</sup> Clarene A. Carmichael, "Present Status of Approved Schools," *Journal of American Association of Nurse Anesthetists* 24 (1956): 95.

<sup>73</sup> "National Commission," 4.

<sup>74</sup> David H. Gatherum, "Anesthetist or Technician?" *Journal of American Association of Nurse Anesthetists* 32 (1964): 380.

training program had not advanced in recent years, she would not be adequate.”<sup>75</sup> In 1958 the importance of adequate training of nurse anesthetists was again emphasized:

If nurses in Anesthesia are to find a role in fields of this degree of complexity, it is essential that your training schools increase the intensity and quality of training and especially to improve the teaching and understanding of the physiology of the circulation, respiration and metabolism. More specifically, a thorough and practical knowledge of hemorrhagic shock, blood loss and replacement, fluid and electrolyte disorders, the consequences of various anesthetic agents and drugs you are asked to administer, and other related problems such as the age and weight of the patient, hepatic, renal, cardiac, pulmonary and neurologic physiology and disorders, must now be encompassed as best you can.<sup>76</sup>

The number of technical skills the nurse anesthetist needed to gain proficiency in grew from the insertion of an intravenous catheter, to endotracheal intubation and to eventually include regional anesthetic techniques and central intravenous catheter insertion. In the 1950's the necessity of nurse anesthetists becoming skilled in endotracheal intubation was addressed. “No one should be allowed to administer an anesthetic unless skilled in intubation.”<sup>77</sup> “The individual nurse anesthetist must become more proficient in endotracheal anesthesia. One leading surgeon stopped using nurses because he lost a patient when the nurse could not intubate the patient.”<sup>78</sup>

The simple monitoring technique of the finger on the pulse was replaced with progressively more sophisticated technology. During the early 1960's the precordial

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<sup>75</sup> George W. Stephenson, “The Relationship Between the Surgeon and Anesthetist,” *Journal of American Association of Nurse Anesthetists* 25 (1957): 125.

<sup>76</sup> J. Garrott Allen, “The Dilemma in Anesthesia: An Analysis of Current and Future Needs,” *Journal of American Association of Nurse Anesthetists* 27 (1959): 26.

<sup>77</sup> Adolph A. Walking, “Problems in Anesthesia Today: Who Gives Anesthetics in Hospitals, From the Viewpoint of the Surgeon,” *Journal of American Association of Nurse Anesthetists* 19 (1951): 42.

<sup>78</sup> Lonnie W. Funderburg, “The Future of the Nurse Anesthetist,” *Journal of American Association of Nurse Anesthetists* 25 (1957): 114.

and esophageal stethoscope became used commonly and were supplemented with electrocardiography. Mechanical ventilators with pressure gauges and flow meters were developed. The anesthetist was required to understand a variety of scientific principles in order to appropriately interpret the information provided by the monitors. “The anesthetist must understand fully the principles underlying the functioning of the instrument; he must know its limitations, pitfalls, and shortcomings. Most important, the anesthetist must be prepared to disregard the information obtained at any time when it is incompatible with information obtained from other observations.”<sup>79</sup>

The advancement of surgical technique to include complex procedures such as open-heart surgery with heart-lung bypass occurred in the 1960’s. This was accompanied by progress in medical care that allowed patients with a greater acuity of co-existing disease to undergo surgery. Nurse anesthetists were required to consider the medical condition of the patient when choosing from a greater variety of agents and techniques. It was also necessary to become familiar with a greater number of surgical procedures and to adapt the anesthetic to meet the specific requirements of the procedure and patient. Nurse anesthetists were admonished to avoid becoming technicians “...one who learns to work with measured quantities of chemicals, to set the dials of a machine and press a button, or to perform various complicated procedures according to instructions.”<sup>80</sup> The era of relying on the surgeon to choose the anesthetic had passed and the nurse anesthetist “...must think, must choose, must be constantly alert” if she was to practice the science of anesthesia.<sup>81</sup>

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<sup>79</sup> Karl F. Urbach, “Problems of Progress in Anesthesia,” *Journal of American Association of Nurse Anesthetists* 31 (1963): 388.

<sup>80</sup> Gatherum, “Anesthetist or Technician?” 383.

<sup>81</sup> *Ibid.*

### Minimum Standards for Nurse Anesthesia Programs

The plan to establish accreditation of training programs for nurse anesthetists was approved at the 1950 annual meeting of the AANA. Included in the accreditation plan was a provision for workshops to establish the criteria by which the training programs were to be evaluated.<sup>82</sup> Advisors from the Department of Education, Northwestern University in Chicago were appointed in March of 1951 to assist in the development of the accreditation criteria and process. Directors of nurse anesthesia programs participated in four workshop conferences held during 1951 in Chicago, St. Louis, Cleveland, and New York City. Four general areas of criteria discussed at the workshops were selection of students; curriculum; instruction; and physical and educational facilities. The final criteria were presented to, and approved by the AANA Board of Trustees in January of 1952.<sup>83</sup>

Representatives of the nurse anesthesia programs were invited to another series of workshops held in 1959. The accreditation standards were reviewed, and revised accreditation standards were developed. The revised standards were approved by the AANA Board of Trustees in early January of 1960. The existing programs were allowed a year and a half, until July of 1962, to meet the standards while new programs had to meet the new standards upon application for accreditation.<sup>84</sup> Approximately ten years later, in January 1969, physician and CRNA directors of the 205 nurse anesthesia programs were invited to a workshop to again revise the accreditation standards. The AANA Board of Trustees approved the 1969 version of the standards in March of 1969 allowing existing program until July 1, 1971 to meet

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<sup>82</sup> “The News: Accrediting Advisor to be Named,” 281.

<sup>83</sup> American Association of Nurse Anesthetists, *Accreditation of Schools of Anesthesia for Nurses 1960* (Chicago: American Association of Nurse Anesthetists, 1960), 4-5.

<sup>84</sup> *Ibid.*, 5-6.

the standards. The ten-year period between revisions was considered an adequate interval to promote improvements in the programs without causing disruption.<sup>85</sup>

The minimum length of a nurse anesthesia program was twelve months in the first accreditation standards.<sup>86</sup> Prior to accreditation of nurse anesthesia programs, a minimum duration of training that qualified an individual for membership in the AANA was established. The minimum was four months of training for those graduating between 1933 and 1938, six months from 1939 to August 31, 1947, and eight months from September 1, 1947 to the end of 1950. Accreditation of the programs did not begin until 1952 but the minimum training was increased to twelve months by 1951.<sup>87</sup>

The Educational Committee recommendations cited two motives for lengthening the duration of training. The first was to provide a greater depth of education and the second was to raise the standard of the profession by restricting the entrants to the profession. "The general tendency is therefore toward lengthening the period of training."<sup>88</sup> The increases in the length of training occurred in the majority of the programs prior to the changes in the standard with eight-five percent of the programs at twelve months before 1951.<sup>89</sup> The fact that in 1935 the Educational Committee communicated the belief that the length of training should become twelve months provided advance notice to the programs of the future plan, facilitating an orderly progression.<sup>90</sup>

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<sup>85</sup> American Association of Nurse Anesthetists, *Accreditation of Schools of Anesthesia for Nurses 1970* (Chicago: American Association of Nurse Anesthetists, 1970), 4.

<sup>86</sup> Carmichael, "Present Status," 95.

<sup>87</sup> Compton and others, "Survey of Anesthesia Service: 1955," 228.

<sup>88</sup> "Report of Educational Committee," 59.

<sup>89</sup> Carmichael, "Present Status," 97.

<sup>90</sup> "Report of Educational Committee," 59.



The most significant change in the accreditation standard revisions was the increase in the minimum length of the programs to eighteen months in the 1960 standards.<sup>91</sup> As with the previous upward revisions in the duration of training, several programs had lengthened their duration prior to the change in the standard. In 1955 a survey of the programs found that thirty-one percent were longer than the mandated twelve months and that forty-eight percent planned to be longer than twelve months by the end of 1956. Most of the programs planning an increase at the time were anticipating an eighteen month program. Carmichael, the AANA Educational Director, wrote in 1955 "...it seems logical to assume that the minimum requirement will be increased; however, the increase will occur only after the majority...have changed and ample time has been given to the others..."<sup>92</sup> The eighteen month standard marked the temporary halt to the progressive increase in the mandated program length. After increasing from four to eighteen months during a twenty-five year period, the mandated program length was not increased in the accreditation standards for another twenty years. This did not indicate that programs did not increase in length during this time. By the beginning of 1970 twenty-eight percent of programs were longer than the eighteen month standard, with almost all the longer programs at twenty-four months.<sup>93</sup>

The careful selection of students was considered of great significance for the programs. Miriam Shupp, the director of the University Hospitals of Cleveland School spoke of the importance of selecting appropriate students to the success of the profession:

If the school of anesthesia...is to graduate anesthetists qualified to render satisfactory anesthesia service on a professional and not merely a technical level, the admissions program not only must attempt to eliminate probable

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<sup>91</sup> American Association, *Accreditation of Schools 1960*, 7.

<sup>92</sup> Carmichael, "Present Status", 97.

<sup>93</sup> American Association of Nurse Anesthetists, *Approved Schools for Nurse Anesthetists: February, 1970*, (Chicago: American Association of Nurse Anesthetists, 1970).

failures but also must endeavor to select those nurses who possess the qualifications necessary for success...<sup>94</sup>

The criteria for the selection of students included in the accreditation standards consisted of two qualifications. First a student was required to have the equivalent of a high school diploma.<sup>95</sup> The requirement may seem unexpected but many schools of nursing in the first half of the twentieth century were hospital based and outside an academic structure. In 1950 the National Committee for the Improvement of Nursing Services began an accreditation program for nursing schools.<sup>96</sup> Admission standards for nursing students were not standardized and nurse anesthesia educators of that time found it necessary to specify the equivalence of a high school graduation. Second was a requirement that a student in a nurse anesthesia program be registered as a graduate professional nurse, or what later became known as a Registered Nurse.<sup>97</sup> The admission requirements for students remained unchanged in the 1960 and 1970 revisions although it was unlikely a RN would not have the equivalent of a high school diploma. The 1935 standards recommended by the Education Committee included an age restriction stating that students should be between 24 and 35 years of age.<sup>98</sup> The age restriction was not included in the accreditation standards eventually adopted.

The curriculum and instruction guidelines consisted of didactic, or classroom instruction, as well as clinical, or practical experience. The mandated classroom

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<sup>94</sup> Miriam G. Shupp, "Selection of Students for Schools of Anesthesia," *Journal of American Association of Nurse Anesthetists* 19 (1951): 19.

<sup>95</sup> Clarene A. Carmichael, "Present Status of Approved Schools," *Journal of American Association of Nurse Anesthetists* 23 (1956): 95.

<sup>96</sup> Philip A. Kalisch and Beatrice J. Kalisch, *American Nursing: A History*, 4<sup>th</sup> ed. (Philadelphia: Lippincott Williams & Wilkins, 2004), 336.

<sup>97</sup> Carmichael, "Present Status," 95.

<sup>98</sup> "Report of Educational Committee," by Helen Lamb, chairman, *Journal of American Association of Nurse Anesthetists* 4 (1936): 59.

instruction in 1952 totaled 200 hours and covered a delineated Class Outline of six subject areas. Included were four basic science subjects; anatomy, physiology, pharmacology, and chemistry and physics. The two remaining subjects were methods and procedures; and orientation to the study of anesthesia. Methods and procedures included topics in anesthesia equipment, patient positioning, anesthetic techniques, and resuscitation techniques. Orientation to the study of anesthesia included department management, ethics, history of anesthesia, hospital policies, legal aspects, physical plant, and psychology. There was no prescribed allocation of the 200 hours, but there would have been approximately thirty to thirty-five hours of instruction in each subject if an equal amount of time was spent on each.<sup>99</sup> The 1935 recommendations included ninety-five hours of classroom instruction regarding thirty-one topics with another eighteen hours of “specific-subject instruction in the operating room” on six topics.<sup>100</sup> The curriculum in the accreditation guidelines adopted in 1952 had a greater emphasis in the basic sciences of anatomy, physiology, pharmacology, and chemistry/physics compared to the 1935 recommendations.

The Class Outline detailing the didactic curriculum was essentially unchanged from the first accreditation standards in the 1960 and 1970 revisions. The only addition was the 1970 standards included a statement “that fundamentals of electronics should be incorporated in the section on physics as the need for information on this subject increases”<sup>101</sup> The number of hours of didactic instruction was increased from 200 to 250 hours in 1960, and to 300 hours in 1970. The program was required to document the number of hours of instruction in each subject on the student record but there was no stipulation as to how the hours were to be divided.<sup>102</sup>

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<sup>99</sup> Carmichael, “Present Status,” 95.

<sup>100</sup> “Report of Educational Committee,” 63-65.

<sup>101</sup> American Association, *Accreditation of Schools 1970*, 5.

<sup>102</sup> *Ibid.*, 4-5; American Association, *Accreditation of Schools 1960*, 8-9.

The total number of anesthetics required in the first accreditation standards was 325 cases, unchanged from the 1935 Educational Committee recommendations. Although the number of cases remained 325 the hours of clinical administration of anesthesia were dramatically increased from eighteen in the recommendations, to 400 in the accreditation standards.<sup>103</sup> The minimum number of cases was increased in the first revision to 450 along with an increase to 500 hours of clinical instruction. In 1970 the case numbers remained 450 but the clinical hours were raised to 600. The clinical experience requirements in the 1952 accreditation standards were in three divisions; anesthetic agents, methods of anesthesia, and types of surgical cases.<sup>104</sup> The 1935 recommendations had few details concerning the clinical experience. Included was a minimal anatomic categorization of at least twenty-five obstetric experiences and stating that up to twenty-five of the 325 cases could be dental, and twenty-five could be “spinal, locals, et cetera.”<sup>105</sup>

In the first accreditation standards students were required to administer a minimum number of anesthetics from four anesthetic agent classifications: fifty ether, fifty nitrous oxide or ethylene, fifty pentothal or other barbiturate, and ten with a muscle relaxant. The number of barbiturate cases, and cases with a muscle relaxant were both increased to 100 in 1960. Fifteen cyclopropane anesthetics were also added at that time. In 1970 the number of ether cases was reduced to twenty and methoxyflurane was considered an ether case. The requirement for cyclopropane anesthetics was eliminated and thirty halothane anesthetics were added to the 1970 revision. Programs were also asked in the 1970 revision to record the number of anesthetic experiences with several additional agents although experience was not a requirement. The additional agents were chloroform, cyclopropane, ethyl chloride,

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<sup>103</sup> Carmichael, “Present Status,” 95

<sup>104</sup> Carmichael, “Present Status,” 96.

<sup>105</sup> “Report of Educational Committee,” 65.

intravenous narcotics, neurolept drugs, tranquilizers, trichloroethylene, and an “other” category.<sup>106</sup>

The second division of clinical experience in the accreditation standards was anesthetic methods. The 1952 standards included ten drop techniques, either open or semiopen, thirty semiclosed, thirty closed with carbon dioxide absorber, and five insufflation or nonbreathing inhalation cases. Anesthetic methods also included fifteen intravenous cases, six intratracheal intubations, and the management of fifteen regional cases but not the actual administration of regional anesthesia.<sup>107</sup> In the 1960 and 1970 revisions the number of intravenous cases and tracheal intubations were significantly raised. Intravenous cases with the student performing the “actual venipuncture” were raised from fifteen to 100 in 1960 with no further change in 1970. In 1960 intubations were increased from six to fifty, and then in 1970 they were increased to seventy-five intubations. The numbers of cases utilizing the various inhalation techniques were modified somewhat in the revisions. The number of drop techniques was lowered to ten in the first revision and then to five in the second. The closed technique standard was also lowered in the first revision, from thirty to five. The semiclosed and nonbreathing cases were both increased to fifty. The regional anesthetic standard was not changed in either revision. It remained the management of fifteen cases.<sup>108</sup> The 1970 revision specifically stated, “The actual administration of spinal and regional methods is not required. The decision for teaching these techniques is left to the directors of the schools of anesthesia.” The 1970 standards included a request for programs to record non-required techniques such as intramuscular, rectal, hypothermia, and automatic respirators, but not regional techniques.<sup>109</sup>

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<sup>106</sup> American Association. *Accreditation of Schools 1970*, 6.

<sup>107</sup> Carmichael, “Present Status,” 96.

<sup>108</sup> American Association, *Accreditation of Schools 1960*, 9; American Association, *Accreditation of Schools 1970*, 5-6.

<sup>109</sup> American Association, *Accreditation of Schools 1970*, 6.

The third division of clinical experience requirements in the accreditation standards related to the type of surgical case, primarily designated by the anatomic categorization of surgical procedures. The surgical case requirements were divided into thirteen anatomical categories with a range of two to thirty experiences required in each. The number of cases for both intracranial and intrathoracic was two, and three neck cases were required. Operations on the back, pelvic, perineal and rectal, and renal surgical experiences were all set at five cases. Six extracranial, eight extremity, ten intrapharyngeal, ten extrathoracic, and thirty intra-abdominal cases completed the surgical experiences. Experience with at least fifteen obstetric anesthetics was also included.<sup>110</sup>

In the 1960 version of the accreditation standards there were several relatively minor changes in the surgical procedure minimums. Small increases were effective in neck cases, from three to five, and extracranial cases, from eight to ten. Other increases were seen in the extremities category, raised from eight to twenty-five cases, intrapharyngeal cases were raised from ten to twenty, and the perineal category was raised from five to twenty-five. The abdominal category was split into upper abdominal cases at ten cases and lower abdominal cases at thirty, adding ten cases. Patient positions were identified for the first time in the 1960 standards. Back cases were designated in the prone position, perineal cases were in the lithotomy position, and renal cases were lateral cases. Age categories and emergency cases were also added for the first time in a fourth “Special cases” division. The age categories were pediatrics, twelve years or younger, and geriatrics, sixty years or older. Ten emergency cases, ten pediatric cases, and ten geriatric cases were required.<sup>111</sup> There were no additional changes in the surgical procedure minimums in the 1970 accreditation standards, but there were a few points of information added to the standards. Programs were encouraged “...to involve the student in the administration

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<sup>110</sup> Carmichael, “Present Status,” 96.

<sup>111</sup> *Accreditation of Schools of Anesthesia for Nurses 1960*, 10.

of anesthesia for infants as well as to older patients.” A parenthetical note indicated that caesarean sections were to be included in lower abdominal cases. A list of other types of surgical experiences that programs were encouraged to record was included, similar to the anesthetic agent and anesthetic methods divisions. The additional surgical experiences were arteriogram, cardiac catheterization, inhalation therapy, monitoring, pneumoencephalogram, recovery room, and shock therapy.<sup>112</sup>

### Program Facilities and Administration

The Educational Committee made several recommendations regarding the physical and educational facilities of the hospital that sponsored a program. It was recommended the surgical service would include all surgical specialties, employ expert anesthetists, and provide a variety of anesthesia equipment. A library of late edition text books and journals was to be available to the students. Nurse anesthetists were considered qualified to teach all the theoretical and clinical content, but lectures by experts in physiology and pharmacology were desirable. The Chief Anesthetist was to be responsible for the student’s clinical assignments and should report to the Chief Surgeon or Medical Director.<sup>113</sup>

In 1960 it was recommended that a hospital sponsoring a nurse anesthesia program have at least 600 surgical admissions a year for each nurse anesthesia student. Students obtaining additional clinical experience in an affiliated hospital or clinic was allowed with supervision by an anesthesiologist or CRNA. Programs were admonished against the exploitation of the student which was defined “...as the use of students for service before education or utilization of the student with profit to the hospital as the primary motive.” It was also recommended, but not required, that each program have at least one CRNA “...active in the training program” and required that “...nurses who are active in the teaching program...” were CRNAs.<sup>114</sup>

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<sup>112</sup> American Association, *Accreditation of Schools 1970*, 6-7.

<sup>113</sup> “Report of Educational Committee,” 57-58.

<sup>114</sup> American Association, *Accreditation of Schools 1960*, 10-12.

Perhaps the most significant change enacted with the 1970 accreditation standards was the requirement that a CRNA must be involved in each program, although the CRNA role was not defined in any manner. Additionally it was recommended the CRNAs "...active in the training...shall pursue a course of higher education with the ultimate goal of being prepared to join a university staff when a degree program for nurse anesthetists becomes a reality." Programs were discouraged in the 1970 standards from holding a student's graduation certificate until the results of the certification exam were announced. This was a "rare custom" but evidently was considered significant enough to warrant inclusion in the standards.<sup>115</sup> An accreditation procedure page was added to the standards with initial accreditation guidelines. The program director completed an application upon seeking accreditation and gave written assurance of compliance with the standards. Provisional accreditation was granted and the new program was allowed to admit students. A self-evaluation was completed by the program director prior to the site visit which was scheduled to occur after students entered the clinical phase. The site visit was conducted by a two member team consisting of an Educational Advisor and a CRNA. The AANA Board of Trustees held the authority to grant or withhold a certificate of approval for accreditation. The accreditation certificate could be effective for up to four years.<sup>116</sup> The length of the accreditation cycle had been three years prior to this.<sup>117</sup>

A second publication related to the accreditation of nurse anesthesia programs was produced in 1972 titled *AANA Criteria and Procedures of Accreditation for Schools of Nurse Anesthesia*. A more extensive accreditation process was detailed in

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<sup>115</sup> American Association, *Accreditation of Schools 1970*, 7.

<sup>116</sup> *Ibid.*, 9.

<sup>117</sup> Exire O'Day, Ruby Ormon, and George M. Collins, *Notes on the History and Organization of the American Association of Nurse Anesthetists* (Chicago: American Association of Nurse Anesthetists, 1963; reprint, 1969), 12 (page citations are to the reprint edition).



the publication without any discussion of the actual accreditation standards.<sup>118</sup> There were two important changes compared to the accreditation process published in 1970. The first was the submission of a biennial self-study by established programs.<sup>119</sup> The four-year accreditation cycle was maintained which then included a self-study and site visit at four-year intervals, and the completion of a self-study document two years following a full accreditation review. The second change was new programs seeking initial accreditation were not granted authorization to admit students until a self-study and an on-site capability review was completed. Another self-study and visit was completed after students were enrolled with provisional accreditation granted if the standards were met. Full accreditation was obtained following graduation of the first graduates and completion of a third self-study.<sup>120</sup> The AANA had previously assumed all financial obligations of accreditation activities including the site visits and the expenses of program faculty attending educational conferences.<sup>121</sup> This continued to be true for established programs but new programs were required to "...assume to portion of the financial responsibility..." for the on-site capability review.<sup>122</sup>

The introduction to the self-study in the accreditation procedure provided the philosophical basis for program self-evaluation:

The self-evaluation study will be the most stimulating and productive activity in the accrediting process because it requires the participation of the entire faculty, administrative officers and others.... The self-evaluation study should

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<sup>118</sup> American Association of Nurse Anesthetists, *AANA Criteria and Procedures of Accreditation for Schools of Anesthesia Nurse Anesthesia* (Chicago: American Association of Nurse Anesthetists, 1972) 1-8.

<sup>119</sup> *Ibid.*, 8.

<sup>120</sup> *Ibid.*, 6.

<sup>121</sup> American Association, *Accreditation of Schools 1960*, 12. The single exception was a special visit requested by a school. American Association, *Accreditation of Schools 1970*, 10.

<sup>122</sup> *AANA Criteria and Procedures*, 2.

be an honest attempt on the part of the faculty to assess its present status, determine future goals and methods of attaining them.<sup>123</sup>

The self-study contained three sections related to program administration, curriculum and instruction, and faculty followed by a summary and glossary. The format was a series of questions with small boxes to place numbers corresponding to the program responses or a place to write a short answer. Reporting the number of hours of instruction, lists of types of equipment, and yes/no questions predominated.<sup>124</sup> Questions such as “Are copies of objectives given to all faculty members and students? or What quality practitioner do you hope to prepare?” required limited analysis by the program faculty.<sup>125</sup> Copies of documents such as the organizational chart and program objectives were attached to the self-study.

#### Achievement of Standardization

The establishment of post graduate nurse anesthesia training programs was closely following by efforts at standardization. Nurse anesthesia leaders were aware of the importance of the community being able to differentiate an educated nurse anesthetist if the profession was to grow and survive. The Qualifying Exam first effective in 1945 was followed by the accreditation program for Schools of Anesthesia in 1952. The 1931 formation of the professional organization, the AANA, was integral to these developments. The Qualifying Exam was administered by a committee of the AANA. Membership in the professional organization was the identifying attribute of the well educated nurse anesthetist as there was no professional licensure. The accreditation standards were developed and implemented

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<sup>123</sup> Ibid., 3.

<sup>124</sup> American Association of Nurse Anesthetists, *Self-Evaluation Study for Schools of Nurse Anesthesia, January, 1973* (Chicago: American Association of Nurse Anesthetists, 1973), 1-41.

<sup>125</sup> Ibid., 15.

through the AANA. The professional organization was the primary driving force in the standardization of nurse anesthesia education.

Hospitals sponsored the original post graduate training programs, proving to be a stable environment for many years. Hospital administrators were motivated to support nurse anesthesia education in order to assure a supply of well trained anesthesia providers. Several events that occurred during the 1970's were to alter the stability of the relationship between the nurse anesthesia programs and the sponsoring institutions. The nurse anesthesia programs that were to continue had to adapt, but the hospital- based programs provided the historical basis for the profession.

The 9 other hospitals in the ANA list were: Buffalo City, Buffalo; Harper, Detroit; Hubbard, Nashville; Long Island Collage, Brooklyn; Providence, Washington, D.C.; St. Elizabeth's, Chicago; St. Paul Sanitarium, Dallas; University of Pennsylvania, Philadelphia; and West End, Chicago.

## CHAPTER 5

## NEBRASKA HOSPITAL-BASED CERTIFICATE PROGRAMS

Five hospital-based nurse anesthesia educational programs located in Nebraska were accredited by the American Association of Nurse Anesthetists (AANA) between 1952 and 1979. The first nurse anesthesia program in the state, Creighton Memorial-Saint Joseph's Hospital School of Anesthesia, actually accepted the first student to begin training in 1947, prior to the accreditation of schools. The school operated as a post graduate certificate program, or a program that accepted RNs for advanced training awarding no academic credit to the student, during the entire span of time. Four other nurse anesthesia certificate programs existed for various durations during the time period, Immanuel Hospital School of Anesthesia from late 1955 through 1962; Saint Elizabeth's Hospital for eighteen months from September, 1965 through March, 1967; Bryan Memorial Hospital from 1968 through 1979; and Bishop Clarkson Hospital from 1971 through 1973.

The Creighton-Saint Joseph's and Bryan Memorial certificate programs were phased out when the hospitals affiliated with academic institutions. Both programs continued to educate nurse anesthetists and began awarding baccalaureate degrees, and later master's degrees in the case of the Bryan program, to graduates of the two programs. The remaining three programs were closed after existing for short periods of time. The Creighton University baccalaureate program eventually voluntarily closed in 1987 leaving the program that had evolved from the Bryan Memorial Hospital School the one remaining nurse anesthesia program in the state.

There is evidence that at least one Certified Registered Nurse Anesthetist (CRNA) was trained in another Nebraska hospital prior to the development of the accreditation program by the AANA. Although it is doubtful an organized training program was developed at Saint Catherine's Hospital, the event was significant to the history of nurse anesthesia training in Nebraska. The CRNA, Kathryn Svoboda, was trained at some time between 1932 and 1936. This was the time frame when standards for nurse anesthesia education were first discussed nationally and well before the initiation of accreditation of schools of nurse anesthesia.

## Saint Catherine's Hospital, Omaha, Nebraska

Saint Catherine's Hospital was established in 1910 as a maternity hospital in Omaha, Nebraska. The Sisters of Mercy, a Catholic religious community, staffed the hospital that accommodated patients with a variety of medical conditions in addition to providing maternity care.<sup>1</sup> The Sisters also established a nursing school at the hospital, with the first student nurse entering training a month after the opening of the hospital. The hospital based diploma nursing program operated until closing in 1970 and trained 1,596 nurses.<sup>2</sup> Sister Mary Kevin Corcoran completed the nursing program in 1922 and remained at Saint Catherine's where she taught for many years in the nursing school. She earned a Master's degree from Creighton University in 1935 and served as the director of the school of nursing for 22 years.<sup>3</sup> Sister Corcoran devoted her professional career to Saint Catherine's and was associated with the hospital and nursing school until her death in 1957.

Sister Corcoran's first position at Saint Catherine's following completion of nurse's training in 1922 was operating room supervisor and anesthetist. Approximately three years after completing nurse's training she traveled to Rochester, Minnesota for a six-month post graduate course at the St. Mary's Hospital.<sup>4</sup> One history stated she administered anesthesia upon her return from completing the post graduate course in surgery,<sup>5</sup> but the record of assigned duties found in her file at the Sisters of Mercy Archive indicated she administered

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<sup>1</sup> "Mercy Unto Generations of Sick and Infirm," in *100 Years of Mercy Unto Generations* (Omaha, Nebr.: Sisters of Mercy, 1963) found in Sisters of Mercy Archive, Omaha, Nebr., NE: Oma, St. Catherine's, Gen. Material, Box 1.

<sup>2</sup> "St. Catherine's to Present 1,596<sup>th</sup> Nursing Diploma – the Last," *Omaha World-Herald*, 19 June 1970.

<sup>3</sup> Dorothy E. Vossen, *Nursing at Creighton University: A History 1899-1985* (Omaha, Nebr: Creighton University School of Nursing, 1991): 21.

<sup>4</sup> "History of Sister Mary Kevin Corcoran" file found in the Sisters of Mercy Archive, Omaha, Nebr.

<sup>5</sup> Vossen, *Nursing at Creighton*, 21.

anesthesia both before and after the course. Both records agree that she became a registered anesthetist. Sister Corcoran became a member of the American Association of Nurse Anesthetists in 1937, the first year following the formation of a Nebraska chapter in 1936.<sup>6</sup> The completion of the post graduate course in Rochester and membership in the professional organization served to identify Sister Corcoran as a trained professional nurse anesthetist. There were no other credentialing mechanisms such as licensure or accreditation developed at the time.

Nurse's training school records filed with the State of Nebraska by Saint Catherine's Hospital Training School revealed that Sister Corcoran taught student nurses to administer anesthetics. Reports filed in 1927, 1928 and 1930 included the information, while the 1931 and 1932 reports indicated student nurses no longer were taught anesthetic administration. Sister Corcoran was not the only instructor. The 1930 report also listed Sister M. Scholastica as a RN Anesthetist on the faculty.<sup>7</sup> The practice of training student nurses to administer anesthesia was common in Nebraska nursing schools but Sister Corcoran continued the practice to a later date than most. She may have influenced the career path of Saint Catherine's alumni as several who graduated in the 1930's and 1940's later became nurse anesthetists.<sup>8</sup> Although evidence of training nursing students in anesthesia was not unique, it indicated that Sister Corcoran was experienced in teaching anesthesia administration.

Sister Mary John O'Connor wrote her master's thesis in 1935 detailing the curriculum of the nursing schools in Nebraska at that time. The description of the

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<sup>6</sup> "Membership List," *Bulletin of the National Association of Nurse Anesthetists* 5 (1937): 384. The organization was known as the National Association of Nurse Anesthetists until 1939 when the name was changed.

