The Historical Development of Intensive Care Nursing at Vancouver General Hospital, 1960-1985

by

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Abstract

This thesis describes the historical development of intensive care nursing in the adult medical and surgical intensive care unit (ICU) at Vancouver General Hospital (VGH) from 1960 until 1985. The ICU was established to group a new, emerging cohort of critically ill patients in one centralized place the hospital. Doctors referred critically ill patients to the ICU, believing the patient would benefit from the continuous nursing care of a bedside nurse in the ICU. The concepts of place and space, specialty nursing education, professionalism, gender, and the expansion of new medical technologies used in critical care, form the central categories for analysis. I examine the broader social, cultural, economic influences, and the hospital context that shaped critical care nursing in Western Canada in the 1960s, using one hospital as a case study. An analysis of the transformation from one-to-one nursing of the most critically ill patients on the general nursing wards, to specialized critical care nursing in the ICU, significantly contributes to the history of nursing. As nurses developed new critical care nursing expertise, their work relationships with other nurses and health professionals changed. As their expertise deepened, nurses integrated new technologies that were introduced into the ICU into their practice. Nurses created critical care nursing theory in a grassroots process using their experiences in critical care, as the foundation. They also formalized this knowledge into a critical care nursing program. This process was not without its tensions, as nursing education was also beginning to make the transition from hospital-based to degree based education. It was a question of where and how the education of critical care nursing would fit in. Oral history accounts from former and practicing nurses and physicians involved in the establishment of the ICU at VGH form the primary source material, augmented by archival hospital and government records, and photographs. The individual experiences of bedside nurses provide a unique lens to understand the evolution of critical care nursing knowledge and practice at VGH in the broader context of critical care nursing history.
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<tr>
<td>AACCN</td>
<td>American Association of Critical Care Nurses</td>
</tr>
<tr>
<td>AHN</td>
<td>Assistant head nurse</td>
</tr>
<tr>
<td>BC</td>
<td>British Columbia</td>
</tr>
<tr>
<td>BCIT</td>
<td>British Columbia Institute of Technology</td>
</tr>
<tr>
<td>BCMA</td>
<td>British Columbia Medical Association</td>
</tr>
<tr>
<td>BCNU</td>
<td>British Columbia Nurses’ Union</td>
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<tr>
<td>CACCN</td>
<td>Canadian Association of Critical Care Nurses</td>
</tr>
<tr>
<td>CVA</td>
<td>City of Vancouver Archives</td>
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<tr>
<td>CPAP</td>
<td>Continuous positive airway pressure</td>
</tr>
<tr>
<td>CPR</td>
<td>Cardiopulmonary resuscitation</td>
</tr>
<tr>
<td>CRNBC:</td>
<td>College of Registered Nurses of British Columbia</td>
</tr>
<tr>
<td>CSICU</td>
<td>Cardiac surgical intensive care unit</td>
</tr>
<tr>
<td>CCU</td>
<td>Coronary care unit</td>
</tr>
<tr>
<td>ECG</td>
<td>Electrocardiogram</td>
</tr>
<tr>
<td>ER</td>
<td>Emergency room</td>
</tr>
<tr>
<td>ICU</td>
<td>Intensive care unit</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>O</td>
<td>Operating room</td>
</tr>
<tr>
<td>PEEP</td>
<td>Positive end expiratory pressure</td>
</tr>
<tr>
<td>PAR</td>
<td>Post anesthetic room</td>
</tr>
<tr>
<td>RN</td>
<td>Registered Nurse</td>
</tr>
<tr>
<td>RNABC</td>
<td>Registered Nurses’ Association of British Columbia</td>
</tr>
<tr>
<td>RT</td>
<td>Respiratory Therapist</td>
</tr>
<tr>
<td>SM</td>
<td>Scientific Management</td>
</tr>
<tr>
<td>SSF</td>
<td>Dr. Sydney Segal Fonds</td>
</tr>
<tr>
<td>UBC</td>
<td>University of British Columbia</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>VGH</td>
<td>Vancouver General Hospital</td>
</tr>
<tr>
<td>VCC</td>
<td>Vancouver Community College</td>
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I wish to thank my parents who supported me throughout this project. Anne, my mother, a State Registered Nurse and Midwife who graduated in 1958, did not want me to become a nurse. I wish to thank David my father, in memoriam who died suddenly of lymphoma while I was writing this thesis. He was an Anglican priest who spent many hours visiting the sick and the dying in the ICU. He could not understand why I would want to leave a good job in the ICU to return to school. Ironically, he graduated with a BA at the age of 65. Special thanks goes to my husband, Jonathan, an Emergency Room doctor. He has learned more about intensive care nursing than he ever wanted to know.

Thank you to Harriet Tholin, Unit manager of the ICU at VGH who has supported my research since I began this project. She willingly shared her own recollections about ICU nursing in our casual conversations at her office door, and has granted me access to many ICU archival files and photographs, some of which appear in this thesis.

Special thanks to all the ICU nurses and physicians who participated in this oral history project. Thank you for the legacy you have created for all intensive care nurses at Vancouver General Hospital. They are Liz Akeroyd, Darcy Carnegie, Susan Dearlove, Daphne Francis, Vera Gibault, Patricia Hare, Bonnie Leal, Suzie Logie, Glen Manning, Mike Turner, Colleen Varcoe, and Patti Zettel.
Dedication

To my colleagues who have dedicated their lives to upholding and improving these standards of care over the last fifty years, I dedicate this history to you. To the nurses who are beginning their term in intensive care, may you be inspired to tell your stories as you create new intensive care nursing history.
Chapter 1-Introduction

Intensive care nursing can be described as the continuous twenty-four monitoring and care of one patient who is undergoing life-threatening physiological crisis by one specially trained nurse.

Scope of Research

This thesis describes the historical development of intensive care nursing in the adult general intensive care unit (ICU) at Vancouver General Hospital (VGH) from 1960 until 1985. One nurse caring for one patient had been practiced at VGH for many years on the VGH nursing wards by general duty nurses who identified the sickest patients and assigned special duty nurses to care for them without formalized authorization from their nursing supervisors. In the 1950s and 1960s, nursing patients on a one-to-one basis could be dangerous for general duty nurses since they were not adequately staffed to provide round the clock intensive nursing care to the critically ill as well as care for the needs of their other medically stable patients. Often times the equipment they needed to nurse patients, like portable suction machines and blood pressure cuffs were in short supply and scattered throughout the hospital. Nursing the critically ill patient on the ward in this manner was very inefficient for nurses, created the potential for negative outcomes for the critically ill patient, and was expensive for the hospital to continue.

The idea to centralize nurses and critically ill patients in one designated space allowed nurses to observe two or three patients at once. This model was practiced in the post-anesthetic room (PAR) where post-operative patients recovered from surgery. Grouping patients in one physical area of the hospital also benefited nurses since they could help each other and learn how to manage the needs of complex patients together. In addition, the equipment used to care for the critically ill could be located in one area.
It is a commonly held notion among medical historians and some health professionals, that ICU’s evolved because of the technological explosion in medical science in the late 1950s and early 1960s, as a solution to the inadequacies of the post-anesthetic room. In the post-war era, the anesthetic agents became increasingly more pharmacologically complex, and so did the surgical procedures performed. Post-operative recovery took increasingly longer, and patients needed constant observation during this critical phase of their recovery. However, at VGH, the ICU was established as the result of a need to centralize the intensive nursing care of increasingly medically unstable patients from the nursing wards, as well as the care of the post-operative patient requiring mechanical ventilation. In 1967, nurses and physicians had almost no new biomedical and technological equipment or drugs to monitor and treat the critically ill patient in their recovery from critical illness. Intensive care was based upon vigilant observation of the bedside nurses who attended the critically ill around the clock. This practice of one-to-one nursing of critically ill patients at VGH evolved into the specialty practice of intensive care nursing, in a designated place in the hospital called the intensive care unit (ICU).

The medical and surgical adult ICU at VGH opened in the Heather Pavilion in October 1967. After the VGH ICU had been established, other hospitals around Vancouver also opened ICU’s such as St. Paul’s Hospital in downtown Vancouver, Shaughnessy Military Hospital also in Vancouver, the Royal Columbian Hospital in New Westminster, and in the interior of BC, the Kelowna General Hospital, had ICU’s, but VGH was the main treatment referral centre for all British Columbians requiring specialized care, and it was the main hospital for the medical school at UBC. The VGH ICU nurses have the distinguished place of taking the lead in creating adult critical care nursing as a specialty practice in British Columbia.