<sup>7</sup> Nebraska State Historical Society, RG027.1, SG4, S3, SSE, Box one.

<sup>8</sup> "St. Catherine's School of Nursing Alumnae Hold a Triple Celebration," (*Omaha*) *Sun Center Section*, 2 July 1964. See also Bernice Baum announcement "To Join AANA Staff" and Lois Heitmeir obituary found in Nebraska Association of Nurse Anesthetists (NANA) scrapbook at the BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

Saint Catherine's School of Nursing included a reference to the possible development of a post graduate course in anesthetics:

St. Catherine's School of Nursing does not offer post graduate courses. However, plans are being considered for giving a course in anesthetics in the very near future.<sup>9</sup>

Sister O'Connor was the Director of Saint Catherine's School of Nursing in 1935 working closely with Sister Corcoran who was also pursuing graduate study at Creighton University at the time.<sup>10</sup> Sister Corcoran served as an anesthetist at the hospital until 1942 when she became the Director of the School of Nursing<sup>11</sup> and undoubtedly influenced the consideration of a plan for a post graduate course in anesthetics.

An extensive search of the Saint Catherine's files at the Sisters of Mercy Archives failed to produce any evidence that the plan for a post graduate course in anesthetics was realized. The economic conditions, or other factors present may have prevented the initiation of a new program at the hospital, but there is evidence that one nurse received post graduate anesthesia training at Saint Catherine's.

Kathryn Svoboda of Omaha, Nebraska was elected to the American Association of Nurse Anesthetists (AANA) Board of Trustees for the two-year term beginning in 1955. The announcement of the election included biographical information for Ms. Svoboda: "Graduate of St. Catherine's Hospital School of Nursing, Omaha; St. Catherine's Hospital School of Anesthesia, Omaha; member of AANA in good standing since 1936."<sup>12</sup> The year of membership in the AANA, 1936,

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<sup>9</sup> Sr. Mary John O'Connor, "The Development of the Professional Curricula of the Schools of Nursing in the State of Nebraska" (Master's thesis, Creighton University, 1935), 58.

<sup>10</sup> Vossen, *Nursing at Creighton*, 21.

<sup>11</sup> "History of Sister Mary Kevin Corcoran" file found in the Sisters of Mercy Archive, Omaha, Nebr.

<sup>12</sup> Found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.



indicated that her training was completed by that time. The Saint Catherine's Training School Report for 1932 listed Miss Catherine Svoboda on the faculty and as the supervisor of the obstetric floor. Her date of graduation from the school of nursing is listed as 1929 and one and one half years of college prior to nursing school was listed as additional training.

Despite the spelling of Catherine versus Kathryn, the 1932 Saint Catherine's Hospital Training School Report provided further information related to the time of her training. While student nurses no longer administered anesthetics in 1932, Miss Svoboda and Miss Birch gave anesthetics in the evening. Miss Birch was another 1929 graduate of Saint Catherine's serving as the supervisor of the operating room and had no additional post graduate training. No evidence could be found that Miss Birch obtained further training in anesthesia. It was common for untrained anesthetists to administer anesthesia, especially in obstetric departments<sup>13</sup> and Miss Svoboda's position in the obstetric department may have generated an interest in becoming a trained anesthetist. The 1932 Training School Report indicated that she had not received additional training at that time, so she would have been trained after 1932 and prior to joining the AANA in 1936.

The membership bylaws of the AANA required a post graduate course in anesthesia of a minimum of four months if completed prior to 1939.<sup>14</sup> The *Application For Membership* used by the AANA up to 1945 included a section "Special Course in Anesthesiology." The applicant was required to provide the location, dates of entrance and graduation, hours of theory, number of anesthetics administered during course and the name of the instructor for the course in anesthesia. Signatures of the Chief Surgeon, Superintendent, and Chief Anesthetist were required

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<sup>13</sup> Virginia S. Thatcher and Myra Van Arsdale, "An Analysis of Anesthesia Service in the United States for 1949," *Journal of American Association of Nurse Anesthetists* 18 (1950): 268.

<sup>14</sup> Jessie L. Compton and others, "Survey of Anesthesia Service:1955," *Journal of American Association of Nurse Anesthetists* 23 (1955): 228.

to certify the qualifications of the applicant.<sup>15</sup> It is likely that Ms. Svoboda was trained by Sister Corcoran either prior to Sister O'Connor completing her thesis, or soon after.

Sister Corcoran's anesthesia training and educational background were appropriate for recognition by the AANA as a qualified instructor. Ms. Svoboda continued her association with Saint Catherine's Hospital and staff following graduation from the School of Nursing which would have facilitated the process. She was acting as an anesthetist "in the evening" in 1932 which could have motivated her to approach Sister Corcoran. Alternatively Sister Corcoran may have approached Ms. Svoboda to become a student in a post graduate course in anesthetics which Sister hoped to develop into an ongoing course. Ms. Svoboda obtained nurse anesthetist positions at other Omaha hospitals. She held a position at Nicholas Senn Hospital in 1937 and later at Doctor's Hospital. She was active in the professional association on the state and national level which was evidence of her self identification as a professional nurse anesthetist.<sup>16</sup>

Ms. Svoboda's professional involvement resulted in a record of her training. It is unknown whether other nurses participated in post graduate training at Saint Catherine's but if so, the number would have been small. Sister Corcoran's professional accomplishments are well documented and there is no mention of such a program. There were no anesthesia programs in Nebraska until 1947 when the first was opened at Saint Joseph's Hospital in Omaha. The Saint Catherine's and Saint Joseph's Schools of Nursing were sister schools both affiliated with Creighton University. The post World War II era St. Joseph's Hospital anesthesia program may have been the realization of the Saint Catherine's plan for a post graduate course in anesthetics.

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<sup>15</sup> Found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

<sup>16</sup> Found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

### Immanuel Hospital School of Anesthesia

The American Association of Nurse Anesthetists Education Program began the accreditation of schools of anesthesia in 1952. The number of hospital-based nurse anesthesia programs grew steadily during the twenty years that followed the accreditation program.<sup>17</sup> Hospitals opened the nurse anesthesia training programs primarily to meet the institutions service need for trained anesthetists.<sup>18</sup> The Immanuel Hospital School of Anesthesia in Omaha, Nebraska was typical of these developments.

Immanuel Hospital of Omaha, Nebraska was included in the January, 1956 list of *Approved Schools for Nurse Anesthetists* published by the AANA.<sup>19</sup> The previous list published in July of 1955 had not included the Immanuel School, placing the opening date of the school within the last months of 1955. The school was mentioned in the 1956 Immanuel Hospital annual report, "...training is given under the department of anesthesiology of the hospital" but there were no further details given.<sup>20</sup> The AANA list of schools did not include any information beyond the name of the sponsoring institution and the city and state where the institution was located until 1961. There was no information available in the Immanuel Archives in Omaha related to the School of Anesthesia either. It is possible the school was accredited by 1956 but failed to enroll students.

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<sup>17</sup> Exire O'Day, Ruby Ormon, and George M. Collins, *Notes on the History and Organization of the American Association of Nurse Anesthetists* (Chicago: American Association of Nurse Anesthetists, 1963; reprint, 1969), 13 (page citations are to the reprint edition).

<sup>18</sup> Ruth P. Satterfield, "Anesthesia Needs of Society and the Indispensable CRNA," *Journal of American Association of Nurse Anesthetists* 34 (1966): 105.

<sup>19</sup> Copies of the "Approved Schools for Nurse Anesthetists" through 1975 were found in the AANA Archives in Park Ridge, Ill.

<sup>20</sup> Vernon Serenius, "Immanuel Reports," *The Deaconess Banner* 35 (1956): 4.

One graduate, Lois Heitmeir, died in September 1959 soon after graduating from the school. She had been notified of passing the Qualifying Exam prior to the accident that caused her death.<sup>21</sup> The AANA criteria required a minimum duration of training of twelve months in 1959 but the AANA was encouraging the schools to increase to an eighteen month program. Information in the 1961 AANA list of schools indicated the Immanuel program was eighteen months in 1961. It is unknown whether the length was increased in response to criteria published in 1960 or if the program had always been eighteen months. Existing programs had until the middle of 1962 to meet the new criteria.<sup>22</sup> Ms. Heitmeir would have entered the school in either 1957 or 1958 depending on the duration of the course.

Hilda Niedermeyer was identified as the Director of the School of Anesthesia at the Immanuel Deaconess Hospital in a photograph taken in January of 1960.<sup>23</sup> She had been a CRNA at Immanuel Hospital and the Secretary-Treasurer of the NANA in 1949.<sup>24</sup> Her role in the professional leadership in the state, position at Immanuel Hospital and later evidence of serving as Director lead to the conclusion that she was most likely the director of the school when it was opened in 1955. Further information in relation to later years of the Immanuel Hospital School was obtained from a 1962 graduate of the school, Virginia Blecha.

Ms. Blecha was a student in the last class of the school, attending from early 1961 through the end of June 1962. She was one of two students in the class and remembered one or two students in earlier classes. Each class was graduated before

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<sup>21</sup> See the Lois Heitmeir obituary found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

<sup>22</sup> American Association of Nurse Anesthetists, *Accreditation of Schools of Anesthesia for Nurses 1960* (Chicago: American Association of Nurse Anesthetists, 1960), 6.

<sup>23</sup> Found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

<sup>24</sup> "Membership List," *Journal of American Association of Nurse Anesthetists* 17 (1949): 30.

another began the program so she and her classmate were the only students. Hilda Niedermeyer was the Director teaching students in clinical "...some, but not too much." Dr. Carter, the only anesthesiologist, Mabel Owens, CRNA, and Darleen Herman, CRNA, gave most of the clinical instruction. A stipend was paid to the students once they started taking call in the hospital, about three months after beginning training. The students rotated call with the staff CRNAs and were the only anesthesia provider in the hospital while on call. A staff CRNA was available and "...we didn't have a lot of emergency stuff."<sup>25</sup>

The student nurse anesthetists also obtained clinical experience at Bishop Clarkson Hospital in Omaha with Dr. Robert Therien and Dr. William Melcher, two anesthesiologists. Ms. Blecha was scheduled primarily at Immanuel Hospital while her classmate was primarily at Clarkson Hospital, but they each spent time at the other hospital. The Clarkson anesthesiologists gave most of the didactic lectures along with Darleen Herman, one of the Immanuel CRNAs.<sup>26</sup> Ms. Herman, a January, 1960 graduate of the Immanuel School,<sup>27</sup> "...was the type of person that wanted people to know what they were doing..." She remained at Immanuel after graduation and was interested in teaching the student nurse anesthetists. Dr. Therien had been an anesthesiologist at Immanuel Hospital prior to transferring to Clarkson Hospital.<sup>28</sup> He was affiliated with Immanuel in October, 1954 when he spoke at the NANA meeting in Omaha. He spoke at another meeting for CRNAs in 1958 but his hospital affiliation was not listed in the program.<sup>29</sup> Dr. Therien was at Immanuel when the

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<sup>25</sup> Virginia Blecha of Omaha, interview by author, 30 August 2006, Omaha, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>26</sup> Ibid.

<sup>27</sup> Information pertaining to Darleen Herman's education was found on the Nebraska Department of Health and Human Services website at [www.hhs.state.ne.us](http://www.hhs.state.ne.us).

<sup>28</sup> Virginia Blecha interview.

<sup>29</sup> See the program for the Nebraska State Association of Anesthetists, October, 1954 and for the Institute for Nurse Anesthetists, January, 1958 found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

school was opened and was supportive while Dr. Carter "...wasn't enthused about it." Ms. Blecha attributed the closure of the school to the lack of support by the Immanuel anesthesiologist. "I think that it just got to be too much for Ms. Niedermeyer to do it alone."<sup>30</sup> The final class to attend the school graduated June 30, 1962 and the Immanuel Hospital School was not found in the August, 1962 AANA list of accredited programs.

The Immanuel Hospital School of Anesthesia was in operation for approximately seven years, from late 1955 or early 1956 until June of 1962. Most likely between three and four classes of one or two students, or from four to eight students completed the training to be qualified as CRNAs. The Immanuel Hospital School did not produce large numbers of graduates, but two individuals associated with the school had a significant impact on nurse anesthesia education in Nebraska. Dr. Therien opened a nurse anesthesia program approximately ten years later at Clarkson Hospital. He provided clinical and didactic instruction to student nurse anesthetists from the Saint Joseph Hospital School of Anesthesia in Omaha. Probably more important was the role he played as a mentor to Elizabeth Dugan, the CRNA Director of the Saint Joseph School. "If she had questions, problems, or whatever, she would call him. She would call him for advice." Ms. Dugan and Dr. Therien had "A very good relationship."<sup>31</sup>

Darleen Herman, CRNA, was the second individual associated with the Immanuel Hospital School who later had a significant impact on nurse anesthesia education in the state. She was responsible for founding two hospital-based certificate programs in Nebraska. The first was the Saint Elizabeth's Hospital School of Anesthesia, the second was the Bryan Memorial Hospital School of Anesthesia with both in Lincoln, Nebraska. The Bryan Memorial program was the only nurse anesthesia program to survive into the 21<sup>st</sup> Century. Following the certificate programs, Ms. Herman organized a baccalaureate program at Creighton University.

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<sup>30</sup> Virginia Blecha interview.

<sup>31</sup> Mary Byrne of Omaha, interview by author, 30 August 2006, Omaha, transcript, AANA History and Archives Society, Park Ridge, Ill.

The long-running Creighton Memorial-Saint Joseph's Hospital certificate program transitioned into the Creighton University baccalaureate program. These achievements served as the legacy of the Immanuel Hospital School of Anesthesia.

#### Bishop Clarkson Memorial Hospital School of Anesthesia

The Bishop Clarkson Memorial Hospital School of Anesthesia was first included in the list of nurse anesthesia programs accredited by the AANA in February of 1971. The program was included in the AANA list of programs through 1973 and then was removed. Dr. Robert Therien was identified as the program director but no further information was included. Neither the Clarkson hospital, or college, archives contained any information related to the short-lived nurse anesthesia program. The only reference to the program found described it briefly as a program which "...trains nurses primarily for use in their own hospital."<sup>32</sup> The short duration and limited scope of the program accounted for the lack of documentation, but some characteristics could be determined by considering the time in which it operated and the individual who was Director of the program.

All nurse anesthesia educational programs accredited between 1971 and 1973 were required to meet the criteria outlined in the *Accreditation of Schools of Anesthesia For Nurses, 1970* upon application to the AANA. The criteria required the Clarkson program to be a minimum of eighteen months in duration and provide 600 hours of clinical instruction and 300 hours of classroom, or didactic, instruction.<sup>33</sup> The Director of the program, Dr. Therien, organized the program and provided the majority of the instruction.<sup>34</sup> He was experienced in both clinical and didactic instruction of nurse anesthesia students and had been affiliated with Immanuel

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<sup>32</sup> "School of Allied Health Professions: Summary of Existing and Proposed Programs, January, 1973" (Omaha: University of Nebraska College of Medicine), 5.

<sup>33</sup> American Association of Nurse Anesthetists, *Accreditation of Schools of Anesthesia for Nurses 1970* (Chicago: American Association of Nurse Anesthetists, 1970), 4.

<sup>34</sup> Dee O'Leary, CRNA affiliated with Bishop Clarkson Hospital and Dr. Therien, personal communication, October 19, 2006.

Hospital when the program was opened there. His professional relationship with the CRNA Director of the Creighton-Saint Joseph's program located in the same city, and with other CRNAs developed through speaking at professional meetings of the nurse anesthetists, provided a familiarity of nurse anesthesia educational programs.<sup>35</sup> The criteria for accreditation effective in 1970, while allowing either an anesthesiologist or a CRNA to serve as the Director of the program, mandated the involvement of a CRNA in each program.<sup>36</sup> A CRNA was required to be involved in the Clarkson program in addition to Dr. Therien, but the name of the CRNA or the extent of the involvement was not found.

The reasons the Clarkson program was opened and then closed two years later are not known. The brief duration may have been planned by the program leadership prior to seeking accreditation. It is possible that one, or a few RNs, associated with Dr. Therien at Clarkson wished to become nurse anesthetists and the program was initiated to accommodate that desire. The accreditation process was much simpler at the time than it would later become. Another factor that could have affected the Clarkson program was the launching of a new nurse anesthesia baccalaureate program at the University of Nebraska Medical Center announced in late 1972. The University Hospital was located within a block of Clarkson Hospital and the University program was the third program in the city of Omaha. The new University baccalaureate program combined with the growing movement toward academic degree programs in nurse anesthesia education may have caused the early abandonment of the Clarkson certificate program.

#### Saint Elizabeth Hospital School of Anesthesia

The first nurse anesthesia educational program to be found in Nebraska outside of the city of Omaha was sponsored by Saint Elizabeth Hospital. The hospital was located in the city of Lincoln approximately fifty miles to the southwest of

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<sup>35</sup> Found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia office Lincoln, Nebr.

<sup>36</sup> American Association, *Accreditation of Schools 1970*, 7.



Omaha. The program appeared in the AANA list of accredited program from 1965 through 1970, although there were no students enrolled after March of 1967. Darleen Herman, a CRNA graduate of the Immanuel Hospital School of Anesthesia in Omaha, was responsible for organizing the program.

Ms. Herman attended the Bryan Memorial Hospital School of Nursing in Lincoln, graduating and becoming licensed as a RN in 1948. She completed her anesthesia training at Immanuel in 1960<sup>37</sup> and joined the hospital CRNA staff at Immanuel following her graduation until at least 1962. She taught both in the clinical environment and lectured in the classroom for the last class of Immanuel nurse anesthesia students, who graduated in June, 1962.<sup>38</sup> By 1965 she had returned to Lincoln and was employed in the anesthesia and obstetric departments of Bryan Memorial. Ms. Herman planned to start a nurse anesthesia program in Lincoln and approached either the hospital administration or the department of surgery at Bryan Memorial with the proposal. She also recruited three students for the first class. She was unsuccessful in gaining sponsorship through Bryan Memorial so she presented the plan to Saint Elizabeth where it was approved.<sup>39</sup>

Ms. Herman was responsible for planning and program administration. "...she was the only person that was in charge. She did all of the ground work and all of the requirements and worked with the administrators of the hospital at that time."<sup>40</sup> Three students started training in September of 1965, Connie Olson, Carol Stueck, and T.J. Barnes. All were RNs with several years of nursing experience prior to beginning nurse anesthesia training. The program was 18 months in length with the students

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<sup>37</sup> Information pertaining to Darleen Herman's education was found on the Nebraska Department of Health and Human Services website at [www.hhs.state.ne.us](http://www.hhs.state.ne.us).

<sup>38</sup> Virginia Blecha interview.

<sup>39</sup> Connie Olson and Carol Stueck of Lincoln, Nebraska, interview by author, 17 August 2006, Lincoln, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>40</sup> Ibid.

obtaining clinical experience in the mornings and classroom instruction in the afternoons.<sup>41</sup>

The student nurse anesthetists were supervised and instructed during the clinical practicum by either Ms. Herman or other members of the Saint Elizabeth anesthesia department. Two anesthesiologists, Dr. Brauer and another physician, and two additional CRNAs, Lois O'Nele and Zetta Wiater, composed the anesthesia department in addition to Ms. Herman. There was always a supervising anesthesia provider with the students, except in a rare emergency situation, and the students did not replace a staff anesthesia provider. The nurse anesthesia students obtained ample clinical experience during the 18 month program.

Ms. Olson's *Record of Clinical and Classroom Experience* included 983 anesthetic cases for 1295 hours of clinical experience. The clinical experience was well beyond the required 450 cases and 500 hours of clinical experience. The most common inhalation anesthetics administered during her experience were Fluothane with 665 cases, 548 nitrous oxide/ethylene cases, and 217 cyclopropane cases. Intravenous barbiturates, 731 cases, and muscle relaxants, 441 cases, were also commonly used. Her experience included a total of 53 ether cases with fifteen open drop cases, while there was no experience with chloroform. She did not administer any intravenous narcotics during her training. She had extensive endotracheal intubation experience with 227 intubations, many more than the fifty required. The regional anesthesia experience consisted of the management of 110 regional anesthetics. The nurse anesthetists did not administer regional anesthesia but would monitor patients after a spinal anesthetic had been placed by either the surgeon or an anesthesiologist.<sup>42</sup>

The students were exposed to clinical experiences in hospitals in addition to Saint Elizabeth. They traveled to the University Medical Center in Omaha to observe

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<sup>41</sup> "Lincoln's Newest School Has Three Busy Students," *Lincoln Journal* 13 September 1965.

<sup>42</sup> A photocopy of Mrs. Colleen (Connie) Olson's official AANA student transcript was provided to the author by Ms. Olson.

open heart surgery and obtained additional pediatric experience at Children's Hospital in Lincoln. Orthopedic; ear, nose and throat (ENT) and plastic surgery procedures such as cleft palate repair were commonly performed at Children's. Ms. Herman was on staff there "...so when she was on the schedule over there, she would take us and assign us." Ms. Olson had administered 482 pediatric anesthetics during her training while only ten were required by the AANA. One of the ENT surgeons requested open drop ether anesthetics, and the anesthetics for the cleft palate repairs were also the ether technique "... so we were exposed to that."<sup>43</sup> This was necessary experience as the AANA criteria in effect until 1970 required each student to administer ten drop ether cases.

The usual clinical hours were from 7:00 am to 12:00 noon with the afternoon hours devoted to didactic instruction. The classroom instruction was scheduled from 1:00 to 3:00 pm every day. Ms. Herman was the only CRNA to participate in the didactic instruction and she was assisted by the two anesthesiologists. The didactic material was primarily obtained from the series of Notes booklets prepared by the AANA.<sup>44</sup> The students prepared for the certification examination by studying questions in a review book.<sup>45</sup> The number of classroom hours recorded was 252.5 hours in Ms. Olson's record, almost exactly the 250 hours required. The two hours a day spent in the classroom for eighteen months would account for more than 750 hours of classroom time. The discrepancy was likely due to time spent conducting clinical case discussion and/or review sessions preparing for the certification exam. Students may have remained in the clinical area for some afternoons as well.

The nurse anesthesia students were charged a modest fee of approximately \$150.00 when they started training. They remembered the purpose of the fee was to pay for the didactic Notes booklets provided by the AANA. All meals were provided

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<sup>43</sup> Connie Olson and Carol Stueck, interview.

<sup>44</sup> The AANA produced a series of Notes booklets that covered the curriculum outlined in the accreditation standards.

<sup>45</sup> Connie Olson and Carol Stueck, interview.

for the students while at the hospital. The AANA list of anesthesia programs indicated the Saint Elizabeth program paid a cash stipend to the students. One graduate remembers receiving a check each month while another does not.<sup>46</sup> The hospital did not receive any staffing benefit from the student anesthetists as there was always a staff anesthesia provider assigned with the student, so the administration likely paid the stipend out of hospital revenues.

The class of three nurse anesthetists all completed the program and graduated in March of 1967.<sup>47</sup> The program remained accredited through 1970 but no students other than the first class of three were enrolled. Ms. Herman may have chosen to not enroll more students at the time the first class graduated. She was responsible for the majority of the program and may have been overwhelmed; “Darleen didn’t get as much help or assistance as she expected for the program. She was a little disappointed.”<sup>48</sup> She approached Saint Elizabeth with a request to enroll another student in the fall of 1967 “...but she wasn’t able to get into Saint Elizabeth anymore.”<sup>49</sup> R. C. Brauer, an anesthesiologist affiliated with Saint Elizabeth Hospital, was identified as the Director of the program in the 1968 AANA list where Darleen Herman, CRNA had previously been identified. Dr. Brauer, or the Saint Elizabeth administration, may have wished to maintain the accreditation status in the event the situation was changed and students were again enrolled. Evidently the factors that prevented a student enrolling in late 1967 persisted and the program never trained more CRNAs beyond the first, and last, class of three student nurse anesthetists.

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<sup>46</sup> Ibid.

<sup>47</sup> Ibid.

<sup>48</sup> Ibid.

<sup>49</sup> Marie (Trainor) Fletcher of Petaluma, California, interview by author, 5 August 2006, Cleveland, Ohio, transcript, AANA History and Archives Society, Park Ridge, Ill.

## Bryan Memorial Hospital School of Anesthesia

The second program to be located in Lincoln, Nebraska was affiliated with Bryan Memorial Hospital. The program was first included in the AANA list of accredited nurse anesthesia educational programs in 1968. A single student, Marie Trainor, enrolled in the program in September of 1968 soon after accreditation was granted.<sup>50</sup> Ms. Trainor had learned of the Saint Elizabeth nurse anesthesia program from Carol Stueck, one of the students in the program. Ms. Trainor and Ms. Stueck had been classmates in the Saint Elizabeth School of Nursing approximately ten years earlier and they had discussed nurse anesthesia<sup>51</sup> "...and the challenge sounded to me like it would be the ultimate challenge."<sup>52</sup> Ms. Trainor contacted the CRNA Director of the Saint Elizabeth School of Anesthesia, Darleen Herman, in the fall of 1967 to inquire about nurse anesthesia training. The first three students to attend the Saint Elizabeth program had graduated in March, and when Ms. Herman approached Saint Elizabeth in the fall "...she wasn't able to get into Saint Elizabeth anymore." During the course of the next year, Ms. Herman communicated with Ms. Trainor, and was successful in developing a program at Bryan Memorial:

We started working on the Bryan Memorial possibilities. She (Darleen Herman) did most of the work, and I (Marie Trainor) don't know how she went about it. A few times, it appeared that she was not going to be able to get the school started. I begged and finally somewhere in the process, she was able to get her foot in the door. We started in September 1968.<sup>53</sup>

A second student, Kathryn Conratt, was enrolled in April of 1969 approximately six months after Ms. Trainor, with a third to follow in another six months. There were three students enrolled during the final six months of Ms.

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<sup>50</sup> List of Bryan Memorial Hospital graduates found in the BryanLGH School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>51</sup> Connie Olson and Carol Stueck, interview.

<sup>52</sup> Marie (Trainor) Fletcher, interview.

<sup>53</sup> Ibid.

Trainer's eighteen month training. There was not another student enrolled for some time after all of the first three students had graduated. Linda Harr, the third student, graduated in April of 1971 but the fourth student was not enrolled until September of 1972, resulting in an eighteen month period when there were no students enrolled in the program. The second group of three students was enrolled at six month intervals beginning in the fall of 1972, and completed the program between September, 1974 and April, 1975. The pattern was then changed to enrolling two students in October each year in 1975, 1976, and 1977. The certificate program was terminated with the graduation of the 1977 class; students entering the program in 1978 would earn a baccalaureate degree. The total number of students attending the program at any time varied from four students between October and April, to two between April and October, when the program began the annual enrollment. The educational capacity was increased by enrolling two students each fall. Six graduates had been produced in the first six and one half years of the program, compared to the same number produced in the three and one half years between October, 1975 and March, 1979.<sup>54</sup>

A description of the Bryan Memorial Hospital School of Anesthesia dated 1974 listed four application requirements. High school graduation, graduation from an accredited nursing school, and RN licensure were all requirements of the accrediting body for nurse anesthesia programs. The fourth was an age restriction that required applicants to be between the ages of twenty-one and forty-five years. Applicants were required to submit a report of a recent physical examination, a recommendation from the Director of the School of Nursing and a transcript from the School of Nursing that the applicant attended, and a recent photograph. Applications were to be submitted six weeks prior to admission in September or April to the Director, Darleen Herman, at the hospital. A tuition charge of \$160.00 was payable on admission and included payment for books, library fee, and a graduation fee. Each student received a stipend of \$75.00 a month for the initial six months of the program,

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<sup>54</sup> List of Bryan Memorial Hospital graduates found in the files of BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

\$125.00 a month for the second six month period, and \$200.00 a month for the final six months.<sup>55</sup>

There was no traditional didactic instruction for the first six students of the Bryan program. A student was admitted every six months, so each student was at a different phase of the educational program. The AANA Notes series of pamphlets was provided to each student in addition to three textbooks, a physiology, a pharmacology, and an anesthetic principles text. Ms. Herman held discussions with the student on the topics included in the AANA class outline either in the clinical area or her office.<sup>56</sup> Individual students would choose to study together during the rotating enrollment, "...we were just teaching each other an awful lot." The students used the AANA Notes as a study guide for the certification exam; "I just remember studying, almost memorizing, those."<sup>57</sup> Ms. Herman was the only didactic instructor when the program began, but that changed as several of the graduates joined the staff of the Bryan anesthesia department. Marie Trainor, the first student, and Nancy Gondringer, an October, 1974 graduate, were particularly interested in teaching and assumed a role in the didactic instruction of the students.<sup>58</sup>

The Council on Accreditation of Nurse Anesthesia Educational Programs (COA) was formed in 1975 resulting in a major revision of the accreditation standards and processes.<sup>59</sup> The Bryan nurse anesthesia program made changes in order to meet the COA standards. The decision to enroll two students each fall rather

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<sup>55</sup> Found in the files of BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

<sup>56</sup> Nancy Gondringer of Lincoln, Nebraska, interview by author, 5 August 2006, Cleveland, Ohio, transcript, AANA History and Archives Society, Park Ridge, Ill., and Marie (Trainor) Fletcher, interview.

<sup>57</sup> Marie (Trainor) Fletcher, interview.

<sup>58</sup> *Ibid.*, see also Nancy Gondringer, interview.

<sup>59</sup> See pp. 222-250 below.

than one student every 6 months was made in 1975 by the CRNAs interested in teaching. They wanted to develop a more organized didactic program:

We decided as a group that it would be better to have two, instead of starting (one) every six months, so that we could do more didactic instruction....Now we had three essential instructors and felt that it would be better for the students to come together and then try to do formal classes versus just the informal didactic lectures. They weren't lectures, they were conferences."<sup>60</sup>

The didactic portion became more organized in that the two students met with one of the CRNAs on a designated afternoon once a week. "We had classes, but we didn't lecture. It was more of a student-instructor interaction on certain days of the week."<sup>61</sup>

Darleen Herman, the CRNA Program Director, was the primary clinical instructor of the student nurse anesthetists when the program was opened in 1968. She supervised the new students for almost all their clinical experiences during the first 6 months of their training. When another student began the program 6 months later, the new student was supervised by Ms. Herman while the more experienced student was supervised by other members of the Bryan anesthesia department. Four of the first five graduates joined the Bryan anesthesia department upon graduation, becoming clinical instructors for subsequent students. The two anesthesiologists in the department also participated in the clinical education of the more experienced nurse anesthesia students. Ms. Herman administered anesthesia in other hospitals in the area and often took a student with her. She administered pediatric anesthesia, especially for cleft palate repairs, at Providence Hospital in Lincoln, and traveled to rural hospitals in Henderson and York, Nebraska. The student nurse anesthetists accompanied Ms. Herman to these sites which allowed a greater depth of clinical experience.<sup>62</sup>

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<sup>60</sup> Nancy Gondringer, interview.

<sup>61</sup> Ibid.

<sup>62</sup> Ibid. and Marie (Trainor) Fletcher, interview.