There is little historical research about the origins of intensive nursing practice in the 1960s in Canada. Health care historians Kathryn McPherson and Diana Mansell have examined
the history of the working lives of Canadian rank and file nurses. These histories do not specifically described the experiences of Canada’s intensive care nurses in the 1960s. Other secondary source materials focus on general professional nursing development in light of the social, economic and political forces. Histories of Canadian hospitals including the Toronto General Hospital, Mount Sinai Hospital, Moncton Hospital, the Montreal General Hospital and the Vancouver General Hospital provide insights into the social and economic forces that influenced the general development of the modern Canadian hospital, yet the development of their intensive care units is not a focus of these histories. Furthermore, these histories do not indicate how intensive care nursing unfolded within the context of general Canadian nursing history, or if the nurses who lead intensive care nursing were a distinct group of nurses. In 1979, the VGH nurses worked in conjunction with the Registered Nurses Association of British Columbia (RNABC) to design and teach the first intensive care nurses training program-taught by nurses, but the details of how this relationship evolved are unknown.

Most of the histories about the nurses at VGH are of limited use since they were written before the 1960s when intensive care units became distinct hospital wards. Similarly, other historical works that do extend beyond the 1970s, omit any analysis that could explain how and why intensive care nursing at VGH came about.

**Significance of Historical Research on Intensive Care Nursing, to Nursing History, and to Current Practice**

A history of the emergence of intensive care nursing at VGH is significant to nursing history since it supports the findings of Fairman and Lynaugh, and Zalumas who write the history of intensive care nursing from the American perspective. Intensive care nursing history from a western Canadian perspective, has not yet been formally documented making this history
unique within the broader nursing history. This history documents the work of pioneer intensive care nurses at VGH, and is written by an intensive care nurse with over fifteen years of experience in intensive care nursing within the same hospital. Currently, in the intensive care unit at VGH, just 35% of ICU nurses work more than 5 years, and the turn over rate has stayed static at 12%. In casual conversations I have had with novice nurses, (and some experienced nurses) it is clear they are often unaware of the legacy of strong nursing innovation and leadership that made intensive care nursing at VGH what it is today. Joan Lynaugh states that the study of nursing history gives nurses a sense of identity, and meaning in nursing practice thereby “improv[ing] our comprehension and our planning,” while providing the nursing profession with a rejoinder for social criticism. Thus, the history of intensive care nursing, from the perspective of the first nurses who worked in the VGH ICU, has the potential to inspire novice and seasoned ICU nurses to continue to expand the role of intensive care.

This thesis is written from the perspective of the first nurses and physicians who worked in the ICU from 1960 through 1985, who have first hand recollections of VGH and the ways in which the intensive care unit was established and intensive care nursing developed. Their stories about their working experiences provide unique source to better understand the development of intensive care nursing at VGH.

In this thesis, I construct the historical development of intensive care nursing from 1960 until 1985 using the adult medical and surgical ICU at VGH as a case study. The first chapter of the thesis chronicles the history of the modern general hospitals with an emphasis upon the social and political as well as the economic factors that influenced the development of the ICU and intensive care nursing in Canada, and in particular at VGH. The second chapter outlines the development of the place of ICU and its meaning, for the nurses who first practiced there, with particular emphasis upon the physical space, and its effect upon the development of intensive care.
care nursing at VGH. The significance of the meaning the space that nurses held in the development of their nursing practices is examined. The third chapter traces the education of critical care nurses as it began from a grassroots level. ICU nurses found that their hospital based nursing education did not adequately prepare them to care for the complexity of their patients. They sought out nursing knowledge described as critical care nursing theory that was scientific, and could be standardized for all intensive critical care nurses. The advances in critical care nursing education at VGH led critical care nursing at VGH to become recognized as a nursing specialty within the hospital. The fourth chapter is written to gain a preliminary understanding of the meaning of technology from the VGH ICU nurses’ perspective. Although the ICU nurses did not use new or sophisticated biomedical equipment when the ICU first opened in 1967, they eventually incorporated new medical devices into their caring practices that assisted them to monitor and care for their patients. The relationship between critical care nursing and biomedical technology in nursing practice is outlined with a focus on the impact that such technologies as the Swan-Ganz catheter that was introduced to intensive care nursing in the 1970s, had upon ICU nurses. Working with the Swan-Ganz catheter challenged the established power dynamics between nurses, and nurses and physicians in the ICU that essentially advanced intensive care nursing as a specialty practice. The fifth chapter summarizes the findings of this study and offers suggestions for future historical research in nursing history.