The student nurse anesthetists were exposed to a variety of surgical procedures including open heart surgery and often performed double the 450 anesthetics required to be eligible for certification. Nitrous oxide and halothane were the most common inhalation anesthetics administered by the students while barbiturates and muscle relaxants were common intravenous anesthetics. Neuroleptic and narcotic agents began to be used for a limited number of cases beginning in approximately 1970. The typical student performed more than 200 intubations prior to graduation, well in excess of the seventy-five required, but the students were not exposed to the administration of regional anesthesia.<sup>63</sup>

Twelve students completed the eighteen month Bryan Memorial Hospital School of Anesthesia program between 1968 and 1979. The last class to earn a certificate from the program graduated in March of 1979. The certificate program was transitioned to a twenty-four month baccalaureate program with the class enrolling in the fall of 1978. The program administration changed approximately a year prior to the change to the baccalaureate format and Frank Maziariski became the second CRNA Program Director. The final two students of the certificate program were completing the program while the baccalaureate program students began training and "...they had essentially the same program." The Director, Mr. Maziariski, assisted the certificate students in developing a plan to obtain a baccalaureate degree; "...we had to accommodate them."<sup>64</sup>

#### Creighton Memorial-Saint Joseph Hospital School of Anesthesia

The first Nebraska nurse anesthesia program began in 1947, five years before the implementation of the AANA accreditation program. The opening of the

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<sup>63</sup> The *Record of Clinical and Classroom Experience* for the certificate graduates were found in the students files at BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

<sup>64</sup> Frank Maziariski of Shoreline, Washington, interview by author, 7 August 2006, Cleveland, Ohio, transcript, AANA History and Archives Society, Park Ridge, Ill.

Creighton Memorial-Saint Joseph Hospital School of Anesthesia was announced in the November, 1946 meeting of the Nebraska Association of Nurse Anesthetists by the association president:

As part of a nation-wide effort to ease the shortage of anesthetists, St. Joseph's hospital in Omaha, affiliated with Creighton University, will open the state's first school of anesthesia, with classes beginning the first of next year.<sup>65</sup>

The first student, Mary Bell Hess of Saint Ames, Chicago, began the program in February of 1947.<sup>66</sup> The program existed for a considerably longer duration than any other Nebraska nurse anesthesia certificate program with the last certificate granted in 1978.

There was little information found concerning the first four years of the program's operation. Dr. William N. Hardman, an anesthesiologist, was the program director for the first year and then Elizabeth Dugan, CRNA assumed the role for the following twenty-one years.<sup>67</sup> Students entering the program in 1951 completed a twelve month course of study.<sup>68</sup> The AANA membership bylaws specified a minimum of an eight month course for those trained between September 1, 1947 and January 1, 1951,<sup>69</sup> so the Creighton-Saint Joseph program may have been of a shorter duration prior to 1951. The program duration was increased to eighteen months prior

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<sup>65</sup> Found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia, Lincoln, Nebr.

<sup>66</sup> Found in the February, 1947 edition of the student newspaper, *The Nightingale*. Reinert Memorial Library, Creighton University, Omaha, Nebr.

<sup>67</sup> See "Omahan Head Anesthetists For Nebraska," *Lincoln Evening Star* 17 January 1947 for information related to Dr. Hardman, and the NANA scrapbook at the BryanLGH School of Nurse Anesthesia office Lincoln, Nebr. "Elizabeth Dugan Honored."

<sup>68</sup> Lois O'Nele of Lincoln, Nebraska, interview by author, 14 August 2006, Lincoln, Nebraska, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>69</sup> Jessie L. Compton and others, "Survey of Anesthesia Service: 1955," *Journal of American Association of Nurse Anesthetists* 23 (1955): 228.

to 1960<sup>70</sup> and remained at that duration through 1978 when the certificate program closed.

Students enrolled in the Creighton-Saint Joseph nurse anesthesia program three times a year with the twelve month curriculum, and every six months when the duration was increased to eighteen months. In 1951 two students were admitted to each class. The class size was soon increased to three or four students, or a maximum of twelve students enrolled at one time.<sup>71</sup> Three admissions requirements were included in a program brochure dated 1968. The admissions requirements of the Bryan Memorial School were almost identical to those of the Creighton-Saint Joseph program, with the exception of the requirement for high school graduation. Applicants to the Creighton-Saint Joseph program were required to graduate from an accredited School of Nursing, hold an RN license, and be between the ages of twenty-one and forty. Applicants were instructed to submit a report of a physical examination, a recommendation from the Director of, and transcripts from, the School of Nursing which the applicant had attended. The application deadline was six weeks prior to the April or October admission dates.<sup>72</sup> Several alumni did not meet with anyone as part of the application process.<sup>73</sup> Others recalled an interview with the

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<sup>70</sup> Mary Byrne interview.

<sup>71</sup> Ibid.; Pam Feser of Lincoln, Nebraska, interview by author, 23 August 2006, Lincoln, Nebraska; Jeanne Howard of Omaha, Nebraska, interview by author, 30 August 2006, Omaha, Nebraska; Julian Lachendro of Council Bluffs, Iowa, interview by author, 30 August 2006, Omaha, Nebraska; Lois O'Nele interview; Kennetha Scheer of Ashland, Nebraska, interview by author, 3 August 2006, Ashland, Nebraska; Mary Svoboda of Schuyler, Nebraska, interview by author, 12 August 2006, Schuyler, Nebraska; Zetta Wiater of Omaha, Nebraska, interview by author, 20 August 2006, Omaha, Nebraska; all transcripts, AANA History and Archives Society, Park Ridge, Ill.

<sup>72</sup> See Creighton Memorial-Saint Joseph's Hospital School of Anesthesia brochure found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia office Lincoln, Nebr.

<sup>73</sup> Lois O'Nele interview, Mary Svoboda interview, Julian Lachendro interview, and Pam Feser interview.

director of the program.<sup>74</sup> A few alumni recalled meeting with the director of the program prior to entering the program, but not a formal interview.<sup>75</sup> One alumni who began training in 1974 submitted the application materials and "...you were just taken in order of application."<sup>76</sup>

An anesthesiologist was the director of the program for the first year, 1947, but apparently left the anesthesia department. The following year Elizabeth Dugan, a CRNA affiliated with Saint Joseph's Hospital in the 1937 membership list of the AANA, became the director. Ms. Dugan was a 1925 graduate of the Saint Joseph School of Nursing, and began employment at the hospital in 1929.<sup>77</sup> The inclusion in the 1937 AANA membership indicated she had been trained as a nurse anesthetist by that time, most likely during her four-year absence from the hospital following her graduation from nursing school. Mary Burford, CRNA, became the director upon Ms. Dugan's retirement in 1969. Ms. Burford joined the Saint Joseph staff between 1945 and 1949 following her nurse anesthesia training at the Mayo Clinic in Rochester.<sup>78</sup> She served as the director for approximately two years with Jean Behrens, CRNA, filling the role in 1972. Ms. Behrens was the last director to be named for the certificate program.<sup>79</sup>

There were no anesthesiologists associated with Saint Joseph Hospital until July of 1962. A group of three anesthesiologists then joined the staff of the hospital,

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<sup>74</sup> Kennetha Scheer interview and Jeanne Howard interview.

<sup>75</sup> Mary Byrne interview and Mary Svoboda interview.

<sup>76</sup> Pam Feser interview.

<sup>77</sup> The dates of Elizabeth Dugan's graduation from nursing school and employment at the hospital were found in copies of *The Voice Saint Joseph's Hospital School of Nursing Alumni Association* 1 no. 2 (1959). Reinert Memorial Library, Creighton University, Omaha, Nebr.

<sup>78</sup> Mary Byrne interview. The dates are determined from the membership lists of the AANA for 1945 and 1949.

<sup>79</sup> AANA List of Approved Schools for Nurse Anesthetists.

but the group was also responsible for providing anesthesia services at two additional Omaha hospitals, Saint Catherine's and Doctors Hospitals.<sup>80</sup> The range of responsibilities prevented a daily presence by the anesthesiologists at Saint Joseph, or the other hospitals.

The Creighton-Saint Joseph student nurse anesthetists received a week or two of instruction related to the anesthesia machine and basics of anesthesia prior to beginning clinical experience. During 1951 there were two CRNAs in addition to Ms. Dugan who supervised the students in the clinical area. "One instructor would probably follow three rooms...they just supervised and went from room to room to see how we were doing."<sup>81</sup> "We were unpaid help really, doing the surgery schedule."<sup>82</sup> In 1954 the students completing the final four months of training supervised the new students, "...the seniors could supervise the freshman when they came in."<sup>83</sup> The more advanced students continued to provide support to the newer students in 1975, a student in the second six months of the program would be assigned a new student. "We were responsible for one of the new students that would accompany us. We were to guide them along the way." A CRNA was also assigned to supervise the more senior student and was always present during the induction of an anesthetic.<sup>84</sup>

The *Record of Clinical and Classroom Experience* for a 1961 graduate of the program documented the student administered 917 anesthetics for 1272 hours of

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<sup>80</sup> "Anesthesiologists Join Staff," *Cues & News* 3 no. 27 (1962). A hospital newsletter, copies found in the Reinert Memorial Library, Creighton University, Omaha, Nebr.

<sup>81</sup> Lois O'Nele interview.

<sup>82</sup> Mary Byrne interview.

<sup>83</sup> Zetta Wiater interview.

<sup>84</sup> Jeanne Howard interview.

clinical experience.<sup>85</sup> Similar to the records reviewed for students of other Nebraska programs, this was well in excess of the 450 cases and 500 hours required for eligibility for certification. The 233 ether experiences, and 90 open-drop cases were significantly greater for the Creighton-Saint Joseph student compared to the students from other Nebraska programs. The dates of the records may account for the difference as the Creighton-Saint Joseph record reviewed was from six years earlier than the 1967 Saint Elizabeth record, and eight years earlier than the Bryan Memorial records.

The Creighton-Saint Joseph students in the 1950's administered open-drop ether for obstetric analgesia during labor and delivery. The open-drop ether technique was converted to a closed technique if a general anesthetic was necessary; "If we had to put them completely to sleep, then we used the number eight ether jar on the machine."<sup>86</sup> Ether anesthetics were often used for surgical anesthesia in the 1950's as well, which became difficult in the summer months. Most of the operating rooms were not air conditioned and the increased temperature interfered with appropriate ether vaporization:

We learned to use ether quite a bit....It was pretty warm, so we didn't do many surgeries during the summer months....If we did, we would pack the patients with ice bags strategically....That is how we kept them cool. On the floor, we would put buckets of ice and let the fan blow across it, so that you could keep the room cool....Since we used the ether, the vaporization just wouldn't work well.<sup>87</sup>

The 1961 graduate administered a small number of cyclopropane anesthetics, twenty-seven, and forty-four Fluothane, or halothane, anesthetics. Intravenous agents used were approximately 650 barbiturate experiences, more than 550 cases with a muscles relaxant and 101 cases with an intravenous narcotic. The number of narcotic cases the

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<sup>85</sup> A photocopy of Mrs. Mary Svoboda's official AANA student transcript was provided to the author by Ms. Svoboda.

<sup>86</sup> Zetta Wiater interview.

<sup>87</sup> Ibid.

Creighton-Saint Joseph student participated in was much greater compared to the Lincoln nurse anesthesia programs. Tracheal intubations performed were roughly equivalent between the programs with 279 performed by the Creighton-Saint Joseph student. Regional anesthesia experience was also similar; no regional blocks were performed by the students.<sup>88</sup> Spinal anesthetics were done occasionally by a surgeon, usually an urologist. Other regional blocks such as an epidural were never done during 1960 or 1961, "I didn't even know what that was."<sup>89</sup>

The Creighton-Saint Joseph student nurse anesthetists received a stipend while in the program. The 1968 program brochure indicated a \$75.00 a month stipend during the second six month period which increased to \$125.00 a month during the last six months.<sup>90</sup> The program continued to pay the students a stipend through the later 1970's with the corresponding raises in the second, and third, phase of the training.<sup>91</sup> The amount of responsibility increased during the second and third phases as well. During the final third of their clinical training the students in the 1960's and 1970's were responsible for the emergency anesthesia call in the hospital. The student called the graduate CRNA at home to discuss emergency cases, and the CRNA could choose to call the anesthesiologist. The anesthesiologist was also on call at another Omaha hospital and often was unavailable. "You were the anesthesia expert in the house, because you were the only anesthesia person in house."<sup>92</sup> "It was somewhat of

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<sup>88</sup> A photocopy of Mrs. Mary Svoboda's official AANA student transcript was provided to the author by Ms. Svoboda.

<sup>89</sup> Mary Svoboda interview.

<sup>90</sup> See Creighton Memorial-Saint Joseph's Hospital School of Anesthesia brochure found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia office Lincoln, Nebr.

<sup>91</sup> Pam Feser interview.

<sup>92</sup> Jeanne Howard interview.

a shock... You began to question it, but you had to do it, because that was...at that time, it was your responsibility.”<sup>93</sup>

The nurse anesthesia students paid a fee upon acceptance to the program and upon enrolling in the program. The fees listed in the 1968 brochure were \$25.00 on acceptance and \$160.00 on admission. The fees included “...books, graduation fees, library fee and miscellaneous items. The fee was referenced as a tuition fee, but no academic credits were earned by the students.”<sup>94</sup> The students were given classroom, or didactic, instruction in accordance with the accreditation criteria. The didactic instruction was primarily in the first phase of the program. Ms. Dugan, the CRNA director, and the two other CRNAs in the anesthesia department were responsible for the didactic instruction in 1951.<sup>95</sup> Later in the decade surgery residents began to provide some of the basic science lectures, especially anatomy and physiology, and a pharmacist was responsible for the pharmacology lectures.<sup>96</sup>

A comparison of the *Record of Clinical and Classroom Experience* completed by the Creighton-Saint Joseph program in 1961 and the Saint Elizabeth program in 1967 revealed a difference in the emphasis of the didactic instruction between the two programs. The Total Class Hours required was 250 in both 1961 and 1967, but the Creighton-Saint Joseph curriculum had a greater number of hours devoted to pharmacology and anesthetic methods than to the basic sciences. The number of hours of basic science instruction including anatomy, physiology, chemistry and physics was 99.5 hours, while the number of hours of instruction in pharmacology

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<sup>93</sup> Julian Lachendro interview.

<sup>94</sup> See Creighton Memorial-Saint Joseph’s Hospital School of Anesthesia brochure found in the NANA scrapbook at the BryanLGH School of Nurse Anesthesia office Lincoln, Nebr.

<sup>95</sup> Lois O’Nele interview.

<sup>96</sup> Mary Byrne interview, Mary Svoboda interview, and Zetta Wiater interview.



and anesthetic methods was 140 hours. The distribution of the Saint Elizabeth curriculum hours was the reverse of the Creighton-Saint Joseph program.<sup>97</sup>

Selected staff and residents affiliated with Creighton Medical School continued to provide the didactic instruction during the first six months of the program in the 1960's and 1970's. A CRNA who joined the anesthesia department in 1974 was made responsible for teaching chemistry and physics of anesthesia, and anesthetic techniques. The didactic instruction continued to be concentrated in the first six months of the program but the students participated in other educational activities through the remainder of the program. Reviews of the current research were required to be written by the students on selected topics. Additionally the students were encouraged to participate in clinical conferences held at the University of Nebraska Medical Center with the anesthesiology residents. The conferences were held in the late afternoon once a week and the students in the operating rooms would be relieved if possible to allow attendance at the conferences.<sup>98</sup> The students also were responsible for studying for the certification exam, "...you studied on your own and were expected to gather all of the information needed."<sup>99</sup>

The Creighton Memorial-Saint Joseph School of Anesthesia enrolled the final class in the fall of 1976. A total of 203 CRNAs were educated in the program between 1947 and 1978.<sup>100</sup> The decision had been made by the CRNAs teaching in the program to phase out the certificate program in order to develop a baccalaureate program for nurse anesthetists. The CRNA faculty viewed the baccalaureate program as an opportunity to improve the didactic preparation of the students.<sup>101</sup> The nurse

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<sup>97</sup> Ms. Svoboda's and Ms. Olson's official AANA student transcripts.

<sup>98</sup> Pam Feser interview, Jeanne Howard interview, and Julian Lachendro interview.

<sup>99</sup> Julian Lachendro interview.

<sup>100</sup> Sheri Schram in the Nursing Administration office of Saint Joseph's Hospital, personal communication, September 7, 2006.

<sup>101</sup> Julian Lachendro interview.

anesthetists were also influenced by the national discussion related to the advancement of accreditation standards for nurse anesthesia programs.<sup>102</sup> “We felt that was the way of the future. We would no longer be competitive to invite the students into our program unless we could offer them a degree rather than a diploma (certificate) in anesthesia.”<sup>103</sup> A relatively small number of programs nationally were degree granting programs in 1978. The COA List of Recognized Educational Programs published in December of 1978 indicated that 14 of the 153 civilian programs granted academic degrees. The University of Nebraska Medical Center program, also located in Omaha, was one the baccalaureate degree programs. The third nurse anesthesia program in Nebraska, the Bryan Memorial Hospital program, admitted students to a baccalaureate degree program in the fall of 1978. Nationally most nurse anesthesia programs remained certificate programs at the time, but locally the Creighton-Saint Joseph program was competing for students with the two Nebraska programs that were granting an academic degree. The first hospital based certificate nurse anesthesia program to train nurse anesthetists in Nebraska was also the last.

#### The Legacy of the Nebraska Certificate Programs

The five hospital based certificate nurse anesthesia programs to exist in Nebraska were representative of nurse anesthesia programs nationally. The launch of the AANA accreditation program in 1952 preceded the establishment of a large number of programs nationally. The Creighton-Saint Joseph certificate program trained the vast majority of Nebraska CRNA certificate graduates and was of the longest duration compared to the other Nebraska certificate programs. There were over two hundred certificate graduates produced by the Creighton-Saint Joseph program compared to a dozen or fewer graduates produced by the other programs. The Creighton-Saint Joseph program and the Bryan Memorial program both were phased out in order to establish a baccalaureate program. The Immanuel Hospital,

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<sup>102</sup> Pam Feser interview.

<sup>103</sup> Jeanne Howard interview.

Saint Elizabeth, and Bishop Clarkson programs were all closed with no further nurse anesthesia program established within the hospitals.

## CHAPTER 6

## THE TRANSFORMATION OF NURSE ANESTHESIA PROGRAMS

Internal and external forces effected profound change in the nurse anesthesia educational system beginning in the middle of the 1970 decade. Nurse anesthesia programs experienced an orderly growth in number of programs and graduates; and in educational standards for approximately twenty years following the 1952 initiation of accreditation. Change was relatively slow and deliberate prior to 1970, but the pace of change accelerated quickly. Two events with direct implications for nurse anesthesia education coincided in the 1970's. Some students in nurse anesthesia programs began to earn academic degrees, and the US Department of Education implemented a major revision of the criteria for recognition of accreditation agencies by the US Commissioner of Education. Additionally the health care environment was experiencing cost containment measures and basic nursing education was moving from hospital-based diploma programs to academic institutions. The impact of these events resulted in the reconfiguration of nurse anesthesia programs and program accreditation.

## Academic Degree Programs

Nurse anesthesia educational programs began the transformation from hospital-based certificate programs to an academic framework in affiliation with institutions of higher learning in the late 1960's. Degree programs in nurse anesthesia had long been envisioned by some nurse anesthesia leaders. "What are the merits of degree programs for nurse anesthetists?" was a question proposed in an editorial in early 1952 when the accreditation program was announced.<sup>1</sup>

*The Debate Within Nursing*

The American Nurses' Association (ANA) Position Paper on Nursing Education issued in 1965 raised the subject of academic degrees for nurses to the

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<sup>1</sup> "Opinion Review: Anesthetists for the Future," 2.

forefront. The ANA Position Paper advocated that nursing education should occur in academic institutions, and that baccalaureate-level education was the appropriate basic education for the RN.<sup>2</sup> Ira Gunn noted that this was not a new position, but that the 1923 Goldmark Report, and the 1948 Brown Report, had both advocated a similar position.<sup>3</sup> The seemingly always present nursing shortage acted to support the continued education of large numbers of RNs in three-year diploma schools and later in associate degree programs. Between the years 1960 and 1968 the number of diploma programs preparing RNs decreased from 908 to 728 while in the same time period associate degree programs increased from 57 to 330. The number of baccalaureate programs preparing RNs also increased but at a slower rate than the associate degree programs.<sup>4</sup>

Fourteen percent of RN graduates in 1962 were educated in 132 baccalaureate nursing programs with a smaller number of RNs obtaining post-RN baccalaureate degrees.<sup>5</sup> The number of baccalaureate basic nursing programs continued to grow with 402 existing by 1982 while the number of hospital-based diploma programs continued to decline.<sup>6</sup> The post-RN baccalaureate degree was the process of RNs fulfilling licensure requirements through diploma or associate degree training, and then obtaining a baccalaureate degree following their RN licensure. This “second step

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<sup>2</sup> Board of Directors of the American Nurses Association, “The Profession Prepares for It’s Future,” *American Journal of Nursing* 66 (1966): 1549-1550.

<sup>3</sup> Ira P. Gunn, “Current Nursing Issues and Their Implications for the Preparation of Nurse Anesthetists,” *Journal of American Association of Nurse Anesthetists* 36 (1968): 413-414.

<sup>4</sup> Dorothy H. Moser, “Changes in Nursing Education for the Future—Challenge or Chagrin?” *Journal of American Association of Nurse Anesthetists* 38 (1970): 205.

<sup>5</sup> Kalisch and Kalisch, *American Nursing*, 390-391.

<sup>6</sup> *Ibid.*, 415.

education” proved to be the avenue to baccalaureate-trained nurses which experienced significant growth.<sup>7</sup>

The question of academic degrees for nurse anesthetists generated controversy when posed in 1952. Letters to the editor from nurse anesthetists reflected the main points of controversy. One letter stated: “Education *is* valuable. (emphasis original)” and another: “...nurse anesthetists have felt the need for a better background in the basic sciences...”<sup>8</sup> Another letter summarized the other side of the debate:

Except in the case of the nurse who finds personal satisfaction in obtaining a degree, I can see no advantage...Emphasis on degree programs would only tend to increase the shortage of anesthetists; the higher the educational requirements, the fewer the persons who would be interested in entering the field.<sup>9</sup>

The debate resumed following the 1965 ANA Position Paper on Nursing Education. The question of graduate education for nurse anesthetists was added to the academic degree debate. Nurse anesthesia leaders joined nursing leaders in calling for the nurse specializing in anesthesia to be educated at the graduate level. Other clinical specialties in nursing were being prepared at the master’s level and nurse anesthesia was the oldest nursing clinical specialty. As the first clinical specialty, the nurse anesthesia educational system grew outside of academic institutions but many felt the time had come for nurse anesthesia to join with other nursing specialties.<sup>10</sup>

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<sup>7</sup> Barbara B. Smullen, “Second Step Education for RN’s: The Quiet Revolution,” *Nursing and Health Care* 3 (1982): 370-371.

<sup>8</sup> Opal Schram, “Letter to the editor,” *Journal of American Association of Nurse Anesthetists* 20 (1952): 4, and Helen Vos, “Letter to the editor,” *Journal of American Association of Nurse Anesthetists* 20 (1952): 4.

<sup>9</sup> Exire O’Day, “Letter to the editor,” *Journal of American Association of Nurse Anesthetists* 20 (1952): 84.

<sup>10</sup> Gunn, “Current Nursing Issues,” 417; Moser, “Changes in Nursing Education,” 205, and Ruth P. Satterfield, “Anesthesia Needs of Society and the Indispensable CRNA,” *Journal of American Association of Nurse Anesthetists* 34 (1966): 105.

*Graduate Education for Nursing Specialties*

Difficulties were anticipated by nursing leaders in the last years of the 1960's with the transition to graduate education for nurse anesthesia. A "gradual transition" supported by the nurse anesthesia professional organization was proposed as the least traumatic.<sup>11</sup> The ever present shortage of CRNAs was acknowledged but it was suggested that graduate education could encourage prospective students to enter the profession, particularly baccalaureate prepared RNs.<sup>12</sup> The fact of the shortage of CRNAs was also used to reassure CRNAs without academic degrees of their continued ability to practice and find employment without a degree.<sup>13</sup> Some of these same issues were still being discussed in 1980. Practicing CRNAs without graduate degrees were again reassured of their job security and assured of the value of their contribution to the profession. Graduate education was said to benefit the clinical practitioner by "...a broad understanding of both the science of practice and the complex system of which it is a part and, based on the knowledge, to be able to advance their profession in practice, education, research, and management."<sup>14</sup>

There was limited acceptance of moving nurse anesthesia education into an academic framework from others in the community at the time. One accreditation expert in 1971 cautioned against the hazards of nurses, and presumably nurse anesthetists, pursuing degrees stating "...degrees and credentials are as much a matter of psychology and personal pride as they are assurances that the degree or credential holder possesses a certain body of knowledge..."<sup>15</sup> Several negative effects of academic nursing degrees were cited, although the basis for the conclusions was not

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<sup>11</sup> Moser, "Changes in Nursing Education," 206.

<sup>12</sup> Gunn, "Current Nursing Issues," 418.

<sup>13</sup> Moser, "Changes in Nursing Education," 207.

<sup>14</sup> Sue Thomas Hegyvary and Rosemary Prow, "Graduate Education of the Anesthesia Nurse Practitioner," *Nursing Outlook* 28 (1980): 485.

<sup>15</sup> Jerry W. Miller, "To Degree or Not To Degree?" *Journal of American Association of Nurse Anesthetists* 39 (1971): 455.

given. Baccalaureate nurses were said to be unable to justify their training and this was leading to the replacement of these nurses with licensed practical nurses. Additionally it was concluded that nursing's image among other professional healthcare providers was not enhanced, and the leadership of medicine had created professions such as the physician's assistant due to the lack of consultation by nursing leaders with medicine.<sup>16</sup> There were no perceived benefits included in the discussion. Nursing leaders continued to support baccalaureate education for basic nursing preparation and graduate level education of nurse specialists despite the perceived negative effects.

While professional leaders began the debate on academic degrees for CRNAs, there was little interest displayed by the membership of the AANA, the professional organization for nurse anesthetists.<sup>17</sup> Nurse anesthesia educators were primarily responsible for the movement of the educational preparation of CRNAs. In 1966 it was noted that an increasing number of RNs entering nurse anesthesia programs were baccalaureate prepared.<sup>18</sup> A group of thirty to forty nurse anesthesia educators interested in moving nurse anesthesia education into academic degree programs met in 1969 to discuss the related issues.<sup>19</sup> This was a relatively small group as there were approximately 200 nurse anesthesia programs in 1969.<sup>20</sup> The group consensus was few CRNA faculty members held graduate degrees, and the majority of RNs entering nurse anesthesia programs did not have baccalaureate degrees. These facts favored

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<sup>16</sup> Ibid., 457.

<sup>17</sup> Gunn, "History of Nurse Anesthesia Education," 58.

<sup>18</sup> Satterfield, "Anesthesia Needs of Society," 105.

<sup>19</sup> Gunn, "History of Nurse Anesthesia Education," 58.

<sup>20</sup> Exire O'Day, Ruby Ormon, and George M. Collins, *Notes on the History and Organization of the American Association of Nurse Anesthetists* (Chicago: American Association of Nurse Anesthetists, 1963; reprint, 1969), 13 (page citations are to the reprint edition).



the establishment of baccalaureate degree nurse anesthesia programs in what some leaders felt would be a transition phase to graduate education.<sup>21</sup>

### *From Certificate to Graduate Education*

Ironically the first academic degree program in nurse anesthesia did grant a graduate degree. The Army nurse anesthesia program located at Tripler Army Medical Center in Hawaii, through a cooperative arrangement with the University of Hawaii, enrolled students in a two-year master's program in 1969. The Tripler program structure was the concept of Ira Gunn but the program was defunct by 1974. The Army nurse anesthesia programs were reorganized into a two-phase certificate program with a centralized academic phase located at one location, followed by a second clinical experience phase located at several clinical sites. The Navy nurse anesthesia programs soon were organized in a similar fashion and the two-phase military programs served as models for some civilian programs.<sup>22</sup>

The first civilian nurse anesthesia program to grant an academic degree was initiated by Sister Mary Arthur Schramm at Mount Marty College in Yankton, South Dakota. The two-year baccalaureate program first enrolled students in 1971.<sup>23</sup> The first master's of science degree in nurse anesthesia earned by a civilian was granted in 1978 by California State University in Long Beach, the academic affiliate of the Kaiser Permanente program.<sup>24</sup> This began a period of time when nurse anesthesia programs were awarding three different designations to students at graduation, a certificate, a baccalaureate degree, or a master's degree.

AANA Executive Office data from 1983 revealed that fifty-five percent, or seventy-nine, nurse anesthesia programs awarded a certificate, twenty-six percent a

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<sup>21</sup> Gunn, "History of Nurse Anesthesia Education," 58-59.

<sup>22</sup> *Ibid.*, 58.

<sup>23</sup> Koch and Bettin, *Advancing the Art*, 94.

<sup>24</sup> *Ibid.*, 92.

baccalaureate degree and nineteen percent a master's degree. In eleven of the baccalaureate degree and eight of the master's degree programs, the degree was optional, but a significant number of programs required graduates to earn a degree to be eligible for the certification exam.<sup>25</sup> The proportion of baccalaureate degree programs was never significantly greater than that reported for 1983.<sup>26</sup> The certificate programs continued to educate the bulk of graduates in 1983 with sixty-two percent of graduates earning a certificate.<sup>27</sup> By 1990 the majority of programs, sixty-four percent, were master's degree programs with one third of the total remaining certificate programs, and just three baccalaureate programs.<sup>28</sup>

The number of baccalaureate programs was always in the minority with many programs transitioning directly to graduate level education from a certificate program. Nurse anesthesia educators were influenced by factors other than mainstream academic nursing philosophy when choosing graduate education for nurse anesthetists. One baccalaureate program opened in 1980 was abandoned after two years. Students and faculty were dissatisfied as the undergraduate coursework was found to be too elementary. A second factor was a large increase in the number of RNs entering the program with a baccalaureate degree. These students were unenthusiastic to incur the cost of earning a second undergraduate degree. The program returned to a certificate program framework for several years until then

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<sup>25</sup> Hershaw W. Bradshaw, "Results of the 1982 AANA Education Committee Survey of Nurse Anesthesia Programs," *AANA Journal* 51 (1983): 321.

<sup>26</sup> Christine Zambricki and Richard G. Ouellette, "On Matters of Concern About Nurse Anesthesia Education," *AANA Journal* 55 (1987): 501.

<sup>27</sup> Bradshaw, "Results of the 1982," 324.

<sup>28</sup> Report of the National Commission on Nurse Anesthesia Education, chairman Sandra Maree, "Summary of Commission Findings: Issues and Review of Supporting Documents," *AANA Journal* 58 (1990): 394.

moving into the graduate framework in 1990.<sup>29</sup> The last baccalaureate program was closed in 1995<sup>30</sup> while five certificate programs remained in 1996. The remaining certificate programs transitioned to a master's level education by 1998.<sup>31</sup>

Policies developed by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA) first encouraged and then required this transition. The COA notified nurse anesthesia programs in 1980 that RNs entering a nurse anesthesia program could, in the future, be required to earned a baccalaureate degree prior to admission to the nurse anesthesia program. The baccalaureate admissions requirement was implemented for 1987 and an implementation date for mandatory graduate education was determined in 1989. All nurse anesthesia programs were required to award a graduate degree for students beginning a program in 1998.<sup>32</sup> All nurse anesthesia programs were in a master's level academic framework by 1998, but there remained diversity in the academic discipline in which nurse anesthesia students earned the master's degree.