**Research Questions**

To understand the historical development of intensive care nursing at VGH several research questions guided this study: What is intensive care? How did intensive care nursing evolve at VGH? What were the broader social historical forces during the era that may have influenced the development of ICU nursing? What is the meaning of the ‘place’ and ‘space’ occupied by the ICU nurses? What did intensive care nursing work entail at its inception as
compared to the 1980s? What did ‘technology’ mean to the nurses who worked in the first ICU? Henceforth, what effect (if any) did the introduction of technology have on nursing practice in intensive care? What was the relationship between nurses and doctors in the planning of the ICU and in the clinical setting? Did this relationship change? What was the effect of intensive care nursing on the patient, and on critical care nursing in general?

**Social Factors**

During the early 1960s, three important social factors influenced the creation of a designated adult ICU at VGH. First, the growing urbanization of the City of Vancouver taxed its resources to care for all the residents of the Province of BC and the hospital had to look for new places to care for the health of British Columbians. In addition, the polio outbreaks of the 1950’s meant VGH had to develop a plan to care for its patients during a shortage of nurses after the Second World War.21 Second, the rapid advancement of scientific medicine and hospital development in the post-war era created a new kind of hospital, doctor, and a new kind of patient who had complex medical problems. In addition, the growing post-war nursing shortage, in combination with the expansion of hospitals and the services it could provide patients, revolutionized the working lives of nurses.22

Third, the Canadian general adult ICU’s did not become the norm in general hospitals until ten years after the United States hospital ICU’s. This time difference is crucial to the historical development of intensive care nursing in Canada because it evolved out of different philosophical ideologies around the kind of treatments ICU could offer, how they would be funded, and who could get intensive nursing care. When the VGH ICU opened its doors in 1967, the introduction of Medicare in Canadian hospitals, and the expansion in hospital buildings in the 1960’s,23 meant any Canadians who needed to be treated in hospital was admitted. In the case of critical illness, any patient that doctor’s deemed might remotely benefit from intensive care
nursing in the ICU was not refused treatment. The general social forces that influenced the development of the intensive care and professional intensive care nursing practice in Canada in its analysis are examined as they pertain to intensive care nursing practice.

Framework

Social Historical Framework

Social historical methods examine broad historical events from the perspective of the people who lived this history and “attempts to understand prevailing values and beliefs that may have helped to shape subsequent developments.” It also explores how broader social, class, gender, and race relationships shape the events under study. It has become the dominant approach to nursing history over the last three decades. In the past, the history of nursing often was a sub-set of medical history, or set apart from medical history. Social forces including the rise of scientific medicine, the professionalization of nursing following World War II, and the movement away from hospital-based education influenced the changes in nursing in different ways than in medicine. The social historical forces of the 1960s provide a context for the times under study, and are helpful to identify nurses who are representative this era of nursing practice. The ICU at VGH may be viewed as a community where people who worked together, faced similar professional struggles and triumphs in the practice of intensive care that transformed over time, and carried with it evidence of the past.

Gendering of Hospital Work

Gender refers to the culturally or socially constructed notions that are based on particular values, beliefs as well as historical events. This notion shapes an individual or group’s gender identity and reflect gendered attitudes to that individual or group, in this case, women, and women as nurses. The historical construction of gendered identity has contributed to the type
of work seen as suitable to men and women. Nursing has been historically one of the few professions seen as suitable for women. As such, the practice of nursing has been constructed to emulate a feminine ideal (not necessarily because the majority of nurses were women). It was the expression of the ‘feminine’ qualities of compassion and nurture, that legitimized the nurses’ role at the bedside, where they were seen as appropriately subordinate in carrying out doctors’ orders. Nurses were not expected to think and behave independently or autonomously, and accepting this limitation allowed doctors to treat them with “paternalistic benevolence.” Norine Kerr notes some nurses even felt “a boost in their own sense of importance because of the ‘acceptance’ received from the powerful physician.” The gendering of the work of nurses has been noted in the context of the relationship between nursing practice, physicians and technological advances.