#### *Diversity in Nurse Anesthesia Degrees*

All the baccalaureate programs in 1983 awarded non-nursing degrees, most often a BS in Anesthesia.<sup>33</sup> Nursing leaders believed the function of baccalaureate nursing education was to educate a generalist with the role of graduate education to

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<sup>29</sup> Mary V. DePaolis-Lutzo, "Current and Future Perspectives Regarding the Framework for Nurse Anesthesia Education: Nurse Anesthesia Education Within the Framework of Nursing Education.," *AANA Journal* 59 (1991): 492-493.

<sup>30</sup> "Council on Accreditation of Nurse Anesthesia Educational Programs," *AANA Journal* 62 (1994): 567.

<sup>31</sup> Betty J. Horton, "The Future of Education and Accreditation," *AANA Journal* 59 (1991): 25.

<sup>32</sup> Lorraine M. Jordan and Susan Shott, "Feasibility of a Doctoral Degree for Nurse Anesthetists," *AANA Journal* 66 (1998): 288.

<sup>33</sup> Bradshaw, "Results of the 1982," 322.

educate the specialist.<sup>34</sup> This belief precluded educating nurse anesthetists in baccalaureate nursing programs. A small number, two of the sixteen master's degree programs, were housed within a school of nursing in 1982, but most were housed in schools such as education, physiology, or allied health.<sup>35</sup> The result was most CRNAs with graduate degrees did not have a graduate degree in nursing. Thirty-two percent of nurse anesthesia faculty was master's degree prepared in 1990, but only three of the master's degrees were in nursing.<sup>36</sup> Colleges of Nursing experienced difficulty recruiting CRNA faculty with the Master of Science in Nursing degree required by the National League of Nursing.<sup>37</sup> One University "...quickly learned that only a few such individuals existed in the country..." when trying to recruit a doctoral prepared CRNA with a graduate nursing degree.<sup>38</sup> The lack of properly credentialed faculty was a barrier to affiliating with a school of nursing, perpetuating the education of nurse anesthetists outside of schools of nursing.

There were other factors beyond faculty credentials that influenced nurse anesthesia programs as they chose an academic discipline affiliation. One nursing school in 1983 did not consider nurse anesthesia a nursing specialty and refused to affiliate with a nurse anesthesia program.<sup>39</sup> The nurse anesthesia core curriculum consisted of fifty to sixty graduate credit hours in many programs, and the addition of a nursing core curriculum was in excess of this. An Allied Health affiliation could allow a program director to develop a curriculum specific to the unique educational

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<sup>34</sup> Gunn, *The History of Nurse Anesthesia Education*, 58.

<sup>35</sup> Bradshaw, "Results of the 1982," 322.

<sup>36</sup> Report of the National Commission, "Summary of Commission," 396.

<sup>37</sup> DePaolis-Lutzo, "Current and Future," 494.

<sup>38</sup> Lois J. Merrill, "Issues in Financing Nurse Anesthesia Education: Institutional Cost/Cost Benefits," *AANA Journal* 59 (1991): 483.

<sup>39</sup> Catherine E. Merz, "A Survey of Nurse Anesthesia Educational Programs: A Look at the Trend Toward Graduate Education," *AANA Journal* 52 (1984): 527.

needs of nurse anesthesia graduate students.<sup>40</sup> This made Allied Health very attractive to nurse anesthesia programs and resulted in a significant number of long term programs. A variety of other academic units have housed nurse anesthesia programs including Pharmacy, Biology, Health Science, Health Education and Medicine. Philosophy of the school and the geographic location were ranked equally as the leading influence in choosing an academic affiliation by program directors in 1983. Program directors of established hospital-based programs were limited to "...the only option available..." in some cases.<sup>41</sup> The 1989 AANA Board of Directors issued a position statement recognizing the variety of educational units:

Certified Registered Nurse Anesthetists are anesthesia specialists with a generic foundation in professional nursing. Nurse anesthesia graduate programs exist in a variety of academic settings. These diverse approaches have been designed to promote nurse anesthesia graduate education within the realm of nursing and other supportive disciplines.<sup>42</sup>

The proportion of nurse anesthesia programs awarding nursing degrees gained momentum in the 1990's. An increasing number of master's degree programs were established in colleges of nursing with twenty-four percent nurse anesthesia programs granting nursing degrees in 1991, forty-four percent in 1997, and fifty-six percent in 2001.<sup>43</sup> Almost one half of the 2004 graduates and slightly greater than fifty percent of 2005 graduates of nurse anesthesia programs earned a Master of Science in Nursing degree, reflecting the effect of the number of programs in colleges of

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<sup>40</sup> Michael J. Booth, "Current and Future Perspectives Regarding the Framework for Nurse Anesthesia Education: Within the Framework of Allied Health Departments," *AANA Journal* 59 (1991): 488.

<sup>41</sup> Merz, "A Survey of Nurse Anesthesia," 527.

<sup>42</sup> "Annual Committee Reports of the AANA, 1989-1990," *AANA NewsBulletin* 44 (1990): 38.

<sup>43</sup> For the 1991 and 1997 data see Betty J. Horton and Marguerite Brunner, "Nurse Anesthesia Educational Programs, 1991-1997," *AANA Journal* 66 (1998): 339, and for the 2001 data see Betty J. Horton, "Monitoring Nurse Anesthesia Educational Programs," *AANA Journal* 70 (2002): 178.

nursing.<sup>44</sup> Despite the increase in the number of nursing programs the diversity in nurse anesthesia programs persisted. Approximately one half of 2004 graduates earned a master's degree in a related discipline such as Allied Health. Roughly forty percent of 2004 graduates earned some variation of a Master of Science in Anesthesia degree, usually an Allied Health degree. Other degrees earned were in Biology, Education, Health Science and Health Care Administration.<sup>45</sup>

### *The Clinical Doctorate Question*

Many of the master's level nurse anesthesia programs developed were the equivalent of three academic years in length with an average of fifty-four semester credit hours.<sup>46</sup> Graduate level science courses in anatomy, physiology, pathophysiology, pharmacology, chemistry, biochemistry, and physics accounted for a minimum of thirty credit hours with anesthesia practice courses in addition.<sup>47</sup> Often programs discounted the credit hour equivalent of the student's clinical hours in an effort to control the tuition cost of the program. Soon discussion turned to the appropriateness of nurse anesthesia programs awarding a clinical doctorate. Comparison of the educational requirements of other professional groups earning a

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<sup>44</sup> The number of graduates who sat the 2004 and 2005 National Certification Exam were used to estimate the percentage with MSN degrees. See the Council on Certification of Nurse Anesthetists, "Report for the Assembly of School Faculty," 5 (presented at the Assembly of School Faculty, Tampa, Florida, 27 February 2005) and Council on Certification of Nurse Anesthetists, "Report for the Assembly of School Faculty," 5. (presented at the Assembly of School Faculty, Newport Beach, California, 20 February 2006) 4.

<sup>45</sup> Ibid.

<sup>46</sup> Sandra M. Ouellette, Nancy Courts, and Pamela J. Lincoln, "Nurse Anesthesia Education: A Different Challenge," *AANA Journal* 67 (1999): 22.

<sup>47</sup> E. Jane McCarthy and others, "Education of Nurse Anesthetists in the United States," *AANA Journal* 68 (2000): 112.

clinical doctorate such as optometrists, pharmacists, podiatrists, and chiropractors illustrated the similarity with the educational requirements for nurse anesthesia.<sup>48</sup>

A Doctoral Task Force appointed in 1996-1997 assessed the views of the AANA membership and of the directors of the nurse anesthesia programs on mandating doctoral education for CRNAs. It was found that two-thirds of the membership did not support a doctoral degree for entry to nurse anesthesia practice. The lack of support was due to the increased time and expense of doctoral education with no financial benefit to the graduate. The majority of program directors, sixty percent, felt it was not possible to offer a doctoral degree at their current institution. An insufficient number of properly credential faculty was the most common reason cited for the inability to offer the doctoral degree. The Task Force recommended that faculty development initiatives be explored and that the mandated education for nurse anesthesia programs remain at the master's level.<sup>49</sup>

Nurse anesthesia leaders explored doctoral education in 1997 but an external force impacted the agenda of nurse anesthesia education in 2004. The American Association of Colleges for Nursing (AACN) had also begun exploring doctoral education for advanced practice nurses. In October of 2004 the AACN membership approved the AACN Position Statement on the Practice Doctorate in Nursing. The AACN Position Statement mandated that the entry to practice degree for all advanced practice nurses become the clinical doctorate by 2015.<sup>50</sup> The mandated clinical doctorate had a direct bearing on nurse anesthesia as all CRNAs are advanced practice nurses. Additionally many of the approximately one half of nurse anesthesia programs accredited by the COA were in colleges of nursing accredited by the Commission on Collegiate Nursing Education (CCNE), the freestanding accrediting

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<sup>48</sup> Jordan and Shott, "Feasibility of a Doctoral," 288-289.

<sup>49</sup> Ibid., 290, 296-298.

<sup>50</sup> American Association of Colleges of Nursing, *Position Statement on the Practice Doctorate in Nursing* (Washington, DC: American Association of Colleges of Nursing, 2004).

body associated with AACN.<sup>51</sup> A Task Force on Doctoral Preparation of Nurse Anesthetists appointed in 2005 was charged "...to develop recommendations to be considered by the AANA Board of Directors about the courses of action the AANA should take relative to doctoral education."<sup>52</sup>

Open forum discussions held at the Assembly of School Faculty meetings in February of 2005 and 2006 centered on the AACN mandated practice doctorate for nurse anesthesia education. Many in attendance at the meetings expressed reservation at the timeline imposed by the AACN. The time from the initial discussions to the mandated master's degree education was over thirty years. If the 1997 task force was used as the beginning point for a comparable timeline for doctoral education the 2015 deadline was less than twenty years. Another measurement could be the timeframe from the creation of the first civilian master's level nurse anesthesia program in 1976 to the 1998 mandate. There were no entry to practice nurse anesthesia programs granting doctoral degrees as of 2006, although several program directors were planning such a program. A 2006 survey of directors of nurse anesthesia programs revealed that one third were planning to offer a practice doctorate by the 2015 AACN deadline. Two-thirds of existing nurse anesthesia programs in 2006 reported no plans to transition to doctoral education by 2015.<sup>53</sup>

#### Nurse Anesthesia Program Capacity

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<sup>51</sup> CCNE accredits baccalaureate and graduate nursing programs and is affiliated with AACN. Retrieved from <http://www.aacn.nche.edu/Accreditation/index.htm> on November 8, 2006. The National League for Nursing Accrediting Commission (NLNAC) is another accrediting body for nursing programs that accredits master's, baccalaureate, associate degree, diploma, and practical nursing programs. Retrieved from <http://www.nlnac.com/home.htm> on November 8, 2006. A master's level nurse anesthesia program in a college of nursing could be accredited by either.

<sup>52</sup> Denise Martin-Sheridan, Sandra Maree Ouellette, and Betty J. Horton, "Is Doctoral Education in Our Future?," *AANA Journal* 74 (2006): 103.

<sup>53</sup> Colleen E. Wooldridge, "The Future of the Clinical Doctorate in Nurse Anesthesia Education: Program Director's Perceptions" (Master's thesis, University of Kansas, 2006), 48.



The number of nurse anesthesia programs had steadily increased for approximately thirty years following the initiation of the accreditation program in 1952.<sup>54</sup> By 1974 between 1,100 and 1,200 students graduated annually from 210 nurse anesthesia programs. Upgraded standards for accreditation prompted the closure of programs with the number of programs reduced by one third between 1974 and 1982, but the effect on the number of graduates was minimal. The average number of graduates per program was increased and 1,107 students graduated from 142 programs in 1982. The closure of smaller programs which were unable to meet the more demanding accreditation standards did not negatively impact the production of new CRNAs.<sup>55</sup>

#### *Unprecedented Program Closures*

The number of program closures accelerated between 1982 and 1987 with a large impact on the number of graduates. By 1987, forty-two percent of programs operating in 1983 had closed and the number of graduates was almost cut by half with 607 graduates.<sup>56</sup> Multiple factors were found to influence the closure of nurse anesthesia programs between 1982 and 1987. Fourteen factors identified by DePaolis-Lutzo were:

...(1) (lack of) administrative support, (2) anesthesiologist support, (3) program funding, (4) institution costs, (5) the ability to show the dollar value of the program, (6) the ASA/AANA relationship, (7) the incongruity between the philosophy of the institution and the program, (8) faculty retention, (9) faculty recruitment, (10) student recruitment, (11) the program director's workload, (12) CRNA public image, (13) the lack of stipends for students and (14) the career counseling of nurses.<sup>57</sup>

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<sup>54</sup> See pp. 141 above.

<sup>55</sup> Zambricki and Ouellette, "On Matters of Concern," 499-500.

<sup>56</sup> Report of the National Commission on Nurse Anesthesia Education, chairman Sandra Maree, "Executive Summary," *AANA Journal* 58 (1990): 384.

<sup>57</sup> Mary V. DePaolis-Lutzo, "Factors Influencing Nurse Anesthesia Educational Programs: 1982-1987," *AANA Journal* 59 (1991): 178.

Increased financial pressures on hospitals resulted from efforts to control health care costs during this time period and caused some hospitals to withdraw financial support for nurse anesthesia programs. The strained relationship between the professional organizations representing CRNAs and anesthesiologists, due to legislative and regulatory success by CRNAs, reduced anesthesiologist support for nurse anesthesia programs. The number of anesthesiology residency positions also increased and some anesthesiologists felt reducing the training capacity of nurse anesthesia programs was appropriate.<sup>58</sup> Some of the oldest nurse anesthesia programs that had coexisted with anesthesiology residencies within well regarded academic health centers were closed between 1982 and 1985.<sup>59</sup>

The number of graduates was at the lowest point in 1988 and 1989 with approximately 575 graduates. In 1990 the number of programs reached a low of eighty-two and nurse anesthesia leaders became concerned about the survival of the profession. The National Commission on Nurse Anesthesia Education was formed and funded by the AANA in 1990 in response to the reduced capacity of the education programs.<sup>60</sup> The mission of the Commission was "...to independently study the educational program and make recommendations to the AANA Board of Directors as to the goals and strategies the profession should utilize to resolve this growing human resource problem."<sup>61</sup>

### *Stability Through Regionalization*

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<sup>58</sup> Patricia R. Fleming, "Impact of the CRNA: The Specialty and its Future," *AANA Journal* 54 (1986): 24-26, see also Zambricki and Ouellette, "On Matters of Concern," 501-503.

<sup>59</sup> Gunn, *The History of Nurse Anesthesia Education*, 60.

<sup>60</sup> National Commission on Nurse Anesthesia Education, chairman, Sandra Maree Ouellette, *Final Report of the Task Force*, (Park Ridge, Ill.: American Association of Nurse Anesthetists, 1994): 4.

<sup>61</sup> *Ibid.*, 5.

After the stabilization of program numbers in the early 1990's there were signs in 1996 of another wave of program closures.<sup>62</sup> It was found that lack of financial support was the leading factor in the closure of six programs during 1996.<sup>63</sup> There was not a continued decline in program numbers with eight-seven programs operating at the end of 1997.<sup>64</sup> The number of programs increased slightly through the middle of the 1990's while the number of graduates increased significantly. The annual production of nurse anesthesia graduates reached, and was maintained at, approximately 1000 graduates through the mid to late 1990's. A small number of new programs were opened but the greater impact on the training capacity for nurse anesthesia came from the expansion of the existing programs.<sup>65</sup> The regionalization of nurse anesthesia programs was discussed in 1988:

The term *regionalized program* infers that several hospitals in an area would provide clinical teaching, while didactic experience would occur at a university. This may mean consolidating two or three hospital-based nurse anesthesia programs into one university-based program, and still have the local hospital as a clinical site for the university-based program. (emphasis original)<sup>66</sup>

In 1993 two-thirds of programs were operating in a regionalized arrangement defined at that time as "...an educational system consisting of a university and several clinical institutions or a university and several nurse anesthesia programs."<sup>67</sup>

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<sup>62</sup> Denise Martin-Sheridan, "Factors That Influenced Six Nurse Anesthesia Programs to Close," *AANA Journal* 66 (1998): 378.

<sup>63</sup> *Ibid.*, 382.

<sup>64</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, "List of Recognized Educational Programs/w/Revisions," *AANA Journal* 65 (1997): 585-595.

<sup>65</sup> Gunn, *The History of Nurse Anesthesia Education*, 60.

<sup>66</sup> Lorraine Jordan and Sandra Maree, "Challenges Facing the Education of Nurse Anesthetists," *AANA Journal* 56 (1988): 306.

<sup>67</sup> Betty J. Horton, "Profile of Nurse Anesthesia Programs," *AANA Journal* 62 (1994): 401.

Although the number of programs changed little between 1990 and 1997, the number of clinical sites almost doubled, increasing from 266 to 577. Clinical sites generally referred to hospitals where student nurse anesthetists gained clinical experience. By 2001 clinical sites had increased again reaching 733 with the same number of programs.<sup>68</sup> The increase in the number of clinical sites was accompanied by a significant group of programs increasing enrollments. In 1992, twenty-seven percent of programs planned to increase the number of students accepted into the programs, and one year later thirty-eight percent planned enrollment increases.<sup>69</sup>

The number of programs operational at the turn of the twenty-first century was approximately 100. Although the number of new programs opened was small and generally offset by the closure of other programs, the geographic location of programs opened in the twenty-first century was important. The founding of new programs located in the states of Arizona, Utah, and Oregon early in the twenty-first century was significant because there were no other programs in these states. The trend of increasing the size of nurse anesthesia programs rather than the number of programs continued into the twenty-first century. The mean number of annual graduates per program more than doubled in twenty years, from approximately seven in 1985 to more than eighteen in 2005.<sup>70</sup> The roughly 1000 graduates produced annually during the 1990's began to increase. Greater than 1300 graduates were certified in 2002 with further increases to 1507 in 2004, and 1736 in 2005.<sup>71</sup> The

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<sup>68</sup> Horton, "Monitoring Nurse Anesthesia Educational Programs," 177.

<sup>69</sup> Horton, "Profile of Nurse," 402.

<sup>70</sup> See Table II in Christine Zambricki and Richard G. Ouellette, "On Matters of Concern About Nurse Anesthesia Education," *AANA Journal* 55 (1987):501 for the 1985 data. The 2005 mean was determined by dividing 1781 first time takers of the 2005 Certification Exam by 96 accrediting programs listed in 2005 by the COA.

<sup>71</sup> Elizabeth Merwin, Steven Stern, and Lorraine M. Jordan, "Supply, Demand, and Equilibrium in the Market for CRNAs," *AANA Journal* 74 (2006): 289, see also Council on Certification, "Report," 5, for 2004 data.

annual number of nurse anesthesia graduates grew at an unprecedented rate with the increased class sizes.

### *The Influence of the Academic Institution*

It was suggested in 1983 that the change in control from hospital-based nurse anesthesia programs to university-controlled programs could lead to larger class sizes secondary to economic pressures.<sup>72</sup> Nurse anesthesia programs were found to be more expensive to operate than other graduate clinical nursing specialties due to faculty, specialized accreditation, and other costs.<sup>73</sup> Universities may have required an increase in student enrollment to increase tuition dollars.

The hospital-based nurse anesthesia programs were created to meet the service need of the institution for anesthesia services. Student nurse anesthetists provided a service for the hospital and the institution provided an education to the student.<sup>74</sup> There was no tuition or fees charged by many schools, and most hospitals paid the student a stipend.<sup>75</sup> The hospital-based programs had no incentive to increase the number of students beyond the service needs of the sponsoring institution. With the transition to university affiliation the practice of paying stipends was uncommon by the 1990's and students began to bear the costs of the program through the payment of tuition.<sup>76</sup> Some hospitals continued to support nurse anesthesia programs financially, but a progressively larger portion of the costs were supported through

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<sup>72</sup> Merz, "A Survey of Nurse Anesthesia," 527.

<sup>73</sup> Merrill, "Issues in Financing," 482.

<sup>74</sup> Satterfield, "Anesthesia Needs," 105.

<sup>75</sup> Clarene A. Carmichael, "Present Status of Approved Schools," *Journal of American Association of Nurse Anesthetists* 23 (1956): 98.

<sup>76</sup> See Bradshaw, "Results of the 1982," 324; Horton and Brunner, "Nurse Anesthesia Educational Programs, 1991-1997," 340; Betty Horton and Lorraine M. Jordan, "Profile of Nurse Anesthesia Programs," *AANA Journal* 62 (1994): 402, and Ouellette, Courts, and Lincoln, "Nurse Anesthesia Education," 24.

tuition.<sup>77</sup> An incentive for university-controlled programs to increase student enrollments became operational with the shift to tuition dollars. The impact this financial incentive had on the number of nurse anesthesia graduates is uncertain. A long term shortage of CRNAs was well publicized and nurse anesthesia programs had been urged to increase the number of graduates for at least twenty years.<sup>78</sup> The AANA formed the Commission on Nurse Anesthesia Education in 1990 specifically to increase the number of programs and graduates.<sup>79</sup> The increased output of nurse anesthesia graduates came after years of efforts by the AANA and the programs to raise their educational capacity and likely reflected the combined effects of multiple strategies.

#### Federal Recognition of Program Accreditation

The American Association of Nurse Anesthetists (AANA) was recognized in 1955 by the US Department of Health, Education and Welfare (HEW) as the accrediting agency for nurse anesthesia educational programs. The association requested the recognition in order for Korean War veterans to receive educational benefits under the GI Bill of Rights while attending a nurse anesthesia program.<sup>80</sup> The AANA maintained the recognition through 1975 when the accrediting function was transferred to the American Association of Nurse Anesthetists Council on Accreditation (COA).<sup>81</sup> American society beginning in the 1960's, experienced

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<sup>77</sup> DePaolis-Lutzo, "Current and Future," 492.

<sup>78</sup> Margaret Faut-Callahan, "What Role Should Education Standards Play in the Manpower Shortage?" *AANA Journal* 71 (2003): 101.

<sup>79</sup> Cathy A. Mastropietro, Betty J. Horton, Sandra M. Ouellette and Margaret Faut-Callahan, "The National Commission on Nurse Anesthesia Education 10 Years Later-Part 1: The Commission Years (1989-1994)" *AANA Journal* 69 (2001): 382.

<sup>80</sup> *AANA Criteria and Procedures*, 1.

<sup>81</sup> Ira P. Gunn, "The History of Nurse Anesthesia Education: Highlights and Influences," *AANA Journal* 59 (1991): 56.

sweeping changes; “Social changes that were almost unthinkable...An exponential escalation in knowledge and technology...Transportation and communication breakthroughs...” These changes impacted the nurse anesthesia educational system.<sup>82</sup>

In 1969 revised criteria for recognized accrediting agencies were published by the US Department of Education (USDOE) with the final version effective in 1974. The federal government initiated the changes in accreditation processes in response to awareness of several socio-political concerns including public accountability, conflicts of interest, consumer protection, nondiscriminatory practices, due process, and community of interest involvement. The COA was created to comply with the new criteria first as a semi-autonomous council in 1975, and by 1978 was invested with full autonomy.<sup>83</sup>

The creation of an autonomous accrediting body and the urgency in meeting the federal criteria by nurse anesthesia leaders was influenced by another event. Members of the American Society of Anesthesiologists (ASA) in 1975 challenged the validity of the accreditation of nurse anesthesia programs by the COA in a subcommittee hearing before the USDOE. The Faculty of Nurse Anesthesia Schools (FNAS) had been developed and promoted by the ASA representatives as an alternate accrediting agency. The stated goal was “...more direct involvement of the anesthesiologists in the establishment of policy relative to accreditation, curriculum, certification, and quality assurance for the nurse involved in anesthesia care.”<sup>84</sup>

Nurse anesthesia leaders felt the loss of control of the standards for educational programs would be a loss of professional identity and practice rights. Leaders of the American Nurses Association recognized the significance of the challenge to the larger nursing community and were instrumental in defending the

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<sup>82</sup> Fleming, “Impact of the CRNA,” 24.

<sup>83</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Trial Standards and Guidelines* (Park Ridge, Ill.: Council on Accreditation, 1988) vii.

<sup>84</sup> *Watchful Care*, 158.

COA in the hearing.<sup>85</sup> The COA was found to be in compliance with the federal criteria and the FNAS was abandoned, leaving the COA as the single specialized accrediting agency for nurse anesthesia programs. The COA was recognized by the Council on Postsecondary Accreditation (COPA) in 1985 in addition to recognition by the USDOE.<sup>86</sup>

#### Accreditation Policy and Procedures

The creation of the COA resulted in significant changes in the accreditation administrative structure of nurse anesthesia education. The voting members of the AANA Board of Trustees, nine Certified Registered Nurse Anesthetists (CRNAs) elected by the AANA membership, held the authority for accreditation decisions prior to the formation of the COA. The membership of the AANA that selected the Board of Trustees was also limited to CRNAs, so only CRNAs had authority in the accreditation of the nurse anesthesia education programs that produced CRNAs. The Board of Trustees approved the accreditation standards and made all accreditation decisions affecting nurse anesthesia programs.<sup>87</sup> Others from the community of interest, for example hospital administrators, educational consultants and anesthesiologists, participated in the development of the standards but were not represented in the final approval mechanism.<sup>88</sup>

The membership of the COA allowed for improved representation and granted authority to the community of interest. The thirteen members of the COA included four representatives from nurse anesthesia education, two CRNA practitioners, three anesthesiologists, a health care administrator, a nurse anesthesia student and two

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<sup>85</sup> John F. Garde, "The Nurse Anesthesia Profession: A Past, Present, and Future Perspective," *Nursing Clinics of North America* 31 (1996): 577.

<sup>86</sup> Gunn, "History of Nurse Anesthesia Education," 59.

<sup>87</sup> O'Day, Orman and Collins, *Notes on the History*, 18.

<sup>88</sup> Gunn, *History of Nurse Anesthesia Education*, 57.



public members. All were voting members.<sup>89</sup> Each member served a three-year term with the exception of the student member who served for one year. The membership terms were staggered so that experienced members were retained each year. The sitting Council elected new members from a slate provided by appropriate professional organizations such as the AANA Board of Trustees, the American Society of Anesthesiologists (ASA), American Hospital Association, American Association of Retired Persons, League of Women Voters or other appropriate organizations.<sup>90</sup> The COA membership was reduced to twelve members in 1986 with two anesthesiologist members due to difficulty in finding candidates for the positions.

In the early years of the 1990's there was a single anesthesiologist position on the COA and in 1996 the COA membership criteria was changed to include five CRNA educators, two CRNA practitioners, two public members, one healthcare administrator and one university administrator member. The addition of the university administrator member reflected the increased role academic institutions were playing in nurse anesthesia education. A student nurse anesthesia member was retained but the position became a non-voting position. The selection procedure for COA membership was largely unchanged, but more specific selection criteria were developed. The COA policy in 1996 specified that all voting members hold a graduate degree. The healthcare and university administrator were required to be directly involved with a nurse anesthesia program, while the public members were to have no close association with any healthcare field or nurse anesthesia program. It was also specified that one CRNA educator must hold a position as a Program

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<sup>89</sup> Council on Accreditation of Nurse Anesthesia Educational Programs/Schools, *Accreditation Policies and Procedures* (Park Ridge, Ill.: Council on Accreditation, 1983) 5.

<sup>90</sup> *Ibid.*, 6.

Director, and that one CRNA practitioner must have no association with a nurse anesthesia program.<sup>91</sup> The 1996 membership criteria remained in effect through 2006.

The financial support for accreditation activities also changed with the formation of the COA. The AANA membership dues provided almost all the financial support of the first accreditation structure under the Board of Trustees. With the COA structure, the educational programs began to support the financial obligations of the accreditation processes. The programs were assessed annual dues paid to the COA and paid fees for accreditation site visits.<sup>92</sup> The annual dues began to be prorated according to the number of students in each program in 1990.<sup>93</sup> The AANA membership continued to provide financial support through an annual grant to the COA, but the responsibility was shared with the programs.<sup>94</sup> The accreditation fee schedule and annual dues were updated periodically, and a method of accounting for practicing CRNAs returning on a part time basis to complete a master's degree was added. The annual dues paid by each program continued to be calculated based on the number of students enrolled in each program in 2006.<sup>95</sup>

### *Accreditation Processes*

Key accreditation processes were changed with the COA, some which afforded the programs greater protection from bias and some which increased the accountability of the programs. Two accreditation process changes that reduced the potential for bias were the appeal process and the site visit process. The AANA Board of Trustees, while considering input from the Education Advisor and the Education

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<sup>91</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Accreditation Policies and Procedures* (Park Ridge, Ill.: Council on Accreditation, 1996) S-1 – S-6.

<sup>92</sup> Council, *Accreditation Policies* (1983): 41.

<sup>93</sup> Betty J. Horton, personal communication November 7, 2006.

<sup>94</sup> Council, *Accreditation Policies* (1983): 7.

<sup>95</sup> Council, *Accreditation Policies* (1996): AA-1 – AA-2.

Committee, held all authority in accreditation decisions prior to the COA formation. The original accreditation structure allowed a program that was subject to an unfavorable accreditation decision by the Board of Trustees to appeal the decision to the same Board, but there was no alternate appellant body.<sup>96</sup> Programs were permitted to appeal an unfavorable accreditation decision to an external agency with the COA structure. A program could appeal a decision made by the COA to the Council on Practice, another autonomous council created by the AANA under the new structure.<sup>97</sup> In 1996 the appellate procedure was altered, and required a program subject to an adverse decision to first request reconsideration by the COA prior to filing an appeal with the external agency, the Council on Public Interest.<sup>98</sup>

Another protection afforded the nurse anesthesia programs with the COA was the elimination of the practice of one CRNA conducting site visits. There was potential for personal bias or conflict of interest in the site visit due to the composition of the team. The site visit team was composed of either a CRNA accompanied by an Education Advisor in the case of a new program, or in most cases a single CRNA, and programs could not request an alternate visitor.<sup>99</sup> The site visit team was enlarged to include two or three visitors selected by the COA Visitor Selection Committee. The visitors were to be selected specifically to avoid potential conflicts of interest and to be knowledgeable about the particular structure of the program to be evaluated. The administration of the nurse anesthesia program to be visited was informed in advance of the team composition and allowed to request the replacement of one member for cause, but not allowed to choose the replacement.<sup>100</sup>

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<sup>96</sup> Council, *Accreditation Policies* (1983): 7.

<sup>97</sup> *Ibid.*, 38-39.

<sup>98</sup> Council, *Accreditation Policies* (1996): A-12. The Council on Practice was renamed the Council on Public Interest.

<sup>99</sup> American Association, *AANA Criteria and Procedures*, 4.

<sup>100</sup> *Ibid.*, 30-31.