Keeling notes that physicians were unsure if nurses were able to learn how to defibrillate based on their young age, and gender in a caring role. Cynthia Toman observes that nurses who administered blood transfusion, a skill once performed only by physicians, embodied this technology. Consequently, administering blood transfusions became engendered as women’s work, or “dirty work.” While nurses took on this new skill, they did not acquire the same power and status that once was connected to this new technology.

Julie Fairman argues that nurses hold power in making decisions in the use of technology as they work so closely with the patients who are treated with these technologies. The engendering of nursing work occurred in the VGH ICU in the 1970s, as nurses negotiated to learn new skills associated with new technologies in patient care. The power dynamics between nurses and physicians and between nurses that developed with the expansion of biomedical technology is the focus of chapter four.
Technology-in-Practice Framework

There is a limited body of historical research examining the impact of technology in nursing practice. For this project, I relied on a technology-in-practice framework to help understand the meaning of technology and how it functioned in nursing practice.\textsuperscript{36} This perspective is useful because it offers a broad understanding of technology that captures how intensive care nursing incorporated new knowledge, skills, and monitoring machines over time. ‘Technology’ is often used to describe the sophisticated machines that perform specific functions for a certain purpose. For example, technology in health care can be described as the direct application of state-of-the-art machinery on a patient to monitor the patient, or to alter a patient’s physiological processes.\textsuperscript{37} However, this definition denotes a practical hands-on use of a tool or machine by a person, for a specific purpose. Technology-in-practice includes a broader, and more interactive perspective. The idea of technology can also be conceived as a system of knowledge and skills, that are necessary to make or do things that interact with, or change, the behaviour of individuals or communities who use this new knowledge or tools.\textsuperscript{38} This conceptualization becomes a framework by which to examine technology-in-practice. When technology is situated within a larger social context, a much more meaningful perspective is brought forth that guides the interpretation of the social interactions between people in specific work environments.\textsuperscript{39}

This framework highlights that the acquisition of knowledge and skill, or who can work with machinery has often been determined by social, political and cultural influences. For example, in the 1960s, gender often determined who could learn the ‘new’ technology and who could use it, that in turn, created power for those who made these decisions, or created opportunities for those who were the end users.\textsuperscript{40} For example, one cardiologist (heart specialist) in the 1960s in an USA coronary care unit wondered if nurses could actually be taught about
cardiac monitoring and hesitated to train them, fearing this new knowledge would create division among nurses if some nurses were trained and others were not.41 This gender bias prevented patients from receiving adequate care until nurses began to teach themselves about ECG and cardiac monitoring. The technology-in-practice framework was used to assess what technology meant to certain groups, like nurses, and how technology was incorporated into nursing practice, including any concerns the use of technology raised.

In this study, the technology-in-practice framework helped interpret the meaning of technology in nursing practice for VGH’s ICU nurses. For example, did the VGH ICU nurses acquire new knowledge and skill when new technologies were used on patients? Did the use of technology transform the image of the ICU nurse and her work? The technology-in-practice framework illustrates the changing relationships between nurses and between nurses and doctors and between nurses and patients from 1960-1985.

**Place and Space**

Another core concept of analysis guiding the interpretation of this study is the notion of place. Considering that the ICU evolved as a space that had particular meaning beyond its mere physical dimensions, it is important to explore the meaning of the ICU also as a spatial construction within a particular time and context. I have relied on the work of Gesler to analyze the spatial development of the ICU.42 I will give a more elaborate discussion of this notion at the beginning of chapter two.

**Background Literature Review**

The general development of intensive care nursing has been critically analyzed by three nurse historians: Julie Fairman, Joan Lynaugh, and Jacqueline Zalumas who studied intensive care nursing and the development of ICUs in the USA from a social historical perspective.
Fairman interviewed nurses who had practiced in American hospitals during the post-war era and related their experiences to broader social and historical events such as the outbreak of epidemics in the 1950’s; the effect of war upon surgical and medical techniques; the rising costs associated with increased hospital use and more complex patient care requirements. Fairman and Lynaugh argue that nurses took the lead in actively influencing the development of the ICU when they ranked their patients according to the amount of nursing care they needed. When the nurses believed the patient was very sick, they triaged them, physically moving the sickest patient to where they were working to closely observe them, and provide them with constant nursing care. In some instances, special duty nurses were hired to work at the bedside caring for a critically ill around the clock. The ICU evolved slowly as nurses “manipulated the internal environments of their hospitals by creating special places to nurse the sickest patients.” In the process, nurses actively and independently developed new nursing knowledge and incorporated it into their traditional nursing practices. In *Critical Care Nursing. A History* Fairman and Lynaugh also describe the early development of the American Association of Critical Care Nurses (AACCN) at the organizational level. The AACCN was instrumental in establishing the standards which defined the scope of critical care nursing education and practice. The authors reach a strong conclusion in demonstrating that ICU nurses organized themselves to use their collective power in order to gain control of their professional development, reflecting a similar process described by the nurses at VGH.