The program was allowed to request a change in any team member for cause in 1996.<sup>101</sup>

Greater public accountability resulted from the new accreditation policy and procedures. The policy of the AANA Board of Trustees was to place programs on unannounced probation for an indeterminate period of time. Unannounced probation meant the Board kept the information confidential and the public was not informed of the status.<sup>102</sup> The probationary process implemented by the COA included the publication, or announcement, of the probationary status in the AANA News Bulletin and the prohibition of the admission of new students into a program on probation. The duration of probation was limited to one year under the COA.<sup>103</sup> In 1996 programs placed on probation became obligated to inform students of the status with a written notice, and to represent their accreditation status accurately to all parties.<sup>104</sup>

The nurse anesthesia programs also became subject to greater accountability related to internal grievances and program evaluations. The development of due process procedures to resolve student grievances at the program level was required and a detailed guideline was included in the accreditation standards.<sup>105</sup> There was no avenue for the resolution of a grievance against faculty, or a program, which was not resolved at the program level when the AANA Board of Trustees held the accrediting authority. The COA developed and administered an external grievance policy available to any member of the community of interest of nurse anesthesia programs.<sup>106</sup> Programs were required to share student, alumni, faculty, and employer

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<sup>101</sup> Council, *Accreditation Policies* (1996): O - 3.

<sup>102</sup> *AANA Criteria and Procedures*, 7.

<sup>103</sup> *Ibid.*, 23-24.

<sup>104</sup> Council, *Accreditation Policies* (1996): P-8.

<sup>105</sup> American Association of Nurse Anesthetists Council on Accreditation, *Educational Standards and Guidelines for Nurse Anesthesia Education Programs, 1976* (Chicago: American Association of Nurse Anesthetists, 1976): 25, 57-59.

<sup>106</sup> Council, *Accreditation Policies* (1983): 43-45.

program evaluation data with the COA through the self-study documents.<sup>107</sup> The COA began to collect anonymous student and faculty evaluations of the program under review as part of the accreditation review process. The program was provided a composite of the evaluations and required to respond to any evidence of noncompliance with an accreditation standard.<sup>108</sup>

### *Self-study Evaluation*

The four-year accreditation cycle with biennial self-study evaluation was unchanged with the transfer to the COA, but the self study was significantly expanded. The forty page self-evaluation study initiated by the AANA in 1972 grew to a 147 page document produced in 1974 by the COA.<sup>109</sup> The foreword gave a description of the expanded scope of the self evaluation to include:

It requires cost-analysis as a basis for determining cost effectiveness. It provides for input from the community of interests within which the program operates....allows the conducting institution to assess its effectiveness relative to social responsibilities including public accountability, consumer interests, non-discriminatory practice, individual rights and ethical and moral standards.<sup>110</sup>

A twenty-page section pertaining to budget data, a requirement for examples of due process application, and a request for the program's policy and procedures for continuous self-evaluation by the communities of interest reflected the scope of the revised self-evaluation study.<sup>111</sup> Information was also solicited relevant to any clinical

<sup>107</sup> American Association, *Education Standards, 1976*, 38-39.

<sup>108</sup> Council, *Accreditation Policies* (1996): S-18.

<sup>109</sup> American Association of Nurse Anesthetists Council on Accreditation, *Self-Evaluation Study for Programs of Nurse Anesthesia* (Chicago: American Association of Nurse Anesthetists, December 1974).

<sup>110</sup> *Ibid.*, iii.

<sup>111</sup> Self-evaluation study documents dated to 1973 and 1974 found in the offices of the BryanLGH School of Nurse Anesthesia were compared and analyzed.

and/or academic facilities with which the nurse anesthesia program may have affiliated.<sup>112</sup> The prior version of the self-evaluation study did not include affiliation data. The era of a nurse anesthesia program based in one hospital for all educational activities was coming to a close, and the self-evaluation study evolved in response.

Although the scope of the self-evaluation study was expanded the format remained prescriptive. The format was a series of questions with check boxes, ranking or rating scales, fill in the blank answers, and short answers. For example: “Do you have a problem with faculty turnover?” followed by a “Yes” or “No” answer. Further follow-up questions were: “If yes, what do you believe to be the three major causes for this turnover? What action do you plan/or have you taken to overcome these?”<sup>113</sup> This format was used until 1990 when the self-evaluation study was completely revised. In 1983 a section named “Ethics” was added. Much of the content was contained in the previous version, but the specific section devoted to ethical issues was more visible.<sup>114</sup>

The four-year accreditation cycle was increased to maximum six-year cycle in 1990.<sup>115</sup> The length of accreditation awarded varied with one, two, three, or four-year accreditation granted to programs with various levels of deficiencies. A program found to have no deficiencies was awarded a six-year accreditation. The biennial self-study evaluation was eliminated and replaced with an annual report first submitted by programs in 1991.<sup>116</sup> The annual report consisted of two sections. The first was primarily demographic with quantitative data on the program, faculty, and students. The information was considered public information and used to create a national

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<sup>112</sup> American Association, *Self-Evaluation*, 17-24.

<sup>113</sup> *Ibid.*, 46.

<sup>114</sup> Council, *Accreditation Policies* (1983): 29.

<sup>115</sup> Horton and Brunner, “Nurse Anesthesia Educational Programs, 1991-1997,” 338.

<sup>116</sup> *Ibid.*

database describing nurse anesthesia education. The second was "...a summative program review that is confidential in nature and provides an opportunity for the program director and faculty to complete an abbreviated self-evaluation of their program."<sup>117</sup> A comprehensive self-study was completed by the programs only during an accreditation visit. The self-study format was changed extensively in 1990 for the first time since 1974. It became an outcome-orientated assessment utilizing a systems approach influenced by the Council on Postsecondary Education and the US Department of Education. An explanation for the change in accreditation processes was given in the first section; "There has been a trend to move away from quantitative criteria which examine checklists of resources and to move toward qualitative criteria which measure the degree of effective learning."<sup>118</sup> Continuous self-evaluation of the nurse anesthesia program's stated purposes with evaluative criteria and supported by postsecondary educational theory was emphasized.<sup>119</sup> The self-study document was reconfigured in 1994 but the systems approach and outcomes assessment orientation remained fundamentally unchanged.<sup>120</sup>

The accreditation cycle was increased to a maximum of ten years in 1999. With the further increase in the length of the accreditation cycle was the implementation of an additional faculty and student program evaluation conducted by the COA. The evaluation of a program by students attending the program during an accreditation review was implemented in 1972. An evaluation form was provided to

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<sup>117</sup> Betty J. Horton, Gregg R. Revak and Lorraine M. Jordan, "The Computer Database for Nurse Anesthesia Education Programs," *AANA Journal* 62 (1994):235.

<sup>118</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Programmatic Self Study: 1990*, (Park Ridge, Ill.: Council on Accreditation of Nurse Anesthesia Educational Programs, 1990): 4.

<sup>119</sup> "The New Self Study Manual," (paper presented at the Assembly of School Faculty, Tampa, Florida, 21-24 February 1991), BryanLGH School of Anesthesia files, Lincoln, Nebr.

<sup>120</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Self Study: 1994* (Park Ridge, Ill.: Council on Accreditation of Nurse Anesthesia Educational Programs, 1994): 5-6.

the nurse anesthesia program to give to the student body. The students returned the evaluations to the AANA office, and later to the COA, prior to the accreditation visit.<sup>121</sup> Faculty evaluation of programs under accreditation review was added by the COA in 1974.<sup>122</sup> An additional evaluation by the students and faculty of a program was submitted to the COA five years after a full accreditation review for a program receiving the maximum ten-year accreditation, or at the midpoint of the accreditation cycle. The evaluations served a dual role. “The information gained from the evaluations can serve as a catalyst for programmatic improvement as well as a monitoring tool.”<sup>123</sup>

#### Educational Standards for Nurse Anesthesia Programs

The COA published *Educational Standards and Guidelines for Nurse Anesthesia Educational Programs* in 1976 with subsequent major revisions effective in 1980, 1990, 1994 and 2004. Trial standards were implemented in 1988, 1993 and 2003 prior to the major revisions. The programs were required to follow the trial standards upon implementation but some changes made as a trial were not in the final versions. Changes to the standards occasionally occurred between the revisions; for example in 1986 the COA changed the standard for student admissions qualifications to include a baccalaureate degree prior to admission.<sup>124</sup> The standards formulated the generic core that qualified the graduate of a nurse anesthesia program to be eligible to sit the certification exam.<sup>125</sup> Nurse anesthesia programs moved into academic institutions that maintained their own accreditation, but specialized accreditation by

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<sup>121</sup> American Association, *AANA Criteria and Procedures*, 4. See also American Association, *Self-Evaluation*, 135-140.

<sup>122</sup> American Association, *Self-Evaluation*, 122-134.

<sup>123</sup> Horton, “Monitoring Nurse Anesthesia Educational Programs,” 177.

<sup>124</sup> Jordan and Shott, “Feasibility of a Doctoral,” 288.

<sup>125</sup> Gunn, “The History of Nurse Anesthesia Education,” 59.



the COA was the basis that qualified graduates to be certified as CRNAs. Following consultation with the USDE in 1994, the COA began to accredit the entire program of nurse anesthesia study at the certificate, baccalaureate, master's and doctoral degree levels. The baccalaureate accreditation was deleted from the COA scope in 1997 when the master's level education became mandatory.<sup>126</sup>

### *Faculty and Student Qualifications*

The accreditation standards included qualification requirements for administrators and faculty of nurse anesthesia programs. Prior to the transition to academic institutions the accreditation standards often served to determine the minimum educational credentials of faculty in nurse anesthesia programs. These requirements in some respects became less significant as the programs moved into graduate colleges, but in other respects more significant. The standards of a graduate college determined a minimum of a graduate degree for program leaders, but not the nurse anesthesia specialty qualification.

Faculty qualifications were significantly revised and advanced by the COA. A CRNA program director "actively involved" in the program was defined to include ten broad functions in the "...organization and administration of the total program..."<sup>127</sup> The 1970 criteria introduced the CRNA program director role but did not define active involvement. Although a CRNA program director was a requirement in 1976, a physician anesthesiologist or CRNA could serve as the program director under the guidelines to the standard.<sup>128</sup> If an anesthesiologist was the program director then the CRNA program director was an additional position. The guideline that allowed an anesthesiologist to serve as program director was eliminated in the

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<sup>126</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Standards for Accreditation of Nurse Anesthesia Educational Programs: With 1999 Revisions* (Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 1999): v.

<sup>127</sup> American Association, *Educational Standards: 1976*, 31.

<sup>128</sup> *Ibid.*, 31

1988 Trial Standards, with the result that only a qualified CRNA could fill the program director role following the implementation of the 1990 Standards.<sup>129</sup> The CRNA program director was better able to serve as a role model, mentor, and advocate for student nurse anesthetists and the role was widely accepted. The necessity of the CRNA qualification for program director of nurse anesthesia programs began to be questioned by academic institutions when programs began to be housed in graduate colleges. A review of other specialty educational programs ranging from dietetics to computer science supported the professional qualification of the program director and the standard was unchanged.<sup>130</sup>

The assistant program director role was introduced in 1990; “A qualified backup for the CRNA program director is required.”<sup>131</sup> The criteria was strengthened in the 1993 revision with further specifications that the credentials required of the CRNA assistant director were the same as those of director. The CRNA assistant director was to have the necessary experience and the ability to assume the program director role if required.<sup>132</sup> The accreditation standards promoted the orderly continuation of the programs in the event a program director was unable to provide adequate notice of vacating the position either temporarily or permanently.

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<sup>129</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Trial Standards and Guidelines Split: Clinical* (Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 1988): 18-20. Council on Accreditation of Nurse Anesthesia Educational Programs, *Standards and Guidelines for Accreditation of Nurse Anesthesia Educational Programs:1990* (Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 1990): 22.

<sup>130</sup> Cathy Mastropietro, Mark S. Holland, and Stanley M. Hall, “Should Nurse Anesthesia Programs Be Directed By a CRNA?” *AANA Journal* 68 (2000): 299.

<sup>131</sup> Council on Accreditation, *Standards and Guidelines:1990*, 22.

<sup>132</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Trial Document: Standards for Accreditation of Nurse Anesthesia Educational Programs* (Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 1993): 8.

Educational credentials beyond certification in the specialty appeared in the COA standards. Notification was included in the 1976 standards that the equivalent of three semester hours in pedagogy including curriculum, instruction, testing and evaluation was required to be completed by 1978 for CRNA program directors and educational coordinators. The requirement was to be met by all didactic instructors teaching in a nurse anesthesia program by 1981. Programs were also advised that the minimum educational preparation for CRNA program directors would, in the future, be raised to a baccalaureate degree.<sup>133</sup>

The academic credential for program directors in the 1980 standards varied between certificate, baccalaureate, and master's level programs. Directors of certificate programs were required to hold a baccalaureate degree in nursing, or a related field, by the end of 1980; baccalaureate program directors were required to have a minimum of a baccalaureate degree and to be actively pursuing an appropriate graduate degree. Directors of a graduate program were required to either hold an appropriate graduate degree or to have completed the degree within one year of accepting students into the master's program. Program directors were notified in the 1980 standards that all program directors were required to have a master's degree in nursing, basic sciences, education, or administration by the end of 1985.<sup>134</sup> The 2003 trial standards notified programs that a doctoral degree would become the minimum academic credential for program directors by 2014. The doctoral degree credential was not applicable to the assistant director in the trial standards.<sup>135</sup> The 2004 standards modified the doctoral degree requirement to read; "Doctoral degrees are

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<sup>133</sup> American Association, *Educational Standards: 1976*, 32.

<sup>134</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Standards and Guidelines for Accreditation of Nurse Anesthesia Educational Programs/Schools* (Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 1980): 32.

<sup>135</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Trial Standards for Accreditation of Nurse Anesthesia Educational Programs* (Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 2003): 2.

preferred for CRNA program administrators.”<sup>136</sup> Regional accrediting bodies and their influence on the academic institutions affiliating with nurse anesthesia programs determined the faculty credentials of nurse anesthesia programs allowing the COA to take a less prescriptive role.

Basic student admissions qualifications for nurse anesthesia programs were historically determined by the accrediting body for nurse anesthesia programs. Most programs determined admissions requirements in addition to the requirements in the accreditation standards particularly following the development of graduate level programs. Admissions qualifications identified by graduate nurse anesthesia programs in 1995 included cumulative grade point average (GPA), science GPA, prerequisite academic courses and/or degrees, years of acute care nursing experience, standardized test scores, letters of reference and a personal interview.<sup>137</sup> These admissions requirements were determined at the program level.

Admissions standards mandated by the COA in 1976 for students entering programs were unchanged from the AANA criteria published in 1970. High school graduate equivalency and licensure as a RN were the requirements.<sup>138</sup> A minimum of one year of acute care nursing experience was added to the admission requirements in the 1980 standards. Some latitude was allowed as programs could accept acute care experience obtained prior to entry into a nursing school.<sup>139</sup> Individuals who served in the military as a corpsman during Vietnam could have been admitted without the year of nursing experience under the provision. The 1988 trial standards eliminated the

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<sup>136</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Standards for Accreditation of Nurse Anesthesia Educational Programs* (Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 2004): 2.

<sup>137</sup> George Haritos, Scott H. Shumway, Paul N. Austin and Wayne E. Ellis, “Nurse Anesthesia Admissions Qualifications,” *AANA Journal* 63 (1995): 245-246.

<sup>138</sup> American Association, *Educational Standards: 1976*, 9.

<sup>139</sup> Council, *Standards and Guidelines: 1980*, 8.

provision that experience obtained prior to licensure as a RN could be considered.

The one year of acute care experience was further defined in 1988:

Minimum one year experience as a registered professional nurse in which the applicant has had the opportunity to develop independent decision making, demonstrate psychomotor skills and the ability to see and interpret advanced monitoring based on a knowledge of physiologic and pharmacologic principles.<sup>140</sup>

A baccalaureate degree was another addition to the admissions criteria in 1987; all students entering a nurse anesthesia program were required to earn a baccalaureate degree or a related discipline prior to their nurse anesthesia education.<sup>141</sup> There were no further revisions in the admissions criteria through the 2004 version. The baccalaureate degree requirement for students and the master's degree requirement for program directors encouraged nurse anesthesia programs to prepare to offer a graduate level program. The COA used the standards to facilitate the transition of all programs to graduate level education by 1998.

### *Administrative Standards*

The last version of Criteria for Accreditation approved by the AANA Board of Trustees was published in 1970.<sup>142</sup> The *Educational Standards and Guidelines* published by the COA in 1976 were considerably expanded and required a much greater level of administrative development by the programs. Seven broad standards with interpretations and guidelines were included in the COA standards. The categories of the seven standards were: administration of policies and procedures, curriculum and instruction, records, faculty, administrative support, program

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<sup>140</sup> Council, *Standards and Guidelines*, 3

<sup>141</sup> Jordan and Shott, "Feasibility of a Doctoral," 288.

<sup>142</sup> American Association of Nurse Anesthetists, *Accreditation of Schools of Anesthesia For Nurses: 1970* (Chicago: American Association of Nurse Anesthetists, 1970): 4-9.

enrichment and innovation, and ethics.<sup>143</sup> Later versions eliminated the records and program enrichment/innovation standards by including the functions in the remaining six existing standards. The interpretations and guidelines were altered but the standards themselves remained largely unchanged for many years.<sup>144</sup> The standards were reconfigured in 2003 to five broad standards with associated criteria. The reconfigured five standards were categorized as: governance, program effectiveness, program of study, resources, and accountability.<sup>145</sup> Although the standards appeared different, the changes made in the 2003/2004 revision had no greater impact on the program than the previous revisions.

The implementation of the COA standards published in 1976 had an enormous impact on the existing nurse anesthesia programs. Nurse anesthesia program directors were required for the first time to develop policy relative to the organizational structure of the program including a committee structure and lines of communication. Program philosophy and objectives with an evaluation plan for the objectives had to be written. Policies relative to faculty and student rights and responsibilities were required. Non-discriminatory practices were an integral part of these rights and responsibilities. Program directors were also required to demonstrate a budget that identified all categories of program expenses.<sup>146</sup>

Nurse anesthesia program administrators were also required to "...maintain accurate, cumulative records of all educational activities, committee minutes, and personnel actions related to students and faculty."<sup>147</sup> The AANA criteria had not

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<sup>143</sup> American Association of Nurse Anesthetists Council on Accreditation, *Educational Standards and Guidelines For Nurse Anesthesia Educational Programs* (Chicago: American Association of Nurse Anesthetists Council on Accreditation, 1976).

<sup>144</sup> Council, *Trial Standards and Guidelines*.

<sup>145</sup> Council, *Trial Standards for Accreditation*.

<sup>146</sup> American Association, *Educational Standards: 1976*, 7-14.

<sup>147</sup> *Ibid.*, 26.

previously included a policy on record retention, so this again was a new administrative requirement. Three levels of records retention were outlined: permanent records which were to be maintained indefinitely, temporary records which were to be maintained for five years, and temporary data which were to be maintained until a student's final transcript was completed. An extensive list of prescribed documents to be kept as a record by the program was included.<sup>148</sup>

A brief description of ethical conduct toward students including a definition of exploitation, and a description of a proper supervision and evaluation was included in the AANA criteria.<sup>149</sup> The COA standards outlined ethical conduct toward patients, students, faculty, the conducting institution, affiliating institutions and accrediting agency.<sup>150</sup> Program directors were required to "...monitor trends in nurse anesthesia practice and education...and plan for the incorporation of enriching or innovative experiences..."<sup>151</sup> Beneficial educational experiences beyond the minimum standards were expected to be identified and implemented by the program. The standards included a provision for an experimental program that had not been included in the AANA criteria. An experimental program was a program that did not meet all the COA standards relative to class hours or clinical experiences.<sup>152</sup> The administrative responsibilities leaders of nurse anesthesia programs were expected to oversee were greatly expanded with the standards developed by the COA.

The 1994 revision of the standards, just four years after the 1990 revision, was completed to conform to new regulations written in response to the 1992 reauthorization of the Higher Education Act. Congress increased the oversight of the USDOE related to the high rate of student loan repayment failure. The USDOE in

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<sup>148</sup> Ibid., 26-30.

<sup>149</sup> American Association, *Accreditation of Schools*, 8.

<sup>150</sup> American Association, *Educational Standards: 1976*, 43-50.

<sup>151</sup> Ibid., 40.

<sup>152</sup> Ibid., 41.

turn stipulated that accrediting agencies review new areas such as "...tuition in relation to the subject matter taught, default rates in student-loan programs, records of student complaints and job placement rates."<sup>153</sup> Criteria addressing the issues were incorporated into the standards and the administrative tasks required of program leaders were expanded again.

### *Didactic Curricula and Instruction*

The immediate impact of the COA standards in 1976 was seen in the administrative processes of programs, but there were additional effects. The requirements related to the curriculum of nurse anesthesia programs, instruction of nurse anesthesia students, and learning resources were expanded as well. These requirements were prescribed guidelines programs were to meet. Program directors likely welcomed the prescribed nature of the guidelines as it gave specific criteria that could be used to justify changes. The required learning resources in 1976 included the availability of a textbook for each student in five areas of study: physiology, chemistry and physics, pharmacology, fundamentals of anesthesia, and pediatric anesthesia. A research library, classroom space, office space and secretarial support were included.<sup>154</sup> Adequate secretarial support was defined; "Programs with more than 8 students (total) shall have at least one full time secretary for support of educational activities."<sup>155</sup> Guidelines such as this could have been useful to a program director when funding increases were requested. The guidelines became less prescriptive over time. For example the 1976 definition of adequate secretarial support in 1980 became: "...all needed typing, clerical, and technical administrative activities provided by support personnel in a timely fashion and that these activities

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<sup>153</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Standards for Accreditation of Nurse Anesthesia Educational Programs* (Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 1994): v.

<sup>154</sup> American Association, *Educational Standards: 1976*, 34-36.

<sup>155</sup> American Association, *Educational Standards: 1976* Ibid., 37.



do not become burdensome to the faculty...”<sup>156</sup> Further evolution was seen in the 1994 criteria; “Provide adequate financial, personnel and administrative resources to support the efficient and effective operation of educational activities.”<sup>157</sup>

The guidelines falling under curriculum and instruction were the most consistent between the AANA criteria and the COA standards published in 1976. The mandated length of study, 18 months; and hours of clinical instruction, 600; were unchanged.<sup>158</sup> The hours of classroom, or didactic, instruction required was increased from 300 to 365. The didactic curriculum changed little with anatomy, physiology, chemistry and physics, pharmacology and anesthetic principles included. A specific number of didactic hours devoted to each section of the didactic curriculum were identified by the COA. A guided clinical discussion requirement such as Journal Club, Morbidity and Mortality Conference or other Clinical Correlative Conferences was added to the curriculum by the COA.<sup>159</sup> The number of didactic hours increased to 425 in 1980<sup>160</sup> with slight increases seen in 1988 when the requirement became 450 hours,<sup>161</sup> and again in 2003 to 465 hours when research was added to the mandated curriculum.<sup>162</sup> The mandated science, anesthetic principles, and research content formed the core content that all nurse anesthesia programs, and graduates, shared.

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<sup>156</sup> Council, *Standards and Guidelines: 1980*, 36.

<sup>157</sup> Council, *Standards for Accreditation* (1994): 3.

<sup>158</sup> American Association, *Educational Standards*, 15, and American Association, *Accreditation of Schools*, 4.

<sup>159</sup> American Association, *Educational Standards: 1976* Ibid., 16-17.

<sup>160</sup> Council on Accreditation, *Standards and Guidelines: 1980*, 14.

<sup>161</sup> Council, *Trial Standards and Guidelines*, 10.

<sup>162</sup> Council, *Trial Standards for Accreditation*, 6.

Programs were advised to begin "...working toward the development of a twenty-four month program" in the 1976 COA standards.<sup>163</sup> The AANA employed a similar announcement prior to the mandated increase in the length of programs from twelve to eighteen months. The minimum program length was increased in 1980 to twenty-four months where it has remained.<sup>164</sup> A further increase to thirty months was proposed for the 2003 trial standards discussed during 2002.<sup>165</sup> The increase to thirty months was not implemented and the minimum length remained twenty-four months of full time study in the 2003 trial standards.<sup>166</sup> Programs were notified in the 1988 trial standards: "Students entering nurse anesthesia programs after January 1, 1998 shall graduate with a master's degree."<sup>167</sup> The 1994 standards included a requirement to "Design a curriculum that will award a master's or higher level degree..." by the 1998 deadline.<sup>168</sup> Although a higher level degree was referenced in the 1994 standards, the criteria for a nurse anesthesia doctoral degree were first published in the 2003 trial standards and subsequent 2004 standards. Additional criteria for practice-oriented and research-oriented doctoral degrees were appended to the standards for master's level programs.<sup>169</sup>

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<sup>163</sup> American Association, *Educational Standards: 1976*, 15.

<sup>164</sup> Council on Accreditation, *Standards and Guidelines: 1980*, 14.

<sup>165</sup> Sandra M. Ouellette, Nancy Bruton-Maree and Eileen Kohlenberg, "Expansion of Nurse Anesthesia Educational Programs: Where Are the Barriers?" *AANA Journal* 70 (2002): 437.

<sup>166</sup> Council, *Trial Standards for Accreditation*, 5.

<sup>167</sup> Council, *Trial Standards and Guidelines*, 10.

<sup>168</sup> Council, *Standards for Accreditation*, (1994): 4.

<sup>169</sup> Council, *Trial Standards for Accreditation*, 12-14.

*Clinical Experiences Requirements*

Few alterations were made in the required clinical experiences with the implementation of the COA standards in 1976. The number of clinical anesthetic cases, 450, and the hours of clinical experience remained the same. The number of hours of clinical experience, or “actual anesthesia time,” increased from 600 to 800 in 1980 where it remained until eliminated in 2003.<sup>170</sup> The clinical experience requirements went beyond the number of hours of clinical practicum. Specific clinical experiences “...of a broad variety and balance...” were required for each graduate of a nurse anesthesia program. There were a limited number of changes in the 1976 COA requirements compared to the 1970 AANA requirements. The number of inhalation techniques required increased from 110 to 300 and a minimum of two pediatric cases in children under the age of two were added.<sup>171</sup> Increases in pediatric and geriatric experiences were mandated in the further revisions of the standards. By the 2004 standards, the minimum number of pediatric cases under two years of age had increased to ten, while the number of geriatric cases increased from ten to fifty. The number of surgical specialty cases, such as intracranial and intrathoracic cases, were increased while requirements to care for patients with higher levels of coexisting medical illness were added.

Technological advances and clinical practice changes drove other alterations and additions to the clinical requirements. Some additions, such as experience in monitored anesthesia care and ambulatory surgery both added in 2003,<sup>172</sup> reflected widespread healthcare delivery changes and were readily available in most clinical environments. Other additions were more challenging and required more effort for some programs to obtain the experiences. Invasive monitoring and fiberoptic airway management techniques relied upon the availability of the appropriate technology and

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<sup>170</sup> Council on Accreditation, *Standards and Guidelines*, 14.

<sup>171</sup> American Association, *Educational Standards: 1976* Ibid., 18-19. See Chapter IV above.

<sup>172</sup> Council, *Trial Standards for Accreditation*, 17, 19.

knowledgeable instructors, which could be difficult in some clinical settings. Graduates were required to be given experience in invasive monitoring techniques beginning in 1988. Experience in arterial blood pressure and central venous pressure monitoring was mandated in 1988.<sup>173</sup> Insertion of arterial lines was first required in 1993<sup>174</sup> with insertion of central lines added to the clinical requirements in 2003. Central line insertion simulated experiences were allowed to meet the COA requirement.<sup>175</sup> Alternative airway management techniques to include either actual or simulated fiberoptic experiences were also first included in the COA standards in 2003.<sup>176</sup> The COA standards adapted the standards to assure that graduates of nurse anesthesia programs would obtain experience with contemporary advanced clinical technology.

The evolving clinical utilization of regional anesthetic techniques was reflected in the standards as well. Experience in managing regional anesthesia was a component of the clinical experience requirements published in 1960 onward but there was no requirement for the administration of regional anesthetic techniques. Surgeons routinely administered regional anesthesia in 1960 with the responsibility gradually shifting to anesthesia providers over time. The COA surveyed nurse anesthesia program directors in 1993 to evaluate the number of nurse anesthesia programs providing clinical experience in the administration of regional. The survey found that regional experience varied widely among the programs. Subarachnoid blocks, or spinal anesthetics, were performed in eight-seven percent of programs with a mean of thirty-one blocks performed. The range, from none to over 121, and the standard deviation of twenty-nine illustrated the inconsistency between the programs,

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<sup>173</sup> Council, *Trial Standards and Guidelines*, 14.

<sup>174</sup> Council, *Trial Document*, 14.

<sup>175</sup> Council, *Trial Standards for Accreditation*, 20.

<sup>176</sup> *Ibid.*, 20.

with similar numbers for epidural placement.<sup>177</sup> The number of programs providing the experience was a significant increase from 1977 when twenty-eight percent of nurse anesthesia programs were including spinal anesthetic administration experience.<sup>178</sup> Program director opinions concerning the advisability of instituting a COA requirement for the administration of regional techniques was solicited in the survey. Two thirds of the program directors reported the opinion that regional techniques should be included in the clinical experience requirements. A sizable minority, one third, did not support a regional administration requirement even though almost ninety percent of programs were providing the experience.<sup>179</sup> This may have been due to programs providing regional experiences for some students but not all. A COA requirement would require that all students be provided the experience.

The COA did indicate in the 1993 trial standards that the administration of ten spinal and/or epidural blocks combined with the administration of five other regional techniques would be required by 2000.<sup>180</sup> A phased expansion in the regional anesthetic requirements was included in the 1999 revision of the 1994 standards. The effective date of the regional requirement was delayed to 2001 but included the administration of five each of spinal, epidural, and peripheral blocks where previously ten of either major block was allowed. The second phase outlined in 1999 was effective in 2003, and required an increase to fifteen each, spinal and epidural blocks.<sup>181</sup> A significant reduction in the variability in the number of regional administrations would be required to meet the second phase requirements.

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<sup>177</sup> Betty J. Horton, "Should Student Nurse Anesthetists be Required to Administer Regional Anesthesia?," *AANA Journal* 61 (1993): 499-500.

<sup>178</sup> AANA Education Committee, "A Survey of Nurse Anesthesia Educational Programs/Schools," *AANA Journal* 46 (1978): 261-262.

<sup>179</sup> Horton, "Should Student," 500.

<sup>180</sup> Council, *Trial Document*, 14.

<sup>181</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Standards for Accreditation of Nurse Anesthesia Educational Programs: With 1999*

The requirements for experience with invasive monitoring, alternate airway management and regional anesthesia effective in 2003 increased the demands for clinical experience for programs. The 2003 trial standards increased the total number of anesthetic experiences to 550 from 450 as well. Some program directors were concerned the increased demands could negatively impact the stability of nurse anesthesia programs.

The proposed 2003 trial standards and the increased regional requirement to be effective in 2003 generated much discussion and vocal opposition in hearings held at the Assembly of School Faculty meeting in 2001 and 2002. The proposed increase in minimum program length from twenty-four to thirty months was eliminated following the hearings and some nurse anesthesia educators questioned other changes.<sup>182</sup> Forty percent of program directors responding to a 2002 survey believed the fiberoptic airway management requirement would inhibit the number of students admitted to their program. Approximately thirty percent believed the epidural and the central line placement requirements would have the same effect. The study authors recognized that the survey respondents represented approximately sixty percent of programs and that programs of shorter duration were over represented in the respondents. The respondent group may have over represented those who did not support the COA changes but the authors recommended: “Place a moratorium on any accreditation revision that would lead to program closures or reduced enrollment unless clearly required by the US Office of Education.”<sup>183</sup> The Chair of the COA responded to the recommendation by reaffirming the COA’s mission as focused on quality improvement and labeled the recommendation a “dangerous suggestion.”<sup>184</sup>

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*Revisions* (Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 1999): 19.