Further, Fairman uses a technology-in-practice framework to describe the introduction of technology into to day-to-day nursing practice. Fairman and Lynaugh note that the first ICUs did not showcase new or sophisticated biomedical technology. As surgical procedures and medical interventions became more complex, it became possible to choose specific technologies which suited specific patient’s needs. Fairman found that nurses believed technology was
defined by new science and new machines and they increasingly became familiar with new scientific methods. Physicians first used any new technology, and nurses were then authorized by physician to use the technology. Authorization tended to occur when the doctor trusted the nurse, when the doctor could not be at the bedside, or when an intervention was needed during an emergency. Fairman calls this “situational credentialing,” which was an advantage to nurses. Credentialing gave nurses increased status among ward nurses who were not trained to use these devices. In addition, critical care nurses attained authority through the use of technologies to reject those that were too cumbersome to manage; that that appeared to increased patient suffering without generating much benefit; or those which produced data that was not valuable to the nurse. Another conclusion Fairman and Lynaugh make is that that the new nursing knowledge generated from the introduction of biomedical equipment created new opportunities for nurses to gain a new sense of power in their professional relationships, especially with doctors since nurses often taught residents how to work the new machinery and how to interpret the data collected. The participants at VGH also inferred similar findings in their oral interviews.

The strength of this research is found in Fairman and Lynaugh’s identification of nurses’ contributions to the development of the ICU, while noting that these contributions have not been documented in formal medical histories. Their work thereby opens a new area of research in medical and nursing history since it is written from a nursing history perspective. The authors also identify key themes in the evolution of the ICU and intensive care that may address the historical development of intensive care nursing at VGH. This includes the argument that the ICU developed because of the beneficial effects of one-to-one nursing care given to critically ill patients rather than because of the post-war scientific and technological explosion. One limitation of their conclusions is that Fairman and Lynaugh’s research ends in the mid 1960’s
and does not address issues pertinent to the later decades, and therefore cannot easily be compared to the development of the ICU at VGH in the late 1960’s and beyond.

The third researcher, Jacqueline Zalumas\textsuperscript{55} writes about contemporary intensive care nursing with respect to its history and development, using oral history methodology. She interviewed 25 nurses who worked in ICU’s from across different hospitals in Atlanta Georgia over the course of 40 years, beginning in the 1950s and concluding in the 1990s. Unlike Fairman and Lynaugh, Zalumas observes that the emergence of intensive care nursing coincided with developments in technology, which extended the bedside nurse’s role.\textsuperscript{56} Zalumas also argues that nurses are bound to technology in the ICU. For her analysis, she also uses a technology-in-practice framework to show how the characteristics of early intensive care nursing practice related to new medical technologies. One major theme Zalumas identifies from the oral interviews was that working with technology, and critically ill patients, created a range of experiences and feelings. Nurses experienced the excitement of ‘saving’ the lives of critically ill patients who would otherwise have died without the new technology. However, nurses also became frustrated when working with technology consumed more of their time than the actual care of patients.

The highlight of Zalumas’s study is her discussion of the negative effects of technology upon nurses’ work. She provides an in-depth analysis of the psychological stressors caused by the introduction of new technologies, one key example being when patients were kept on machines they were not responding to, prolonging their death. The VGH participants likewise found such situations highly stressful. Zalumas concludes this conflict between care of the machine and care of the patient eventually contributed to burn-out,\textsuperscript{57} which is a modern concept that still has significant meaning in today’s critical care nursing practice. However, the majority of the participants in the VGH study emphasized that the introduction of biomedical technology
did not threaten their position at the bedside, as Zalumas found in her interview with nurses. Furthermore, many of the technologies activities actually reduced the VGH’s ICU nurse’s physical workload. The strength of Zalumas’ analysis is in giving voice to the experience of many nurses in the history of the ICU. It enabled me to draw thoughtful conclusions about the meaning of technology in nursing practice.