<sup>182</sup> Ouellette, Bruton-Maree, and Kohlenberg, “Expansion,” 437.

<sup>183</sup> *Ibid.*, 438.

<sup>184</sup> Margaret Faut-Callahan, “What Role Should Education Standards Play in the Manpower Shortage?,” *AANA Journal* 71 (2003): 100-102.

The COA altered the fiberoptic airway and central line insertion requirements to include simulated experiences in the final draft of the 2003 trial standards.<sup>185</sup> The 1999 requirement for the administration of fifteen subarachnoid and fifteen epidural blocks by 2003 was altered in the 2004 standards. The administration of twenty-five regional techniques with “experience in each category” was included in the 2004 standards with no further definition. The categories listed were spinal, epidural and peripheral, and as experience was not defined one spinal and one epidural experience was conceivably adequate to meet the requirement if the total number equaled twenty-five or more.<sup>186</sup> This was unusual as the requirements in the accreditation standards had been reduced following implementation. Previously this had occurred when obsolete clinical practice experiences were eliminated but this was not the case in spinal or epidural techniques.

#### *Evolution of the Standards for Accreditation*

The educational requirements for nurse anesthesia programs initially focused on the length of the program in months, the number of anesthetics administered, and the clock hours of clinical and didactic instruction. The hospital-based certificate programs awarded no traditional academic credits nor was an academic degree earned by the student. A certificate was granted to the graduate by the nurse anesthesia program at the completion of the training. The clock hours prescribed by the COA allowed for consistency in the educational content represented by the certificate in nurse anesthesia. Nurse anesthesia educational leaders took the opportunity to advance the educational standards with the other changes in the accreditation of nurse anesthesia programs initiated by the formation of the COA.<sup>187</sup> There was good reason for the increased educational rigor as the scientific knowledge, and range of anesthetic techniques to accompany the growth in surgical techniques grew rapidly.

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<sup>185</sup> Council, *Trial Standards for Accreditation*, 20.

<sup>186</sup> Council, *Standards for Accreditation* (2004): 19.

<sup>187</sup> Zambricki and Ouellette, “On Matters of Concern,” 499.

The focus on clinical education as the primary overriding characteristic of nurse anesthesia educational programs remained firmly in place through the process of change. Nurse anesthesia programs became progressively more academically rigorous through the transition from certificate to master's level programs. The basic science foundation was expanded and the research perspective was added to the programs. These elements strengthened the ability of the clinical practitioner to adapt to the complex healthcare environment and provide optimal clinical anesthesia care to individual patients. The specialty accreditation by the COA maintained consistency in the core content which every nurse anesthesia graduate mastered while allowing for diversity in the academic degrees awarded by the nurse anesthesia programs.



## CHAPTER 7

## NEBRASKA NURSE ANESTHESIA ACADEMIC DEGREE PROGRAMS

Nurse anesthesia education in the United States transitioned from hospital-based programs to academic degree programs between 1971 and 1998. Nurse anesthetists were trained in post graduate, hospital-based programs first organized in the World War I era. Registered Nurses (RN) were admitted to the nurse anesthesia programs and granted a certificate of nurse anesthesia at completion. Graduates of approved programs were qualified to sit the certificate exam administered by the American Association of Nurse Anesthetists (AANA) beginning in 1945. The achievement of a passing score identified the graduate as a member of the AANA, and later to be designated a Certified Registered Nurse Anesthetist (CRNA). Academic degree programs, first at the baccalaureate level and later as the master's level, began to be offered by a few nurse anesthesia programs beginning in 1971.

Nursing leaders advocated master's level education for nurses who wished to specialize, but many RNs entering nurse anesthesia programs were trained in hospital-based diploma nursing schools. This supported the establishment of baccalaureate degree programs in the earlier nurse anesthesia academic degree programs. The Council on Accreditation of Nurse Anesthesia Educational Programs (COA) in 1987 encouraged the development of master's level education for CRNAs by requiring RNs to earn a baccalaureate degree prior to admission to a nurse anesthesia program. The nurse anesthesia programs to transition at a later time to an academic degree were more likely to move directly to a master's level format, bypassing the baccalaureate degree.

The three Nebraska nurse anesthesia programs were awarding a baccalaureate degree by 1980. One of the first academic degree nurse anesthesia programs in the United States was founded in 1973 at the University of Nebraska Medical Center in Omaha. The University program was a new program, so was never a certificate program, but was designed from the outset to grant a Bachelor of Science degree through the School of Allied Health Professions. The Bryan Memorial Hospital School of Anesthesia became the second baccalaureate program in Nebraska through

a 1978 affiliation with Nebraska Wesleyan. The existing certificate program at Bryan Memorial was reconfigured with the academic affiliation. The Creighton Memorial-Saint Joseph Hospital School of Anesthesia also moved from a certificate program to a baccalaureate format through Creighton University by 1980, becoming the third in the state. The Nebraska programs were unusual as there were a small number of academic degree programs in the United States at the time. Of the 143 programs accredited in 1980, twenty-seven were baccalaureate and five were master's degree programs. A smaller number of programs offered either an optional baccalaureate degree in eight cases, or master's degree in four cases. The University offered an optional master's degree, but the basic curriculum of all three Nebraska programs was a mandatory Bachelor of Science program.

Two of the three Nebraska nurse anesthesia programs were closed by 1987. The University of Nebraska Medical Center program operated for ten years, closing during the summer of 1982. The Creighton University program absorbed the last University of Nebraska class admitted, allowing the five students to complete their training and graduate in 1983. Creighton University then announced in 1986 the voluntary closure of their nurse anesthesia program, effective in the fall of 1987. A single nurse anesthesia program remained in Nebraska, sponsored by Bryan Memorial Hospital in Lincoln. The Lincoln program continued to evolve, moving to a master's degree format beginning with the class admitted in 1985. The BryanLGH Medical Center School of Nurse Anesthesia remained the only Nebraska nurse anesthesia program in 2006.

University of Nebraska Medical Center, Division of Nurse Anesthetists

The University of Nebraska Medical Center located in Omaha, Nebraska conducted a nurse anesthesia program for nine years beginning 1973 and ending in 1982. The Department of Anesthesiology sponsored the Allied Health program, providing the Director and much of the faculty. The program awarded twenty-six Bachelor of Science in Nurse Anesthesia degrees during the nine years according to a

report written in 1994 by the UNMC School of Allied Health.<sup>1</sup> Annual Reports of the Division of Nurse Anesthesia gave an account of the admissions and graduations from the program each academic year. Three students were admitted to the program each year with the exception of two years. In 1978 four students were admitted, and in 1981 five were admitted for a total of thirty students admitted during the nine years. Two students admitted did not complete the program, as well as the last class of five admitted, for a total of twenty-three graduates of the basic curriculum.

The nurse anesthesia program also enrolled CRNAs who wished to earn a higher academic degree. One individual who had completed a certificate nurse anesthesia program and was a CRNA was awarded a BS degree through the program. Another CRNA began a BS degree completion program but withdrew. A third CRNA began a program to earn a Masters degree in anesthesia during the 1976-1977 academic year.<sup>2</sup> His completion of the Master's program was not included in the Annual Reports, but an alumnus of the program who completed the basic program during the same time frame believes he did complete a Master's degree.<sup>3</sup> The addition of the two degree completions awarded resulted in a total of twenty-five degrees awarded by the program. No explanation for the discrepancy between the reported twenty-six degrees, and the twenty-five calculated from program information could be determined.

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<sup>1</sup> "Degrees and Certificates Awarded by the University of Nebraska Medical Center" dated August 24, 1994 was found in the School of Allied Health files.

<sup>2</sup> "School of Allied Health Professions, University of Nebraska Medical Center, Annual Report," dated for the academic years 1974-1975 through 1980-1981. The Annual Reports were found in the office of the School of Allied Health, University of Nebraska Medical Center, Omaha, Nebr. There was no report found for the academic year 1981-1982.

<sup>3</sup> Sue Dumas of Lincoln, Nebr., interview by author, 14 October 2006, Lincoln, Nebr., transcript, AANA History and Archives Society, Park Ridge, Ill.

*Factors Promoting the Establishment of the UNMC Program*

The University of Nebraska Board of Regents in December, 1972 approved the new nurse anesthesia program requested by the University of Nebraska Medical Center (UNMC) College of Medicine. There were several reasons cited to the Board of Regents to justify the need for the new program:

At the present time a shortage of physician-trained Certified Registered Nurse Anesthetists (CRNA) exists in Nebraska. There are areas of the state where anesthesia is being administered by individuals with no medical background or who have had no formal training in the art and techniques of safe anesthesia practice. There are also places in the state where physicians who have had minimal or no specialized training in anesthesia administer or supervise the administration of anesthesia for obstetrics and surgery....It is imperative, therefore, that well trained CRNAs with a good educational background be available for all areas of Nebraska, especially those which cannot attract a qualified anesthesiologist.<sup>4</sup>

The UNMC Department of Anesthesiology believed the rate of anesthesia morbidity and mortality was significantly higher in the rural hospitals in the state compared to larger hospitals. There were reports of untrained nurses, physicians, and other personnel in some cases, administering anesthetics. Spinal anesthetics administered by the operating physician, who then diverted attention to the surgical procedure, were reported to be a source of mortality.<sup>5</sup>

Every anesthetic either administered by, or supervised by, a physician anesthesiologist was the ideal advocated by the Department of Anesthesiology. The small number of anesthesiologists practicing in Nebraska, forty-two, was given as evidence that "...this is not realistic at present, and will probably not occur in the near future."<sup>6</sup> The three established Nebraska nurse anesthesia programs in operation in

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<sup>4</sup> See the University of Nebraska College of Medicine: School of Allied Health Professions, "Summary of Existing and Proposed Programs; January, 1973" (Omaha: University College of Medicine, 1973), 4-5 found in the College of Allied Health administrative office.

<sup>5</sup> Kennetha Scheer of Ashland, Nebr., interview by author, 3 August 2006, Ashland, Nebr., transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>6</sup> University of Nebraska, "Summary of Existing," 5.

1972 were mentioned in the UNMC proposal. The two CRNA-led programs, the Bryan Memorial and the Creighton-Saint Joseph program, were noted to be lacking physician oversight. The third program, the Bishop Clarkson program, was directed by Dr. Therien but "...trains nurses primarily for use in their own hospital." "Therefore, the College of Medicine's Department of Anesthesiology is starting a twenty-four month program leading to a Bachelor of Science degree in Anesthesia."<sup>7</sup>

There was no discussion in the proposal related to the decision to design a baccalaureate curriculum rather than a certificate program. There were several certificate programs within the School of Allied Health. Some, such as Radiology Technician, had been established decades earlier, but others such as Biomedical Specialist and Clinical Perfusionist were established after the nurse anesthesia program.<sup>8</sup> The vast majority of nurse anesthesia programs were certificate programs at the time, but the first baccalaureate nurse anesthesia program was initiated in 1971 just across the Nebraska border in Yankton, South Dakota. It is unknown if the UNMC Anesthesiology Department was aware of the South Dakota program. Two of the anesthesiologists had been involved with nurse anesthesia education prior to joining the UNMC Department of Anesthesia. The South Dakota program, prior experiences with nurse anesthesia education, or other factors may have influenced the anesthesiologists. Regardless, the new program was unusual in that a Bachelor of Science degree was earned by graduates, and the program was initiated and designed by anesthesiologists.

### *Program Administration*

The American Association of Nurse Anesthetists was the accrediting body when the UNMC program was initially accredited in 1973. The new program received a favorable review following the initial site visit and was granted full

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<sup>7</sup> Ibid.

<sup>8</sup> "Degrees and Certificates Awarded."

accreditation. A quote from the accreditation visitor's report was included in the 1973-1974 School of Allied Health Professions Annual Report:

This program is the most outstanding nurse anesthesia education program that either of the two visitors have had the opportunity to review. Dr. Wingard and his staff have achieved those unique combinations of: (1) Achieving educational excellence while meeting service commitments; (2) Integrating various categories of educational programs in the same setting in such a manner as to facilitate each program rather than each program having to compete with the others for needed educational experiences; (3) Providing an atmosphere which allows each student, physician, nurse or other, to grow to his potential, finding dignity and self worth in personal achievement; and (4) Finding fun and enjoyment in learning and work.

The program was reaccredited in 1975 for the maximum of four years, indicating that no deficiencies were found during the accreditation review conducted in 1975. Daniel Wingard, MD served as the director of the UNMC nurse anesthesia program for several years, 1973 through 1980. Jerry Edelman, MD was the director for a short time in 1980 when James Chapin, MD became the director.<sup>9</sup> The first director, Dr. Wingard, was instrumental in the development of the proposal for the nurse anesthesia program. He had been involved in nurse anesthesia education through association with another institution and gathered support for the nurse anesthesia program in the department. Dr. Chapin was involved with the nurse anesthesia program prior to 1980, serving as the clinical director of the program beginning in 1977. He facilitated the clinical experiences of the nurse anesthesia students and was a liaison with the CRNA Educational Coordinator.<sup>10</sup>

The administration of the UNMC program included a CRNA, but the CRNA was not employed by the University. Kennetha Scheer, CRNA joined the faculty of the program in 1974 following the completion of a Bachelor of Science degree

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<sup>9</sup> Found in the "School of Allied Health Professions, University of Nebraska Medical Center, Annual Report," dated for the academic years 1974-1975 through 1980-1981. The Annual Reports were found in the office of the School of Allied Health, University of Nebraska Medical Center, Omaha, Nebr. There was no report found for the academic year 1981-1982.

<sup>10</sup> Kennetha Scheer interview.

through UNMC.<sup>11</sup> Ms. Scheer had been associated with the anesthesia residency program through her employment as a CRNA with the Veterans Administration (VA) Hospital. The UNMC anesthesia residents obtained clinical experience at the VA Hospital and she became familiar with the faculty of the department. Ms. Scheer received a certificate of anesthesia through the Creighton-Saint Joseph School of Anesthesia in 1969. She completed the Bachelor of Science through the Department of Allied Health by testing out of the majority of the UNMC courses and completing a biochemistry course. Ms. Scheer maintained full time clinical practice outside of the University throughout her association with the nurse anesthesia program.<sup>12</sup> She was named the Educational Coordinator of the program and an assistant instructor during the 1974 academic year, a position she held continuously until the closure of the program.<sup>13</sup>

#### *Program Curriculum and Design*

Student nurse anesthetists enrolled in the UNMC anesthesia program at the beginning of the fall quarter each year. The program was twenty-four months in length, six months longer than the eighteen month minimum in the 1970 revision of the accreditation standards.<sup>14</sup> The twenty-four month program was longer than the Nebraska certificate nurse anesthesia programs but there were programs in the country at twenty-four months. A review of the 1965 and 1970 *Approved Schools for Nurse Anesthetists* found several certificate nurse anesthesia programs were also

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<sup>11</sup> “School of Allied Health Professions, University of Nebraska Medical Center, Annual Report,” academic years 1974-1975 through 1980-1981.

<sup>12</sup> Kennetha Scheer interview.

<sup>13</sup> “School of Allied Health Professions, University of Nebraska Medical Center, Annual Report, 1974-1975.”

<sup>14</sup> American Association of Nurse Anesthetists, *Accreditation of Schools of Anesthesia for Nurses 1970* (Chicago: American Association of Nurse Anesthetists, 1970), 5.

longer than the eighteen month minimum, with nine percent of the 1965 programs, and eighteen percent of the 1970 programs at twenty-four months.

The academic degree format of the UNMC program necessitated other differences compared to the certificate programs. The students were assessed tuition charges per quarter hour at the usual UNMC rate and there was no stipend paid to the students.<sup>15</sup> The admissions requirements were also more specific, reflecting the admission of the students to an academic institution. The admissions requirements were RN licensure and a minimum of eighty quarter hours, or sixty semester hours of transferable college credits. Specific preadmission course requirements included three to five semester hours of chemistry, six to eight semester hours of anatomy and physiology, six semester hours of psychology and sociology, and six semester hours of English.<sup>16</sup> It was necessary for some RN applicants to complete courses prior to acceptance depending on their educational background.<sup>17</sup>

The admission requirement for a year of clinical nursing experience was ambiguous. One year of post graduate clinical experience "...may be required."<sup>18</sup> The University admissions requirements were congruent with the accreditation standards as there was no preadmission clinical nursing experience required at that time. In some cases students were admitted to the program within months of graduation from their basic nursing program.<sup>19</sup> The 1980 revision of the accreditation standards was

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<sup>15</sup> Kennetha Scheer interview.

<sup>16</sup> Information related to the admissions requirements and course content was found in the "Division of Nurse Anesthetists" section of the *UNMC Bulletin* for each academic year 1973-1974 through 1980-1981.

<sup>17</sup> Sue Dumas of Lincoln, Nebr., interview by author, 14 October 2006, Lincoln, Nebr., transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>18</sup> "Division of Nurse Anesthetists".

<sup>19</sup> Steve Wooden of Albion, Nebr., interview by author, 7 August 2006, Cleveland, transcript, AANA History and Archives Society, Park Ridge, Ill.; Kennetha Scheer interview.



when a year of clinical nursing experience prior to admission was made a requirement.<sup>20</sup>

The curriculum published for the 1973-1974 academic year contained 124 quarter hours of basic science, pharmacology, and anesthesia content. Nine quarter hours of pharmacology, and twenty-one quarter hours of basic science review and physiology content were included. The remaining ninety-six quarter hours were anesthesia-related content. Part of the physiology and pharmacology content was included in the second year of the program for the first class of students. This was changed with a revision of the curriculum. The total quarter hours for the program were increased to 127, but the science hours were reduced from twenty-one to sixteen, and the pharmacology hours from nine to six. All the science and pharmacology content was moved to the first three quarters of the first year of the curriculum published in 1975.

The nurse anesthesia students participated in the educational conferences provided by the staff of the Department of Anesthesiology, primarily during the senior year. There were no CRNAs in the department, so the anesthesiologists were the responsible faculty. Students attended conferences with the anesthesiology residents for clinical case presentations and to discuss current research publications. The residents and student nurse anesthetists were assigned presentations which were made before all members of the department.<sup>21</sup> “Typically, the physicians were the ones that taught. We learned side-by-side with the anesthesia residents.”<sup>22</sup> The department conferences comprised the bulk of the didactic instruction during the senior year with some additional lectures required by the AANA, or Council on Accreditation. Kennetha Scheer, the CRNA Educational Coordinator arranged for

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<sup>20</sup> Council on Accreditation of Nurse Anesthesia Educational Programs, *Standards and Guidelines for Accreditation of Nurse Anesthesia Educational Programs/Schools* Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs, 1980): 8.

<sup>21</sup> Sue Dumas interview; Kennetha Scheer interview; and Steve Wooden interview.

<sup>22</sup> Steve Wooden interview.

speakers on specific topics. “I remember one time that she brought in an attorney to talk about the legal aspects. She also brought somebody in from business to talk about the business aspects.”<sup>23</sup>

The course descriptions indicated one day a week was spent in the clinical area during the first quarter. Students began clinical experience the first week of the program at the UNMC Hospital. An anesthesiologist, or the Chief Resident, would assign the nurse anesthesia students to simple cases during the first quarter, with more complex cases later in the clinical training.<sup>24</sup> Several additional Omaha hospitals served as clinical sites for the UNMC program. The program information in the UNMC Bulletins indicated the VA Hospital was a clinical site the year the program opened. Ms. Scheer was a CRNA in the VA anesthesia department and had been teaching anesthesiology residents in the clinical area prior to the nurse anesthesia program.<sup>25</sup> Two years later Bishop Clarkson and Nebraska Methodist were clinical sites with the VA Hospital no longer included. Ms. Scheer had changed employment from the VA and was a full time CRNA at Women’s Services in Omaha, a free standing outpatient facility. Clinical experience at the Women’s Services center was then an additional clinical option for the nurse anesthesia students.<sup>26</sup>

The student nurse anesthetists were supervised by the anesthesiologists on staff at the University Hospital, but were also supervised and taught by the CRNAs on staff at the clinical affiliate sites.<sup>27</sup> The clinical experience included all surgical specialties as well as the administration of regional anesthetics techniques by the

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<sup>23</sup> Ibid.

<sup>24</sup> Ibid.; Paulette Clark of Omaha, interview by author, 20 August 2006, Omaha, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>25</sup> Kennetha Scheer interview.

<sup>26</sup> Sue Dumas interview; and Kennetha Scheer interview.

<sup>27</sup> Paulette Clark interview.

student nurse anesthetists.<sup>28</sup> The UNMC Bulletins indicated every fourth night was emergency call taken with a senior resident. The call experience began during the third quarter of the junior year and required the student nurse anesthetist to spend the night at the University Hospital. The nurse anesthesia students were assigned to surgical cases in the UNMC operating suite by the senior resident and monitored their own case numbers to assure they were meeting the requirements necessary for graduation.<sup>29</sup>

The *List of Recognized Educational Programs* published annually indicated the UNMC program included an optional master's degree, the first and only graduate program in the nation until 1978 when the UCLA graduate program was accredited. The option for the master's degree was indicated with the first listing in 1973 and was included in the list until the program was placed on probation in 1980. A student with a Bachelor of Science in Nursing on admission requested to complete the graduate degree while meeting the requirements for certification as a nurse anesthetist. The request was denied with the explanation that "...the education for entry to practice as a nurse anesthetist occurred at the baccalaureate level."<sup>30</sup> A second student discussed completing the master's degree option following the baccalaureate program with Dr. Chapin, the Clinical Director. Pursuing the graduate degree was discouraged due to a lack of structure. There was no description of the graduate program contained in the UNMC Bulletins, but the Annual Report for 1976-1977 stated one CRNA student enrolled in a graduate nurse anesthesia course at the beginning of the academic year. The graduate student worked in the research lab with pigs gathering data on malignant hyperthermia. The Annual Reports did not list a graduation date for the master's student, but his withdrawal from the program was not listed either. A baccalaureate student enrolled at the same time in the UNMC program was aware of

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<sup>28</sup> Sue Dumas interview, and Steve Wooden interview.

<sup>29</sup> Paulette Clark interview, Sue Dumas interview, and Steve Wooden interview.

<sup>30</sup> Sue Demas interview.

his research activities and believed he completed the program sometime during 1978.<sup>31</sup> If the program did award a Master's degree, it was limited to the single degree. The Master's option, the first in the nation, was far from an active part of the program.

#### *Factors Promoting Closure of the UNMC Program*

The UNMC nurse anesthesia program was reaccredited for the second time 1979. The initial accreditation in 1973 and reaccreditation in 1975 had been entirely favorable, but the 1979 program assessment was less favorable. The program received a two year accreditation following the 1979 review indicating a finding of deficiencies during the review.<sup>32</sup> The program was evaluated two years later in 1981 and placed on probation, or under review.<sup>33</sup> The School of Allied Health Annual Reports contained no information related to the accreditation deficiencies. The Annual Report of the 1979-1980 academic year stated the program was reaccredited but provided no further information.

The accreditation process for nurse anesthesia programs changed significantly between the time of the initial accreditation of the UNMC program in 1973 and 1979 when the program was given a two-year accreditation. A free standing Council on Accreditation of Nurse Anesthesia Educational Programs (COA) assumed the accrediting function from the AANA in 1975. The creation of the COA was in response to mandates from the federal government impacting accrediting bodies, and a challenge from a group of anesthesiologists attempting to gain more influence in the education of nurse anesthetists.

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<sup>31</sup> Ibid.

<sup>32</sup> Council on Accreditation of Educational Programs of Nurse Anesthesia, "List of Recognized Educational Programs: December, 1979," (Chicago: Council on Accreditation of Educational Programs of Nurse Anesthesia).

<sup>33</sup> Council on Accreditation of Educational Programs of Nurse Anesthesia, "List of Recognized Educational Programs: January, 1982" (Chicago: Council on Accreditation of Educational Programs of Nurse Anesthesia).

The accreditation standards and processes became more demanding of the nurse anesthesia program administration under the COA. The amount of documentation increased greatly, requiring a larger time commitment and more support from directors of programs.<sup>34</sup> The documentation required was cited by Dr. Edelman, "...a ridiculous amount of paper work..." when the students in the program were informed the program was closing. The documentation required for the anesthesiology physician residency was not "...near what they (COA) expected of them" for the nurse anesthesia program.<sup>35</sup> The CRNA involvement in the program administration was another concern of the COA. There were no CRNAs on the clinical staff at the University Hospital, and the CRNA Educational Coordinator was a part time position with limited interaction with the student nurse anesthetists.<sup>36</sup> One of the senior students in the nurse anesthesia program was offered a full time position in the nurse anesthesia program following graduation by Dr. Edelman. The offer was refused and no other CRNA was hired to a full time position.<sup>37</sup>

Support in the Department of Anesthesiology for the nurse anesthesia program was reduced with the replacement of Dr. Wingard with Jerry Edelman MD.<sup>38</sup> Dr. Edelman's support was characterized as ambivalent toward training nurse anesthetists in the department. "It seemed to me that he was trying to hold onto the program, but at the same time wanted to control it."<sup>39</sup> Faculty of Nurse Anesthesia Schools (FNAS) was an organization developed by the anesthesiologists in 1975 to assume the

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<sup>34</sup> Marie (Trainor) Fletcher of Petaluma, California, interview by author, 5 August 2006, Cleveland, Ohio, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>35</sup> Paulette Clark interview.

<sup>36</sup> Ibid., Sue Dumas interview, and Steve Wooden interview.

<sup>37</sup> Steve Wooden interview.

<sup>38</sup> Kennetha Scheer interview.

<sup>39</sup> Steve Wooden interview.

accreditation of nurse anesthesia programs if the COA was invalidated.<sup>40</sup> The 1975-1976 Annual Report indicated the CRNA Educational Coordinator, Kennetha Scheer, and the Clinical Director, Dr. Chapin, of the UNMC nurse anesthesia program joined the FNAS during the year. The COA status as an accrediting body of nurse anesthesia programs was successfully defended, but the testimony at the hearing was heated.<sup>41</sup> Membership in the FNAS by members of the UNMC nurse anesthesia program indicated support for the alternate accrediting body. Departmental support within UNMC for nurse anesthesia education may have been eroded by the vigorous defense mounted by the AANA and nurse anesthetists. The increased accreditation requirements combined with ambivalence toward the nurse anesthesia program by the departmental leadership and the lack of CRNA influence were the likely causes of the demise of the UNMC program.

The student nurse anesthetists were informed of the closure of the program in the spring of 1982. The class of five junior students communicated directly with the COA and made arrangements to transfer to the Creighton University Program also located in Omaha. The Bishop Clarkson and Nebraska Methodist clinical sites transferred to the Creighton Program, facilitating the transfer by assuring adequate clinical training for the six Creighton students and the five UNMC students. Some of the UNMC students had to complete a statistics course after transferring to Creighton, but all were able to move into the Creighton curriculum without losing any credits, graduating on time in 1983.<sup>42</sup> The senior class consisted of two students. The COA allowed the two students to complete their clinical training at UNMC over the summer months, and to graduate at the end of the summer in 1982.<sup>43</sup> The program did

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<sup>40</sup> Mariane Bankert, *Watchful care: A history of America's nurse anesthetists*, (New York: Continuum Publishing Company), 158. See also John F. Garde, "The Nurse Anesthesia Profession: A Past, Present, and Future Perspective," *Nursing Clinics of North America* 31 (1996): 577.

<sup>41</sup> Ibid.

<sup>42</sup> Paulette Clark interview.

<sup>43</sup> Steve Wooden interview.

not admit students in the fall of 1982 and was removed from the list of nurse anesthesia programs.

#### Creighton University, Nurse Anesthesia Program

Creighton University of Omaha, Nebraska conducted a baccalaureate nurse anesthesia program that enrolled students for five years beginning in August of 1980. The last class entered the program in August of 1985 and graduated two years later in 1987.<sup>44</sup> The voluntary closure of the program was announced during 1986 with the program continuing to operate until the fall of 1987 when the last class admitted completed the program.<sup>45</sup> Saint Joseph Hospital, the long standing teaching hospital affiliated with the Creighton University health science programs, served as the primary clinical site. Saint Joseph Hospital had sponsored a certificate nurse anesthesia program dating to 1947, which was closed when the baccalaureate program was planned. The Creighton University, Nurse Anesthesia Program was a continuation of the Creighton Memorial-Saint Joseph Hospital School of Anesthesia.

The twenty-four month program awarded a Bachelor of Science in Anesthesia through the School of Pharmacy and Health Professions upon completion of the program. Thirty-nine students in five classes completed the program earning the BS in Anesthesia degree.<sup>46</sup> Six students were typically admitted per class,<sup>47</sup> and a group of five senior students transferred to the Creighton program from the University of Nebraska Medical Center in 1982 when that nurse anesthesia program closed. The five transfer students all finished their anesthesia training and received degrees from

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<sup>44</sup> John A. Krecek, Creighton University Registrar, personal communication, 24 May 2005.

<sup>45</sup> "Council on Accreditation of Nurse Anesthesia Educational Programs," *AANA Journal* 54 (1986): 525.

<sup>46</sup> John A. Krecek, personal communication.

<sup>47</sup> Phil Powers of Columbus, Nebr., interview by author, 7 August 2006, Cleveland, transcript, AANA History and Archives Society, Park Ridge, Ill.

Creighton University in 1983.<sup>48</sup> Considering the thirty-nine degrees awarded, the class size admitted to the program was evidentially enlarged from six students during the last two or three years to approximately seven or eight students per class.

*Factors Promoting the Establishment of the Creighton University Program*

There was a long history of nurse anesthesia education by the anesthesia department of Saint Joseph Hospital in Omaha, Nebraska. The first program in Nebraska, and one of the longest running programs in the nation was initiated by Saint Joseph Hospital in 1947.<sup>49</sup> A new baccalaureate nurse anesthesia program was opened at the University of Nebraska Medical Center in Omaha in 1973, and in 1978 the other existing hospital-based certificate program in the state moved to a baccalaureate format. The CRNA faculty of the Saint Joseph certificate program was also aware of the national dialog related to the transition of nurse anesthesia education to academic degree programs.<sup>50</sup> “I do remember that we felt that was the way of the future.”<sup>51</sup>

The CRNA faculty of the certificate program viewed the baccalaureate program as an avenue to increase the academic preparation of the students. “It was really a professional reason...especially for patient safety...”<sup>52</sup> Student recruitment was another concern voiced. “We would no longer be competitive to invite the

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<sup>48</sup> Paulette Clark interview; Pam Feser of Lincoln, Nebr., interview by author, 23 August 2006, Lincoln, Nebr., transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>49</sup> Nebraska Association of Nurse Anesthetists scrapbook found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebraska.

<sup>50</sup> Pam Feser interview; Julian Lachendro of Council Bluffs, Iowa, interview by author, 30 August 2006, Omaha, Nebr., transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>51</sup> Jeanne Howard of Omaha, interview by author, 30 August 2006, Omaha, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>52</sup> Julian Lachendro interview.



students into our program unless we could offer them a degree...”<sup>53</sup> Several CRNAs in the Saint Joseph anesthesia department explored the possibility of affiliating with Creighton University over a period of six months. The School of Allied Health was receptive to housing a new baccalaureate program; some preliminary models of the program were developed; and the decision was made to phase out the certificate program.<sup>54</sup>

### *Program Administration*

Darleen Herman, CRNA was hired by Saint Joseph Hospital to design the Creighton University baccalaureate program, serving as the director during the seven years of the program’s existence.<sup>55</sup> She had experience in nurse anesthesia education as she had been the director of two certificate nurse anesthesia programs in Lincoln, Nebraska, successfully attaining initial accreditation for both. Ms. Herman was the first director of the Bryan Memorial Hospital School of Anesthesia beginning in 1968 leaving that program during 1978. Prior to separating from the Lincoln program, she had begun to develop a baccalaureate program there. Ms. Herman completed a Bachelor of Science degree in Sociology while director of the Bryan Memorial program, further qualifying her for the leadership position of the academic program.<sup>56</sup>

Ms. Herman was in the director position for approximately a year while she wrote the baccalaureate curriculum.<sup>57</sup> During the year she also obtained pre-accreditation status for the program with the COA in the summer of 1980, allowing the program to admit the first class of students at the beginning of the fall semester.

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<sup>53</sup> Jeanne Howard interview.

<sup>54</sup> Pam Feser interview; Jeanne Howard interview; and Julian Lachendro interview.

<sup>55</sup> Pam Feser interview.

<sup>56</sup> Bryan Memorial Hospital School of Anesthesia files, found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebraska.

<sup>57</sup> Pam Feser interview.

Ms. Herman's experience with the accreditation process assisted in a smooth transition of the program. "...it was obvious that she had a huge education background. She just hit the floor running. ...she knew all of the ins and outs of the educational process..."<sup>58</sup> Ms. Herman was assisted by Pam Feser, a CRNA who had been part of the Saint Joseph certificate program and one of the initial contacts with Creighton University. Ms. Feser had completed a BS degree in administration, and became the assistant director of the program.<sup>59</sup>

The *List of Recognized Educational Programs* published annually by the COA documented the accreditation status of the nurse anesthesia programs. The Creighton University program was granted pre-accreditation status in the summer of 1980 following an initial on-site visit. The program was subject to a second review at the end of 1981 and maintained the pre-accreditation status. Two years later, 1983, a one year initial accreditation was granted to the program with another on-site visit scheduled for 1984. Following the 1984 review, the program received another one year accreditation cycle. The 1985 accreditation visit and review resulted in the maximum accreditation cycle of four years, but the voluntary closure of the program was soon announced.

### *Program Curriculum and Design*

The Creighton University Nurse Anesthesia School was a twenty-four month curriculum with students entering the program once a year, at the beginning of the fall semester. The certificate program had been eighteen months in length with students beginning the program either in October or April of each year.<sup>60</sup> Several of the admissions requirements were similar to the certificate program admissions requirement. Prerequisites included Nebraska RN licensure, a year of critical care

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<sup>58</sup> Julian Lachendro interview.

<sup>59</sup> Pam Feser interview.

<sup>60</sup> Found in the *List of Recognized Educational Programs* published annually by the COA beginning in 1975, and by the AANA beginning in 1961 through 1974.

nursing experience, references from the director of the school of nursing and the current nursing supervisor, and a physical exam. Additional prerequisites new to the baccalaureate program were related to academic course requirements. Students were required to complete fifty-two semester hours prior to admission, with the following specific courses required: biology, four semester hours; anatomy and physiology, four semester hours; microbiology, four semester hours; chemistry, seven semester hours; psychology, three semester hours; sociology, three semester hours; and eighteen semester hours of general education courses.<sup>61</sup>

The nurse anesthesia program curriculum consisted of seventy-six semester hours. The course descriptions indicated that a series of three “Care of Patients With Dysfunctions I, II, III ” courses with a total of seventeen semester hours were a combination of anatomy, physiology and pharmacology content. The series of basic science courses were completed during the junior year of the program. Anesthetic methods courses were included in all but the final semester of the program, with a total of fifty-two semester hours. During the senior year a two semester hour Journal Club, two semester hour Research for Health Professionals, and a three semester hour Professional Topics courses were all included. The final summer semester was reserved for a Review for Board Examinations, a non-credit course.<sup>62</sup>

The basic science courses were taught by doctoral-prepared members of the Creighton University faculty.<sup>63</sup> Some of the Creighton physicians gave selected lectures in areas such as cardiology. Ms. Herman and Ms. Feser, in addition to some of the CRNAs on staff in the anesthesia department of Saint Joseph Hospital, lectured in the anesthetic methods courses.<sup>64</sup> The Saint Joseph CRNAs believed the academic

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<sup>61</sup> “Bachelor of Science in Anesthesia,” *Creighton University Undergraduate Bulletin: Programs of Study-II*, 1980-1981 through 1984-1985.

<sup>62</sup> Ibid.

<sup>63</sup> Pam Feser interview.

<sup>64</sup> Phil Powers interview.

preparation of the students was improved with the baccalaureate curriculum. "...it was probably one of the best in the nation..."<sup>65</sup>

The anesthetic methods and techniques courses corresponded to an extensive study guide written by Ms. Herman. "The study guides were set up with an elaborate numbering system for each goal and each task that was going to be required..."<sup>66</sup>

The study guide was developed by Ms. Herman prior to the enrollment of students in the program and was partially funded with a grant from the W K Kellogg Foundation of Battle Creek, Michigan. The first paragraphs of the introduction in the guide provided an explanation of the guide:

Study guides support each course in the Creighton University Nurse Anesthesia program. They describe in detail what the student is expected to be able to do as a result of participating in the instructional experiences of each course. Such experiences include readings, audiovisuals, lectures, demonstrations, discussions, clinical experiences, and so on, each designed to enable the student to fulfill a stated instructional goal.

The Nurse Anesthesia Program has been planned using a method called Total System Design of Instruction. Using formal goal statements to describe instruction, the entire program has been defined in an hierarchical arrangement in which broad, general instructional goals are defined more and more specifically by their subgoals, sub-subgoals, and so on.<sup>67</sup>

Included in the goals and subgoals was a three-part numbering system. The first number was an estimate of the complexity of the goal, with possible ratings from one to seven. The second number was the level of mastery, defined as recall in the lower mastery levels, to the highest level as application of knowledge in an unfamiliar situation. The third number was the estimated demand on the student relative to the concentration and initiative required. An estimation of the time required in hours or

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<sup>65</sup> Julian Lachendro interview.

<sup>66</sup> Pam Feser interview.

<sup>67</sup> Darleen Herman, *Nurse Anesthesia Study Guide* (Omaha: Creighton University, 1980). Nancy Gondringer of Lincoln, Nebraska provided a personal copy of the study guide to the author.

minutes for the achievement of each goal was also included. The guide was divided into six sections of six to forty pages, corresponding to courses in the curriculum.<sup>68</sup>

In contrast to the certificate program, the students were provided a more extensive academic background prior to beginning the clinical experience portion of the program. The first semester of the junior year was entirely didactic, with a combination of didactic and clinical educational experiences the remaining two semesters of the junior year. The senior year was primarily orientated toward clinical experience with didactic classes held a few hours a week.<sup>69</sup> The clinical experience was impacted with the addition of alternate clinical sites. The clinical experience portion of the Saint Joseph certificate program was obtained entirely within Saint Joseph Hospital. Bergan Mercy Hospital, Lutheran Hospital, and Children's Hospital all located in Omaha, were additional sites obtained after the transition to the baccalaureate program. One or two rural Nebraska hospitals became clinical sites where senior students could obtain experience with CRNAs in a rural practice environment.<sup>70</sup> The alternate sites provided a greater breadth of experience, especially in the administration of pediatric anesthesia. "The clinical experiences were much more varied and much more intense."<sup>71</sup>

#### *Factors Promoting Closure of the Creighton University Program*

The CRNA administrators planned to move the Creighton University program into a graduate format. Ms. Herman completed a graduate degree by 1985 and had received a favorable assessment of the possibility of a master's level program from the School of Allied Health. The decision was then made to close the program without consulting Ms. Herman or Ms. Feser. One of the factors was the financial

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<sup>68</sup> Ibid.

<sup>69</sup> Phil Powers interview.

<sup>70</sup> Ibid., and Pam Feser interview.

<sup>71</sup> Pam Feser interview.

support of the salaries for the director and assistant director of the program. Saint Joseph Hospital had agreed to pay the salaries of the administrative faculty for two years, at which time the University would have collected tuition revenue to assume the financial support of the salaries:

From the University's standpoint, the Hospital would help because the University felt that the Hospital was receiving a fairly significant benefit from having the students there and having a pool of potential employees to choose from. So, that became over a period of the first three years something of a bone of contention between the University and the Hospital.<sup>72</sup>

The tuition revenue produced by the program was relatively small secondary to the class size of six to eight nurse anesthesia students. It would have been difficult to generate enough monies through tuition to support the salaries of two CRNAs. The extensive clinical requirements of a nurse anesthesia program prevent the expansion of the class size without the addition of clinical resources. The elimination of the clinical resources provided by Saint Joseph Hospital was another factor in the closure of the program.

The relationship between the Creighton University School of Medicine and Saint Joseph Hospital impacted the availability of clinical sites for the nurse anesthesia program. The School of Medicine decided to begin a physician residency program in anesthesiology. The residency trained physicians in the specialty of anesthesia utilizing Saint Joseph Hospital as the primary clinical site. The CRNAs in the Saint Joseph Hospital anesthesia department attempted to advocate for the continuation of the nurse anesthesia program, but were not successful. The anesthesiologists on staff at the hospital withdrew support from the nurse anesthesia program.<sup>73</sup> "It was felt that the two could not coexist, so unfortunately, the program was closed."<sup>74</sup> The physician residency training program replaced the nurse anesthesia program for a short time, but was closed two years later.<sup>75</sup>

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<sup>72</sup>Ibid.

<sup>73</sup> Ibid., Jeanne Howard interview, and Julian Lachendro interview.

<sup>74</sup> Jeanne Howard interview.

Bryan Memorial Hospital/Nebraska Wesleyan School of Anesthesia

During the spring of 1978, Bryan Memorial Hospital of Lincoln, Nebraska reached a cooperative agreement with Nebraska Wesleyan to offer a Bachelor of Science in Health Sciences: Anesthesia.<sup>76</sup> The agreement with Nebraska Wesleyan, a private college located in Lincoln, allowed the hospital to offer a nurse anesthesia program leading to the BS degree. Bryan Memorial Hospital first established a certificate nurse anesthesia program in the fall of 1968. The last class of two students to complete the certificate of anesthesia program was enrolled in the fall of 1977, graduating eighteen months later in the spring of 1979. The first class of three students entered the baccalaureate program in August 1978 while the last certificate program students finished their training.<sup>77</sup>

The agreement to offer the BS degree was maintained with Nebraska Wesleyan for eight years, until 1986. Seven classes of students completed the baccalaureate curriculum with a total of twenty-two graduates in eight years. The educational capacity of the Bryan Memorial program was significantly increased during the academic affiliation with Nebraska Wesleyan. The certificate program had produced twelve graduates during the ten previous years.<sup>78</sup> The college was unable to support a graduate level curriculum, so 1986 was the last year Wesleyan granted an academic degree to the nurse anesthesia students as Bryan Memorial then began to offer a master's degree program.

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<sup>75</sup> Ibid., Pam Feser interview, and Julian Lachendro interview.

<sup>76</sup> Found in the Bryan Memorial Hospital School of Anesthesia files in the BryanLGH School of Nurse Anesthesia office, Lincoln Nebr.

<sup>77</sup> Bryan Memorial Hospital School of Nurse Anesthesia Alumni list, in the BryanLGH School of Nurse Anesthesia office, Lincoln Nebr.

<sup>78</sup> Ibid.

*Program Administration*

The Bryan Memorial administration recruited and hired a new director to lead the nurse anesthesia program in 1978. Frank Maziarski, CRNA joined the anesthesia department in the summer of 1978 following a twenty-one year career in the Army Nurse Corps.<sup>79</sup> Educated in New York, King County Hospital in Brooklyn for his basic nursing education and the Albany Medical Center for his nurse anesthesia education, Mr. Maziarski was commissioned in the Army Nurse Corps after becoming certified. He served as a military nurse anesthesia educator during his Army career. He was one of a small number of CRNAs with a Master's of Science degree, an additional academic credential.<sup>80</sup> He was the director of the Academy of Health Sciences School of Anesthesia in El Paso prior to his retirement from the Army and was interested in continuing his career in civilian nurse anesthesia education. Bryan Memorial had advertised the director position as "...someone to take the program into the BS format...". Mr. Maziarski had become familiar with the area while attending the University of Nebraska-Omaha and following an interview with the Bryan Memorial administration accepted the director position. "The opportunity was presented in a way that was very, very attractive, especially the challenge."<sup>81</sup>

Darleen Herman continued as the CRNA director of the nurse anesthesia program for a few months, reporting to Mr. Maziarski who was named director of the anesthesia department, a new position. Ms. Herman left Bryan Memorial in the fall of 1978<sup>82</sup> and Mr. Maziarski assumed the director of the nurse anesthesia program as

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<sup>79</sup> Frank Maziarski of Shoreline, Wash., interview by author, 7 August 2006, Cleveland, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>80</sup> "AANA President Frank Maziarski on "Giving back to the profession that gave me so much", " *AANA NewsBulletin* 60 no. 10 (2006): 34.

<sup>81</sup> Frank Maziarski interview.

<sup>82</sup> Minutes of faculty meeting, School of Anesthesia, dated October 17, 1978. All faculty meeting minutes were found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.



well as the department. Nancy Gondringer, CRNA, was named assistant director of the nurse anesthesia program and Marie Trainor, CRNA, was named the educational coordinator the same fall.<sup>83</sup> Both Ms. Gondringer and Ms. Trainor had assisted in the didactic and clinical components of the educational program for several years, but the two new positions more specifically identified their roles in the program. Due to their interest in becoming educators, both Ms. Gondringer and Ms. Trainor were in the process of completing a baccalaureate degree through Nebraska Wesleyan when they were named to the positions. Following her BS degree, Ms. Gondringer completed a Master's of Adult Education through the University of Nebraska-Lincoln in 1984. Ms. Trainor remained the educational coordinator until 1981 when she returned to clinical practice.<sup>84</sup>

James Cuddeford a CRNA with a Master's of Arts degree then joined the faculty in the educational coordinator role. Mr. Cuddeford received his anesthesia training through the Barnes Hospital School of Anesthesia, completing his nurse anesthesia training in 1971, and a BA from Stephens College, Columbia, Missouri in 1979. He then attended Webster College, Webster Groves, Missouri during 1980 and 1981, completing a Master's of Arts-Health Facilities Management in May 1981.<sup>85</sup> The Chairman of the anesthesia department, Ralph Paul, MD, was included in the program information contained in the *List of Recognized Educational Programs* beginning 1978. Dr. Paul was identified until 1980 when Gerald Spethman, MD, became department Chairman.

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<sup>83</sup> Taken from "Bryan Memorial Hospital, School of Anesthesia: Staff" found in files in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>84</sup> Marie (Trainor) Fletcher of Petaluma, Calif., interview by author, 6 August 2006, Cleveland, transcript, AANA History and Archives Society, Park Ridge, Ill.; and Nancy Gondringer of Lincoln, Nebr., interview by author, 7 August 2006, Cleveland, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>85</sup> James Cuddeford Curriculum Vitae on file in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebraska.

The administrative structure of the Bryan Memorial Hospital School of Anesthesia changed considerably during the transition to the baccalaureate program. The director of the certificate nurse anesthesia program, Darleen Herman, had significant clinical commitments with a few hours a week allowed for administrative activities. In the administrative structure implemented in late 1978, three CRNA positions with no more than half-time clinical commitments were created.<sup>86</sup> Bryan Memorial Hospital provided the majority of the financial support for the three positions combined with the tuition income generated by the baccalaureate program. The agreement with Nebraska Wesleyan allowed for a sixty percent tuition split for the thirty-two credit hours taught by the faculty employed by Bryan Memorial Hospital. The tuition monies generated were limited by the class size of four students, with most of the School of Anesthesia budget supported by the hospital administration.

The annual *List of Recognized Educational Programs* provided information related to the accreditation of the Bryan Memorial School of Anesthesia. The Bryan program underwent a regular reaccreditation review in July of 1979, approximately a year after the first class of baccalaureate students began the program. The maximum accreditation cycle of four years was awarded to the program with the next reaccreditation scheduled for 1983. The program was again awarded the maximum reaccreditation of four years following the 1983 review.

#### *Factors Promoting the Establishment of the Bryan Memorial BS Program*

The development of a baccalaureate curriculum through an affiliation with Nebraska Wesleyan was begun prior to the recruitment of the new director. A letter to a prospective student dated March of 1978 was written by Darleen Herman to inform the student of the likely change in the nurse anesthesia program. The student was informed of the increased program length, the baccalaureate curriculum, and of the tuition charges. Two of the CRNAs in the Bryan Memorial anesthesia department, Nancy Gondringer and Marie Trainor, had developed contacts with several of the

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<sup>86</sup> Marie (Trainor) Fletcher interview; and Nancy Gondringer interview.

Wesleyan faculty where they were enrolled in a baccalaureate program. They began informal discussions on the feasibility of a baccalaureate nurse anesthesia program and wrote a shared curriculum. Dr. Richard Quinn, the head of adult education at Nebraska Wesleyan, was instrumental in facilitating the progress of the new program.<sup>87</sup>

The University of Nebraska Medical Center nurse anesthesia program began offering a baccalaureate degree program in 1973, and a few other degree programs were offered in the country. Ms. Herman, Ms. Gondringer and Ms. Trainor were aware of the national discussion related to the future of nurse anesthesia education transitioning to academic degree programs. Their assessment of the future of nurse anesthesia education was an academic affiliation would be required to allow the continuation of the nurse anesthesia program at Bryan Memorial.<sup>88</sup> The Bryan Memorial Hospital administration; represented by the President, Eugene Edwards, and the Vice-President, Ron Wachter, was supportive of the nurse anesthesia program advancing and actively facilitated the program's development. The administration provided the financial support instrumental to the success of the program, "...Bryan accepted a challenge in running the program, in offering a base with the financial support."<sup>89</sup> The administration also gave a clear mandate when hiring Mr. Maziarski to implement the baccalaureate program, which occurred within a few months of his employment.

I think that they felt the need for a training program at the hospital. They relied on staffing the operating rooms with nurse anesthesia. They knew that they needed to have a quality program, and they did put the time and effort into wanting to make that program the best that it could be.<sup>90</sup>

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<sup>87</sup> Ibid.

<sup>88</sup> Ibid.

<sup>89</sup> Frank Maziarski interview.

<sup>90</sup> Nancy Gondringer interview.

*Program Curriculum and Design*

The length of the Bryan Memorial Hospital nurse anesthesia program was increased from eighteen to twenty-four months with the transition to the baccalaureate curriculum. The admissions requirements were increased to require a “B” average in the School of Nursing, and the college prerequisite transcripts. Applicants were also required to submit SAT or ACT test scores, and their National League of Nursing score which was the RN licensure exam. There were no specific prerequisite course requirements for the initial class admitted to the baccalaureate program, but there were ninety-four semester credit hours specified which were to be completed in addition to the School of Anesthesia curriculum. Students could either take the courses prior to admission, during the first year of the anesthesia program, or could challenge a course or courses for credit.<sup>91</sup> The policy was changed in October of 1978, and subsequent applicants were required to complete the prerequisites prior to acceptance.<sup>92</sup> The specific course prerequisites in addition to the completion of a RN, included eight semester credit hours of general and organic chemistry, four hours of microbiology, and three of psychology.<sup>93</sup> A formal interview process was instituted for the second class accepted into the program.<sup>94</sup> A year of critical care nursing experience within the prior three years of application was added to the admissions requirements published in 1981. The COA accreditation standards effective in 1980 made the year of experience mandatory, but the Bryan program had admitted only students with nursing experience although it was not a requirement. A review of the

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<sup>91</sup> “Bryan Memorial Hospital School of Anesthesia, Recruitment Brochure,” 1979 version found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>92</sup> Minutes of faculty meeting, School of Anesthesia, dated October 17, 1978.

<sup>93</sup> Courses taken during the RN program could meet the requirements, found in the “Curriculum Plan,” of the Bryan Memorial Hospital School of Anesthesia recruitment brochure published in 1981.

<sup>94</sup> Nancy Gondringer interview.

alumni files revealed that all of the baccalaureate students both before, and after, 1980 had at least one year of nursing experience.

The courses included twenty-five semester hours taught by faculty of Nebraska Wesleyan, and thirty-two semester hours taught by Bryan Memorial Hospital faculty. The Nebraska Wesleyan courses included nineteen basic science semester hours, a three hour statistics course, and a three hour psychology course. The courses taught by Bryan Memorial faculty included a two hour physics course, three hours of professional aspects, eight hours of pharmacology, with the remaining nineteen hours devoted to anesthetic methods courses. The curriculum contained an additional 261 non-credit contact hours in a review of chemistry and physics, physical assessment, respiratory therapy, and coronary care.<sup>95</sup> Students began the program each August, at the start of the fall academic semester for five years, 1978 through 1982. The courses taught on the Wesleyan campus were completed during the first fall, first spring, and second fall semesters. The final spring and summer of the program were entirely devoted to clinical experience. In 1983 the start date of the program was moved to July and in 1984 to June. The first summer months then became dedicated to an introduction to anesthetic methods and an introduction to the clinical area. The earlier start date allowed the completion of the didactic courses before the last semester of the curriculum. Students could then travel to distant affiliate sites to obtain clinical experience without interrupting the didactic course.<sup>96</sup>

Several hospitals began to serve as additional clinical sites for the Bryan program following the implementation of the baccalaureate program. The additional clinical sites, or clinical affiliations, allowed for broader clinical experience for each of the students, and allowed for expansion in the class size of the program. The first clinical affiliation obtained was with the Lincoln Veteran Administration Hospital in 1979.<sup>97</sup> An affiliation with Saint Elizabeth Community Health Center became active

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<sup>95</sup> Ibid.

<sup>96</sup> Minutes of faculty meeting, School of Anesthesia, dated December 8, 1982.

<sup>97</sup> Minutes of faculty meeting, School of Anesthesia, dated August 1, 1979.

in 1982, where Marie Trainor had joined the clinical staff following her resignation from the Bryan program faculty.<sup>98</sup> The Saint Elizabeth affiliation was of a short duration, two years, primarily due to a lack of interest on the part of many of the CRNAs on staff and concern by surgeons related to student nurse anesthetists providing care.<sup>99</sup> Two rural affiliations were developed to provide experience with regional anesthetic techniques and department management experiences.<sup>100</sup> An affiliation with Des Moines General Osteopathic Hospital of Des Moines, Iowa was added to the program in 1983.<sup>101</sup> A CRNA on staff of the Des Moines hospital became familiar with the program through contact with the faculty made at professional meetings. He facilitated the affiliation agreement and senior students began a four-week rotation to the Iowa site during the final semester of the program.<sup>102</sup>

#### *Factors Promoting the Survival and Conversion to Graduate Education*

The continued existence of the Bryan Memorial nurse anesthesia program was questioned in 1981. Mr. Maziariski and Ms. Gondringer provided information describing the advantages and disadvantages of maintaining the program to the Bryan

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<sup>98</sup> Taken from “Bryan Memorial Hospital, School of Anesthesia: Staff” found in files in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>99</sup> Connie Olson and Carol Stueck of Lincoln, Nebraska, interview by author, 17 August 2006, Lincoln, transcript, AANA History and Archives Society, Park Ridge, Ill.

<sup>100</sup> The affiliations were through the David City and Schuyler hospitals with Mary Svoboda, CRNA and through the Holdrege hospital with Byron Anderson, CRNA. Minutes of faculty meeting, School of Anesthesia, dated August 26, 1986, found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>101</sup> Minutes of faculty meeting, School of Anesthesia, dated July 1, 1983.

<sup>102</sup> Nancy Gondringer interview.

Memorial administration and anesthesiologists in May and June of 1981. A summary of the advantages cited was the educational program promoted professional development in the clinical staff and facilities, the increased visibility and stature of the institution as a leader in health care, and an improved supply of well-educated practitioners from which to hire. The primary disadvantage was the expense and commitment required of the institution and professional staff.<sup>103</sup> The program administration was successful in defending the continuation of the education of nurse anesthetists at Bryan Memorial. Discussion with the faculty then turned to transitioning to a graduate level curriculum.

There was a proposal at the February 1982 Assembly of School Faculty of Nurse Anesthesia Programs to require a baccalaureate degree prior to admission to a nurse anesthesia program. The Bryan faculty began to discuss a graduate format in response to the proposal as it would require students selecting a baccalaureate nurse anesthesia program to earn two baccalaureate degrees.<sup>104</sup> Many of the students admitted to the Bryan baccalaureate program were earning a second undergraduate degree. The alumni files revealed that thirteen of the twenty-two graduates earned a second BS degree when completing the nurse anesthesia program. As the federal student loan program became available, these students had difficulty obtaining financial aid to earn a second degree.<sup>105</sup> The entrance degree requirement became effective during 1987 by which time the Bryan program had transitioned to the graduate curriculum.

Another factor in the transition was the professional involvement of the program faculty. Mr. Maziarski was selected by the COA to become an accreditation

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<sup>103</sup> Minutes of faculty meeting, School of Anesthesia, dated May 29, 1981 and June 10, 1981; see also “Background information concerning the School of Anesthesia” found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>104</sup> Minutes of faculty meeting, School of Anesthesia, dated March 1, 1982.

<sup>105</sup> Minutes of faculty meeting, School of Anesthesia, dated November 19, 1979.

site visitor in 1979.<sup>106</sup> His experience in nurse anesthesia education, nurse anesthesia accreditation and educational background facilitated his leadership role in the transition.<sup>107</sup> Ms. Gondringer, the assistant director, completed her graduate education in 1984 and Mr. Cuddeford, the educational coordinator completed his MA prior to joining the faculty. The faculty began to explore options for the establishment of a graduate program in nurse anesthesia in early 1984.

Nebraska Wesleyan, the existing academic affiliation, was the first option explored but the institution was not chartered to offer graduate education and a proposal could not be developed.<sup>108</sup> The University of Nebraska nurse anesthesia program had been closed in 1982 and the University was not interested in pursuing another program. There were no Nebraska postsecondary institutions available to provide the academic support. The Des Moines clinical affiliation instituted in 1983 led to discussions with Drake University also located in Des Moines. A CRNA on the clinical faculty at Des Moines Osteopathic Hospital was attending a graduate program through Drake and made the Bryan program faculty aware of interest by Drake in establishing a master's program for nurse anesthesia. Formal discussions began in 1984 between Bryan Memorial and Drake, with a proposal finalized later that year.<sup>109</sup> The Master's of Science Professional Studies—Anesthesia offered by Bryan Memorial in conjunction with Drake University was approved by the Nebraska Coordinating Commission for Postsecondary Education in June of 1985.<sup>110</sup>

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<sup>106</sup> Minutes of faculty meeting, School of Anesthesia, dated July 1, 1983.

<sup>107</sup> Frank Maziarski interview.

<sup>108</sup> Minutes of faculty meeting, School of Anesthesia, dated January 17, 1984.

<sup>109</sup> "Historical Perspectives on Bryan School of Anesthesia," found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>110</sup> Letter found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.



### Bryan Memorial Hospital/Drake University School of Anesthesia

The Bryan Memorial Hospital/Drake University School of Anesthesia began operation in June of 1985. Similar to the transition from the certificate to the baccalaureate program the first masters class began while the final class of baccalaureate students was completing their education. The graduate level curriculum developed through the Academic affiliation with Drake University was increased to twenty-eight months in length, four months longer than the baccalaureate curriculum. The Masters of Science Degree in Professional Studies-Anesthesia consisted of thirty-one graduate hours, and one undergraduate pathophysiology course taught by Nebraska Wesleyan. Sixteen graduate hours were taught on the Drake campus during the first summer and fall semester of the program. The Drake courses included three-hour courses in statistics, research methods, and management. In addition were two basic science courses, cellular biology and endocrinology. The first six months of the program the students were located in Des Moines and did not participate in clinical experience. They then transferred to Lincoln in January and began the clinical phase while completing the didactic requirements.<sup>111</sup>

The Bryan Memorial faculty taught four hours of pharmacology, and eleven hours of anesthetic principles and clinical practice. The Memorandum of Understanding between Drake and Bryan stipulated that Bryan Memorial was reimbursed seventy-five percent of the tuition received for the courses taught by the Bryan faculty. Non-credit courses were also taught by the Bryan Memorial faculty. The non-credit courses consisted of professional aspects, forty-five hours, medical electronics, forty-five hours, orientation to anesthetic methods, sixty hours, and two seminars for forty-five contact hours. The didactic requirements that were not taught during the six months completed on the Drake campus, were completed during the initial twelve months the students were located in Lincoln. The final two semesters consisted entirely of clinical experience. The clinical rotations were very similar to

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<sup>111</sup> “Bryan Memorial Hospital School of Anesthesia, Recruitment Brochure,” 1985 version found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

the clinical experience of the baccalaureate curriculum, with affiliations to the rural hospitals, the VA hospital and to the Des Moines Osteopathic Hospital.<sup>112</sup>

All students were required to possess a baccalaureate degree, either in nursing or appropriate biological science, prior to enrollment in the graduate program. Specific prerequisite courses included eight semester hours of chemistry, four hours of microbiology, three hours of psychology, and a three-hour management process course. Additionally a 3.0 grade point average on the undergraduate transcripts was required. One year of critical care nursing experience, current RN licensure and certification in Advanced Cardiac Life Support were the professional application requirements. New with the graduate program was a requirement to submit a Miller Analogies Test score.<sup>113</sup>

Two students were enrolled in the graduate program in both 1985 and 1986. The Bryan Memorial faculty proposed an accompanying “Second Tract Masters for Baccalaureate prepared CRNAs” which was under discussion for approval in 1986. The “Second Tract” program was designed as a distance program where practicing CRNAs could complete a graduate degree through a distance education format. The format discussed consisted of weekend seminars and week-long workshops.<sup>114</sup> Drake University was reorganized and the planning for the masters completion program was not finalized. As a result of the reorganization, the Bryan Memorial School of Anesthesia was officially notified by the Drake University Provost in February of 1987 “...admissions into the Nurse Anesthesia Masters of Professional Studies program have been suspended...”<sup>115</sup> The Provost encouraged the Bryan faculty to explore a program administered through the Drake College of Nursing. There was an

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<sup>112</sup> Ibid.

<sup>113</sup> Ibid.

<sup>114</sup> Minutes of Drake/Bryan faculty meeting, School of Anesthesia, dated August 5, 1986.

<sup>115</sup> Letter found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

existing MS in Nursing program at the college, but several concerns were identified. The length of a nurse anesthesia program with a MS in Nursing would be thirty-six months with the students required to spend the first semester, and the last two semesters of the three-year program on campus in Des Moines. The Bryan faculty would be encouraged to obtain a graduate degree in nursing, and one faculty member was required to have a doctoral degree by 1993. A further concern was the administrative control of the program would be shared between the College of Nursing and the School of Anesthesia, where the prior arrangement had maintained administrative control with the School of Anesthesia.<sup>116</sup> It was determined that the relationship with Drake University would be terminated. The students enrolled in the program completed the curriculum, with a total of four students graduating with a MS degree from Drake University.

#### Bryan Memorial/University of Kansas School of Nurse Anesthesia

A dialogue with the University of Kansas College of Health Sciences, Department of Nurse Anesthesia Education resulted in a proposal to affiliate the Bryan Memorial program with the existing graduate level nurse anesthesia program. The proposal was presented in July of 1987 to the Bryan Memorial administration and accepted. The first class of students entered the program in June of 1988. The affiliation proved to be a long-term relationship with a total of eighty-two graduates produced through 2005. The class size increased from an average of three per year for the first six years of the affiliation, to a class size of nine in 2005.

There were several advantages to the University of Kansas affiliation. The University of Kansas nurse anesthesia program was structured in a two-phase format. The first two semesters were primarily didactic, while the remaining portion was primarily clinical experience. The format was relatively simple for the Bryan nurse anesthesia program to adopt. The students were required to be on campus in Kansas City for the first two semester of the program, then relocated to Lincoln for the

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<sup>116</sup> "Proposal: Association with University of Kansas," found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

clinical phase. The College of Health Sciences accepted the academic credentials of the current Bryan faculty and the administrative control of the program remained with Bryan Memorial. There was no tuition sharing with the affiliation, but few courses were taught by Bryan faculty.<sup>117</sup>

#### *Administrative Structure*

The administrative faculty structure of the program was altered in the affiliation proposal developed with the University of Kansas affiliation. Mr. Maziarski had served as the head of the Anesthesia Department of the hospital with a role in the management of the clinical department and the nurse anesthesia program. The proposal outlined a split in the roles with one CRNA serving as the head of the clinical anesthesia department, and a second CRNA serving as the head of the educational program. The director of the nurse anesthesia program reported to the department head, and the assistant director and educational coordinator positions in the educational program were eliminated.<sup>118</sup> Mr. Maziarski resigned in 1988 and a CRNA on the clinical staff, Charles Meyer, assumed the department head position. Mr. Cuddeford, the educational coordinator, was named the director of the nurse anesthesia program. The structure reduced the staff by one position, which was made possible by the reduction in the didactic teaching responsibilities with the University of Kansas affiliation.

#### *Program Curriculum and Design*

The University of Kansas curriculum was thirty months in length, two months longer than the Drake University curriculum. The Master of Science in Nurse Anesthesia requirements included approximately eighty graduate hours of study. The basic science courses included fifteen hours, with another nine hours of pharmacology, ten hours of research courses, and three hours of professional aspects.

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<sup>117</sup> Ibid.

<sup>118</sup> Ibid.

The remaining hours were related to anesthetic methods content.<sup>119</sup> The length was increased to a full three years, thirty-six months for the class enrolling in 2005. The first three semesters, or first year became primarily didactic with the last two years mostly devoted to clinical experience.<sup>120</sup>

Several of the admissions requirements remained unchanged with the University of Kansas affiliation. Applicants were required to hold a RN license, have completed a baccalaureate degree, and have obtained at least one year of acute care nursing experience. The accepted baccalaureate degree allowed was in nursing or a related discipline as the graduate degree awarded was from the School of Allied Health rather than the School of Nursing. There were five specific basic science prerequisites required. Eight semester hours of chemistry, and courses in anatomy, physiology, and biochemistry with the physiology course completed less than ten years prior to enrollment into the program. A cumulative GPA of 3.0 was required of all prior postsecondary education with a 3.0 GPA in the five required sciences preferred.<sup>121</sup> Applicants were also required to submit a GRE score until 1991 when the requirement was eliminated.<sup>122</sup> The interview process continued with a formal interview and letters of recommendation required of all applicants.

Students enrolled in the program the beginning of June each year. The first summer and fall semester was primarily didactic with the students in residence on the Kansas City campus. The student nurse anesthetists completed twenty-four months of

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<sup>119</sup> Bryan Memorial, and BryanLGH Medical Center School of Nurse Anesthesia Course Design, found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>120</sup> COA 2005 Annual Report, found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>121</sup> Bryan Memorial and BryanLGH Medical Center School of Nurse Anesthesia recruitment brochures.

<sup>122</sup> Alumni files found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

clinical experience beginning in January. The anesthetic principles, pharmacology, and research courses continued through the clinical phase of the program. The course work was completed during four-day weekend seminars held for eight weekends on the Kansas City campus. The weekend seminars were replaced with on-line courses in 1997.<sup>123</sup>

A thesis was completed by each student with the Bryan Memorial program faculty serving on the thesis committee. The University of Kansas Graduate College eliminated the thesis requirement and beginning in 2001 students were permitted to choose between a major scholarly project or a thesis to fulfill the final research requirement. A number of students continued to choose the thesis option with six of twenty-five students choosing to complete a thesis following the addition of the scholarly project option.

The clinical affiliations were significantly expanded following the University of Kansas affiliation. The Des Moines Osteopathic Hospital clinical affiliation became inactive following the elimination of the Drake University affiliation. A variety of clinical affiliations within the state of Nebraska, including rural hospitals, community hospitals, and major medical centers in Omaha and Lincoln were obtained. These affiliations allowed for expansion in the number of students accepted without a reduction in the clinical experience of the individual students.

Several additional rural affiliations were obtained with seven rural hospital clinical affiliations active in 2006. Students were allowed to choose to spend up to a month at up to three of the rural affiliations. Affiliations with larger community hospitals and the University of Nebraska Medical Center were also obtained. All students were required to spend a month at the University Hospital beginning in 1997 where their experience was focused on trauma and transplant experiences.<sup>124</sup> Four Nebraska community hospital rotations located in Kearney, Columbus, Fremont, and

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<sup>123</sup> COA 1997 Annual Report found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

<sup>124</sup> COA 1997 Annual Report found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

Hastings were added between 1991 and 2005. Each student was required to spend two months during the first clinical year and two months in the second clinical year at a community hospital where the focus was on experience with regional, outpatient, and obstetric anesthetic techniques. Bryan Memorial Hospital bought Lincoln General Hospital in 1998, merging the two hospital systems.<sup>125</sup> The merger expanded the clinical experiences available to the School of Nurse Anesthesia, and the class size was increased from six to nine by 2003.

### *The Future of Nurse Anesthesia Education in Nebraska*

The BryanLGH Medical Center School of Nurse Anesthesia has been the only Nebraska based nurse anesthesia program since 1987. The educational capacity of the program was increased following the movement into graduate education and the acquisition of expanded clinical facilities for student experience. In 2005 the BryanLGH College of Health Sciences was approved by the Nebraska Coordinating Commission for Post Secondary Education to award a graduate degree in nurse anesthesia. An academic affiliation with the BryanLGH College of Health Sciences and the School of Nurse Anesthesia then was approved by the Council on Accreditation of Nurse Anesthesia Educational Programs. The local academic affiliation allowed for the didactic education of the nurse anesthesia students to be completed in Lincoln, Nebraska along with the clinical experience obtained through the Nebraska hospital clinical affiliations. An agreement was reached with the Nebraska Medical Center in Omaha to expand the clinical facilities available to the program. This allowed for the further expansion in the class size. Eleven students were enrolled in the BryanLGH Medical Center School of Nurse Anesthesia for the class entering in the Fall 2006 semester.

The education of nurse anesthetists in Nebraska progressed from an apprenticeship model at the turn of the twentieth century to graduate education by 1988. The progress reflected the professional development of nurse anesthesia in the

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<sup>125</sup> COA 1998 Annual Report found in the BryanLGH Medical Center School of Nurse Anesthesia office, Lincoln, Nebr.

state and the nation. The movement of the educational programs from the hospital based programs to the academic institutions allowed for the graduate education necessary for the professional nurse anesthetist to function and adapt to the complex health care environment of the twenty-first century.



## APPENDIX A

## INSTITUTIONAL REVIEW BOARD APPROVAL



HUMAN RESEARCH PROTECTIONS  
Institutional Review Board

May 10, 2006

Sharon Hadenfeldt  
Dr. Marilyn Grady  
4345 Prescott Avenue  
Lincoln NE 68506

IRB# 2004-06-352 EP

TITLE OF PROJECT: **A Historical Study of Nurse Anesthesia Education in Nebraska**

Dear Sharon:

This is to officially notify you of the approval of your project's Continuing Review by the Institutional Review Board for the Protection of Human Subjects. It is the committee's opinion that you have provided adequate safeguards for the rights and welfare of the subjects in this study. Your proposal seems to be in compliance with DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

1. Enclosed is the IRB approved Informed Consent form for this project. Please use this form when making copies to distribute to your participants. If it is necessary to create a new informed consent form, please send us your original so that we may approve and stamp it before it is distributed to participants.

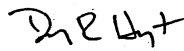
We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

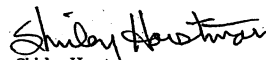
- Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

It is the responsibility of the principal investigator to provide the Board with a review and update of the research project each year the project is in effect. This approval is valid until **July 11, 2007**.

If you have any questions, please contact Shirley Horstman, IRB Administrator, at 472-9417 or email at [shorstman1@unl.edu](mailto:shorstman1@unl.edu).

Sincerely,

  
Dan R. Hoyt, Chair  
For the IRB

  
Shirley Horstman  
IRB Administrator

cc: Faculty Advisor

## APPENDIX B

AMERICAN HISTORICAL ASSOCIATION GUIDELINES FOR ORAL  
HISTORY <sup>1</sup>

In 1989 the American Historical Association issued the following recommendations about interviewing for historical research:

1. Interviews should be recorded on tape but only after the person to be interviewed has been informed of the mutual rights and responsibilities involved in oral history, such as editing, confidentiality, disposition, and dissemination of all forms of the record. Interviewers should obtain legal releases and document any agreements with interviewees.
2. The interviewer should strive to prompt informative dialogue through challenging and perceptive inquiry, should be grounded in the background and experiences of the person being interviewed, and, if possible, should review the sources relating to the interviewee before conducting the interview.
3. To the extent practicable, interviewers should extend the inquiry beyond their immediate needs to make each interview as complete as possible for the benefit of others.
4. The interviewer should guard against possible social injury to or exploitation of interviewees and should conduct interviews with respect for human dignity.
5. Interviewers should be responsible for proper citation of oral history sources in creative works, including permanent location.
6. Interviewers should arrange to deposit their interviews in an archival repository that is capable of both preserving the interviews and making them available for general research. Additionally, the interviewer should work with the repository in determining the necessary legal arrangements.

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<sup>1</sup> American Historical Association. *Statement on interviewing for historical documentation*. (Washington: American Historical Association, 1989). Retrieved October 29, 2003, from [http://www.theaha.org/pubs/standard.htm#Statement on Interviewing](http://www.theaha.org/pubs/standard.htm#Statement%20on%20Interviewing)

7. As teachers, historians are obligated to inform students of their responsibilities in regard in interviewing and to encourage adherence to the guidelines set forth here.

## APPENDIX C

AANA HISTORY & ARCHIVES SOCIETY ORAL HISTORY  
GUIDELINES <sup>2</sup>

## Pre-Interview

1. Identify potential narrators who are likely to have good information and are able to convey it reliably.
2. Contact them in order of priority until one person agrees to participate. Group interviews are discouraged because multiple narrators talking at once tends to be confusing. Determine a time and date for the interview.
3. Explain the need for a legal release. The release allows future generations access to the narrator's perspective on the history of anesthesia by transferring copyright to the interviewer or the institution where the interview will be donated. You may want to also caution the narrator before the interview to refrain from making libelous or defamatory statements since others will have access to the material.
4. Send the potential narrator a letter confirming your telephone conversation that includes a copy of the legal release for them to sign and bring to the interview.
5. Collect information about the narrator from first or second hand sources to help you compose your questions. Conduct as much background research as possible on the topic of the interview and the narrator. Be familiar with the narrator's published research and biographical materials, if any. If the narrator has not published extensively, talk to the narrator off the record as far ahead of the interview as possible to get some context for your interview. The better prepared you are, the more accurate and probing your questions can be.
6. Prepare a set of questions to be asked in the interview.
7. Plan for an interview of no more than two hours.

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<sup>2</sup> From AANA History & Archives Society. *Oral history interview guidelines*. Retrieved October 29, 2003, from [http://www.aana.com/archives/society/oh\\_guidelines.asp](http://www.aana.com/archives/society/oh_guidelines.asp)

## Interview

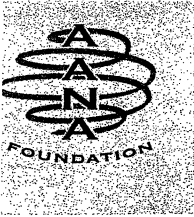
8. Arrive for the interview and obtain the signed legal release form from the narrator before beginning the interview. Have a copy to provide to them if they have forgotten it. After the interview, include a copy with your thank you letter.
9. Conduct the interview using a good cassette recorder and/or video camera. Many narrators do not like video cameras and will talk more openly on audio tape. Use standard size 60-minute cassettes and an external microphone. Keep an eye on the tape so that it does not run out while the subject is speaking.
10. Make sure the interview is conducted in a quiet place. Avoid interruptions from children, spouses, ringing phones, and coworkers. Remember that extraneous noises such as traffic, air conditioners, pets, etc. will be picked up on the tape.
11. At the beginning of the tape, identify yourself, the narrator, and the date and location of the interview. Before starting, be sure to let the tape run for a few seconds to move past the leader.
12. In general, interviews begin with specific biographical questions and expand toward open-ended questions. Open-ended questions allow the subject to include all information they believe is relevant to a subject. Many oral historians find that a two sentence format works best for open-ended questions. The first sentence should state the problem and the second should ask the question. For example. "You were instrumental in establishing the X School of Nurse Anesthesia. How did you first become involved with that project?"
13. Brief comments and observations can be used to elicit responses from the subject.
14. Take notes to help you formulate follow up questions.
15. Guide the interview, but avoid interjecting your own comments.

## Post Interview

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16. Prepare a brief written preface describing the narrator, the reason for the interview, and the topics discussed. At your discretion, you may include your own assessment of the interview (personality of the narrator, environment of the interview, degree of probable accuracy, etc.).
17. Copy the tape and have it transcribed. Look in the Yellow Pages under "Transcription Services," if you do not wish to transcribe the tape yourself. A transcription makes it much easier for you and future researchers to utilize the information in the interview. After the initial transcription, go over the transcript to edit out false starts (ah, um, etc.) and make it readable. This gives you the chance to correct names, places, etc. If the interviewee says, "I have ether until 1994" you may want to put a bracketed correction in the text such as "I gave ether until 1994 [1934]." See sample transcript.
18. At your discretion, send a copy of the transcript to the narrator for clarifications or changes.
19. Send a copy of the final transcript to the narrator with a thank you for helping to preserve the history of anesthesia.
20. The AANA Archives-Library would appreciate receiving a copy of the tape, The transcript in electronic format and your preface to the interview for inclusion in the AANA Oral History Collection.

APPENDIX D  
AANA FOUNDATION GRANT



August 2, 2004

Sharon Hadenfeldt, CRNA, MS  
4345 Prescott Avenue  
Lincoln, NE 68506

Dear Ms. Hadenfeldt:

On behalf of the American Association of Nurse Anesthetists Foundation, I am pleased to send you the enclosed check no. 005196 in the amount of \$2,500.00 for your Research Grant proposal titled "*An Historical Study of Nurse Anesthesia Education in Nebraska.*"

Any unspent money for the research grant must be returned to the AANA Foundation at the conclusion of the research project. Also, when a research project is terminated early, any unspent money must be returned to the AANA Foundation.

You are asked to submit progress reports at six (6) month intervals during your study. Your first progress report will be due January, 2005. Upon completion of your research, the Foundation requires a copy of the final abstract. When presenting your results, please recognize funding from the AANA Foundation.

Again, my congratulations to you. If I can be of further assistance to you, please do not hesitate to call.

Sincerely,

A handwritten signature in cursive script that reads "Lorraine M. Jordan".

Lorraine M. Jordan, CRNA, PhD  
Director of Research and AANA Foundation

Enclosure: Check Number: 005196

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**AMERICAN ASSOCIATION OF NURSE ANESTHETISTS FOUNDATION**

222 So. Prospect Ave., Park Ridge, IL 60068-4001 ■ Phone: (847) 692-7050 Ext. 3070 ■ Fax: (847) 692-7137 ■ <http://www.aana.com>  
*Championing advances in research and development to promote public health by fulfilling the need for quality anesthetic patient care.*

## APPENDIX E

## SISTER MARIE ANDERSON

*Article written by myself—*

My first experience in giving Anesthesia began in the year 1898. I was to be sent to have charge of a 6 bed hospital in Wakefield, Nebraska. The doctor there did some surgery, so needed someone to take charge of the work there, someone to get the operating room in order and prepare the patient and give ether anesthesia. I was chosen to be sent there so our Directing Sister asked Dr. B. B. Davis to teach me to give the Ether.

The Interns had been giving anesthesia and seeing their work had left an impression on me that was not very favorable. Many times the patient would get to fight and sometimes almost got away.

With these impressions on my mind I was not very happy about what was before me. We had a rule that whoever was nursing a patient that had to have an operation had to help in surgery. One day a patient of mine was to have an abdominal operation and I was told to give the anesthetic.

We used to make masks by folding newspaper covering with a towel and make a cone, then putting some cotton in and then pour about 1/2 oz. of Ether on it and then put it tight over the patient's face. Premedication was 1/6 or 1/4 of Morphin with Atropin Sulphate given about 1/2 hour before the anesthetic was to begin.

Now Anesthetic was to begin and I was in for it. Dr. B. B. Davis gave me a few pointers and then turned to operate and I was left on my own, believe me I was nervous, I managed to keep the patient asleep and alive but believe me my worries were not over until the patient was awake. Well, she did wake up and was still living in 1950.

In 1899 I was sent to St. Paul, <sup>Minnesota</sup> Minnesota to a hospital there. The surgeons there were from Sweden and Norway and were not used to Ether. Their choice was chloroform. So now it was to learn all over again. We used the same kind of mask but without the cotton. I was told by the surgeon to drop the chloroform on the mask letting the patient get plenty of air in the beginning of the anesthetic and just as the patient went under, as a deep breath at that stage may be fatal, and so again the surgeon went to work and I was on my own. We had very little trouble with these patients as it was more pleasant to inhale.

After a year and a half I came back to Omaha, and had to get used to Ether again. As I was nursing and only was called now and then to give anesthetic, I learned from the



-2-

patients their fear for Anesthesia and not so much for fear of an operation. So I began to wonder what could be done to relieve them of that fear. I looked for literature on Anesthesia but found only a small book, and when I wrote to the publisher I got an answer that it was out of print. So it was up to me to find a way. I took a mask and placed it over my face as when giving Anesthetic and soon found out the reason for their fear of Anesthetic - suffocation.

By now we had factory made masks, and as Dr. B. B. Davis allowed me plenty of time to anesthetize the patient, I started with open drop method and after a few trials found I could put a patient to sleep in less time than with previous method and the patient was more relaxed.

So far so good, but now Nitrous Oxide appeared on the Anesthesia field and new trouble started. Our Interns were still giving anesthetic and when this new gas came in they were having their own idea, about it. They liked to give it but did not know much about the machine and less about the mixture, from them I could not learn much and I was always scared when asked to give it.

It was about 1925 that Dr. Davis and Dr. Hull asked Dr. Chinlund to place me in charge of Anesthesia, and then my trouble really began. I had to give Gas and I had no knowledge about it. They told me I could go to a dentist's office and learn. I did not go there. I went to the H. Brink Company in Minneapolis and learned about the working of the machine, then to Presbyterian Hospital in Chicago and received some information on the properties of the Nitrous Oxide and Oxygen.

So again I had managed another step in the progress of Anesthesia. Not to mention Ethylin and Cyclopropin. Then came Avertin and I was pleased to learn about this more pleasant way of getting a patient to sleep, as they could go to sleep in their bed, and not have the unpleasant experience of entering the operating room and be fastened down on the table while yet awake.

I still believe Ether properly administered is a good all around Anesthetic.

This is only a few examples of what an anesthetist had to go through in years gone by. Nevertheless we managed and made steps forward in finding new methods in administering the so unpopular Ether.

Marie S. Anderson

## APPENDIX F

## ORAL HISTORY INTERVIEWS, DEMOGRAPHIC INFORMATION

Name	Nurse Anesthesia Program	Role	Years
Virginia Blecha	Immanuel Hospital	Student	1960-62
Mary Bryne	Creighton/St. Joseph	Student	1956-57
Paulette Clark	University of Nebraska	Student	1981-82
Sue Dumas	University of Nebraska	Student	1976-78
Pam Feser	Creighton/St. Joseph	Student Clinical Faculty Assistant Director	1975-76 1976-79 1980-87
Marie Fletcher	Bryan Memorial	Student Clinical Faculty Education Coordinator	1968-69 1969-78 1978-81
Nancy Gondringer	Bryan Memorial	Student Clinical Faculty Assistant Director	1973-74 1974-78 1978-88
Jeanne Howard	Creighton/St. Joseph	Student Clinical Faculty	1975-76 1976-87
Julian Lachendro	Creighton/St. Joseph	Student Faculty	1969-70 1974-87
Frank Maziarski	Bryan Memorial	Director	1978-88
Connie Olson	St. Elizabeth Bryan Memorial	Student Clinical Faculty	1966-67 1976-2001
Lois O'Nele	Creighton/St. Joseph	Student	1951-52

Name	Nurse Anesthesia Program	Role	Years
Kennetha Scheer	Creighton/St. Joseph University of Nebraska	Student CRNA Director	1968-69 1974-82
Carol Stueck	St. Elizabeth	Student	1966-67
Mary Svoboda	Creighton/St. Joseph Bryan Memorial	Student Clinical Faculty (rural site)	1960-61 1984-95
Zetta Wiater	Creighton/St. Joseph St. Elizabeth	Student Clinical Faculty	1954-55 1966-67
Steve Wooden	University of Nebraska Bryan Memorial	Student Clinical Faculty (rural site)	1980-82 1995-2002

## APPENDIX G

## INFORMED CONSENT



IRB#2004-06-352 EP Date Approved: 05/10/06 Valid Until: 07/11/07
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COLLEGE OF EDUCATION AND HUMAN SCIENCES  
 Department of Educational Administration

**Identification of Project:**

A Historical Study of Nurse Anesthesia Education in Nebraska

**Purpose of the Research:**

This is a research project that is documenting the history of nurse anesthesia education in Nebraska. You are requested to grant an interview about your participation in, and/or knowledge of, nurse anesthesia education. You are invited to participate in this study because you have been identified as an individual with important information. You must be 19 years of age or older to participate.

**Procedures:**

Participation in this study will require approximately two to three hours of your time. You will participate in an interview about your experiences and knowledge of nurse anesthesia education. The interview will be audio taped and the audiotape will be transcribed (made into a typed copy). The audio tape will be erased after transcription. A copy of the transcribed interview will be sent to you for your review. You may add written comments as you wish. The interview will be conducted in a quiet location of your choice and you may be asked for a second interview.

**Risks and/or Discomforts:**

Your risks will be minimal as you will not be asked for information that could place you at risk or criminal or civil liability, or that could be damaging to your financial standing or employability. Data of a sensitive nature, such as that relating to recreations drug use, sexual practices, criminal behavior, or religious beliefs will not be requested.

**Benefits:**

The information gained from your interview and this study may assist in understanding the factors that promote and/or inhibit the development of nurse anesthesia education programs.

**Confidentiality:**

The interview will not be confidential. The transcribed interview and the written comments will be given to the American Association of Nurse Anesthetists History & Archives Society. It will be made available for future research as approved by the Archives Society. Your name and identifying information will be included with the transcribed interview. In addition, the transcriptionist and a dissertation auditor will have access to the transcripts. Summaries of this study may be presented at professional meetings or published in professional journals.

\_\_\_\_ please initial

Page 1 of 2

IRB#2004-06-352 EP Date Approved: 05/10/06 Valid Until: 07/11/07
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**Compensation:**

There will be no compensation for participating in this research.

**Opportunity to Ask Questions:**

You may ask any questions concerning this study and have those questions answered before agreeing to participate, or during the study. You may call the investigator at n time, office phone, (402) 481-8606, or home (402) 489-9104, or Dr. Marilyn Grady, advisor and secondary investigator at (402) 472-0974. If you have questions about your rights as a participant that have not been answered by the investigators, you may contact the University of Nebraska – Lincoln Institutional Review Board, telephone (402) 472-6965.

**Freedom to Withdraw:**

You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators, the University of Nebraska or other participating agent. Your decision will not result in any loss of benefits to which you are otherwise entitled.

**Consent, Right to Receive a Copy:**

You are voluntarily making a decision whether or not to participate in this research study. Your signature certifies that you have decided to participate having read and understood the information presented. You will be given a copy of this consent form to keep.

\_\_\_ please initial to acknowledge that you understand that your name and your interview transcript will be presented to the American Association of Nurse Anesthetists History & Archives Society.

Signature of Participant

\_\_\_\_\_  
Signature of research participant

\_\_\_\_\_  
Date

Names and Phone numbers of investigators:

Sharon Hadenfeldt, MS, Principal Investigator  
Marilyn L. Grady, Ph.D., Secondary Investigator

Office: (402) 481-8606  
Office: (402) 472-0974

APPENDIX H  
COPYRIGHT RELEASE

I, \_\_\_\_\_, hereby give, convey, and assign copyright in my oral history memoir to Sharon Hadenfeldt/AANA History & Archives Society, who is currently in possession of my oral history memoir consisting of tapes and/or transcripts to have and to hold the same absolutely and forever. I understand that Sharon Hadenfeldt/AANA History & Archives Society, and his/her/its successors and assigns, may use our memoir for such historical and scholarly purposes as they see fit that by this conveyance I relinquish:

- All legal title and literary property rights which I have or may be deemed to have in said work.
- All my right, title, and interest in copyright which I have or may be deemed to have in said work and more particularly the exclusive rights of reproduction, distribution, preparation of derivative works, public performance, and display.

\_\_\_\_\_  
Narrator's Signature

\_\_\_\_\_  
Date

I accept the oral memoirs for inclusion in my oral history collection.

\_\_\_\_\_  
Interviewer's Signature

\_\_\_\_\_  
Date

APPENDIX I  
DR. BETTY HORTON LETTER

November 8, 2006

Sharon Hadenfeldt, CRNA MS  
Bryan LGH Medical Center School of Nurse Anesthesia  
1600 South 48<sup>th</sup> Street  
Lincoln, Nebraska 68506

NOV 10 2006

Dear Sharon:

Thank you for asking me to read your chapter on "Transformation of Nurse Anesthesia Programs." The amount of research you did to write this chapter is impressive.

I found the chapter very interesting and generally accurate. I have suggested a few revisions that are recorded (tracked) on the document that I am returning to you by e-mail. The revisions are not extensive but will enhance the accuracy of the history in my opinion.

One question that I have is whether you should add an explanation somewhere that this history pertains to both civilian and military programs. It will mean that you need to review the document again with this question in mind. If the transformation of military programs was the same as civilian programs, then you can make the statement with confidence. If there are differences, you might write a paragraph or 2 on the military programs and how the transformation into universities may have been different for them. Dr. Rodney Lester at the University of Texas (retired Army) or Dr. Joseph Pellegrini of the Navy program might be able to provide you with information or advise you on appropriate references. One of them might even read and comment on this chapter if requested or tell you someone who could. You might even try to contact Ira Gunn in Texas to ask her opinion.

Once again, I want to thank you for the opportunity to read your chapter. I find the history of nurse anesthesia interesting, and have just completed a study on the upgrading of education requirements from 1933 to 2006. It is currently embargoed pending release to the AANA Board of Directors as part of a report from the Task Force on Doctoral Preparation of Nurse Anesthetists. I don't anticipate it will be available for distribution until spring 2007.

Sincerely,



Betty J. Horton, CRNA, DNSc

Education Consultant  
Director of Accreditation and Education  
(retired)  
AANA Council on Accreditation

## APPENDIX J

POST-GRADUATE NURSE ANESTHESIA PROGRAMS  
 PUBLISHED BY THE AMERICAN NURSES' ASSOCIATION, 1924<sup>3</sup>

State	City	Hospital	Length (months)
Dist of Columbia	Washington	Providence	Not listed
Illinois	Chicago	St. Elizabeth's	3-6
Illinois	Chicago	St. Joseph's	4
Illinois	Chicago	Washington Park	3
Illinois	Chicago	West End	9
Louisiana	New Orleans	Charity	3
Michigan	Detroit	Grace	Not listed
Michigan	Detroit	Harper	4
Missouri	St. Louis	Barnes	4
New York	Brooklyn	Long Island College	3-6
New York	Buffalo	Buffalo City	15
Oregon	Portland	St. Vincent's	1-4
Pennsylvania	Philadelphia	University of Pennsylvania	3
Tennessee	Nashville	Hubbard	12
Texas	Dallas	St. Paul Sanitarium	3-6
Washington	Tacoma	St. Joseph	2-6

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<sup>3</sup> A section of post-graduate nursing programs was included in *A List of Schools of Nursing Accredited by the State Board of Nurse Examiners. Published by the American Nurses' Association, correct to January, 1924*. Found in the Nebraska State Historical Society, RG 027.1, SG4, SS2.



APPENDIX K  
 POST-GRADUATE NURSE ANESTHESIA COURSES  
 PUBLISHED BY THE AMERICAN NURSES' ASSOCIATION, 1928<sup>4</sup>

State	City	Hospital	Length (weeks)
Connecticut	Hartford	Hartford	28
Connecticut	Hartford	St. Francis	6
Delaware	Wilmington	St. Francis	Not listed
Illinois	Chicago	Augustana	17
Illinois	Chicago	Frances E. Willard	12
Illinois	Chicago	Lakeside	12
Illinois	Chicago	Post Graduate	Not listed
Illinois	Chicago	Ravenswood	16
Illinois	Chicago	St. Elizabeth's	12
Illinois	Chicago	St. Joseph	16
Illinois	Chicago	St. Luke's	24
Illinois	Chicago	Washington Park Community	16
Illinois	Chicago	West End	12
Illinois	Joliet	Silver Cross	16
Louisiana	New Orleans	Charity	12
Louisiana	New Orleans	Hotel Dieu	16
Michigan	Ann Arbor	University-Medical School	Not listed
Michigan	Detroit	Grace	12
Minnesota	Duluth	St. Mary's	Not listed
Minnesota	Minneapolis	Eitel	36
Minnesota	Minneapolis	Fairview	12
Missouri	St. Louis	Washington University	16
New York	Brooklyn	Long Island College	32
New York	Buffalo	Buffalo City	60
New York	New York	New York Post Graduate Med. Sch. and Hosp.	32
North Carolina	Durham	Watts	Not listed

<sup>4</sup> A section of post-graduate nursing programs was included in *A List of Schools of Nursing Accredited by the State Board of Nurse Examiners. Published by the American Nurses' Association, correct to January, 1928*. Found in the Nebraska State Historical Society, RG 027.1, SG4, SS2.

Ohio State	Cleveland City	St. John's Hospital	Not listed Length (weeks)
Pennsylvania	Philadelphia	Graduate School of Medicine	17
Pennsylvania	Philadelphia	University of Pennsylvania	12
Pennsylvania	Philadelphia	Howard	Not listed
Pennsylvania	Philadelphia	Northeastern	12
Pennsylvania	Philadelphia	St. Agnes	12
Pennsylvania	Pittsburgh	Mercy	16
Pennsylvania	Reading	St. Joseph's	12
Washington	Tacoma	St. Joseph's	24
Washington	Tacoma	Tacoma General	Not listed
Wisconsin	Milwaukee	St. Joseph's	16
Wyoming	Wheatland	Wheatland General	Not listed

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