Although Zalumas does not specifically address the general development of ICU education, the nurses she interviewed described critical care education as a grass roots process of self-education. Their methods of learning were similar to those of the ICU nurses at VGH. Zalumas’ historical account therefore interprets the essential clinical development of intensive care nursing within the larger social history of the relationship between intensive care nursing practice and technology found in the ICU setting.

Margarete Sandelowski is another influential scholar whose work contributes to the analysis of intensive care nursing history, although her focus is more general. As with Fairman and Zalamus, she employs a technology-in-practice framework, which focuses on the effects of the integration of various technological tools into nursing practice since World War II. Nurses who laboured to clean or maintain medical equipment that pumped fluids into the body or drained substances out of the body used the same equipment to observe patient responses in new ways, that in turn provided new, scientifically-based data. Sandelowski’s analysis of the meaning of advanced technology in critical care nursing in the 1960s in the USA imbues this study with a deeper understanding of the ways in which new technologies improved nursing practice and consequently the image of the ICU nurse. In particular, Sandelowski explains that the use of invasive monitoring technologies increased the status of nurses among physicians and created a gap between ward nurses and critical care nurses, who were most likely to use the new equipment. But this technological innovation was also bittersweet because it distanced nurses
from their patients. For example, she argues nurses no longer needed to provide cold compresses for the febrile patient when they could simply inject penicillin.\textsuperscript{62} The introduction of technology (much of which was designed by people outside of the profession) thus required nurses to redefine their image, and the traditional ‘doing’ nurse became a ‘thinking’ nurse.

Sandelowski draws upon Fairman and Lynaugh’s analysis in describing the social and historical effects that tools and machines have had upon the nursing profession as a whole. She conceptualizes early intensive care nursing as the practice of private duty nurses who used devices and machines to aid their traditional bedside nursing care. Sandelowski’s observation that the nurses believed most medical technologies augmented their professional development and gave them an increased sense of power and autonomy is particularly salient to the history of ICU nursing at VGH and is consistent with comments made in the oral histories compiled for this research.\textsuperscript{63}

Arlene Keeling’s analysis of the delegation of cardiopulmonary resuscitation (CPR) and defibrillation to nurses in two coronary care unit’s (CCU) in the USA during the 1950s\textsuperscript{64} provides insight into the beginnings of specialty nursing practice of the critical care nurses as they took on new responsibilities associated with caring for physiologically unstable patients. Physicians, transferred medically delegated acts like defibrillation to the hands of nurses at first as an experiment, but nurses demonstrated they could actually save the life of a patient in cardiac arrest. Keeling found that the expansion of nurses’ skills in the CCU blurred the boundaries between the job of physicians and that of nurses. Keeling’s analysis differs from the history at VGH around CPR and defibrillation, which is not a focus of this ICU history. However, Keeling’s finding supports the historical shift in expectations of nurses by doctors, once biomedical technologies were introduced, and is similar to the findings in this study of ICU nurses at VGH. I also found a certain, degree of blurring of the traditional boundaries between
physicians and nurses, although it was perhaps not as significant a finding in this study as Keeling observes.

Canadian historian, Cynthia Toman contributes to the understanding of intensive care nursing through an analysis of the use and development of blood transfusions in a Canadian hospital. Toman uses the concepts of Scientific Management (SM) to describe the detrimental effects of new technology on the nurses who administered the first civilian blood transfusions in Canada in the 1940’s. Using oral histories and archival evidence, Toman reveals how nursing management was duly influenced by the new social principles of efficiency and increased production, which emerged in the age of mechanization. However, Toman discovers in her research that SM did not suit nursing work because it interfered with the human caring that nurses had historically embraced. Although Toman’s analysis does not directly address the history of intensive care nursing, her findings are essential to understanding the historical context of technology in nursing work in Canada. More importantly, it shows how nurses used technology, like the administration of blood, to advance their professional status. While at the same time it illuminates the conflict between the values nurses held about technology and the image of their professional role in the context of administering blood products to patients.

Nora Kelly, wrote *Quest for a Profession. The history of the Vancouver General Hospital School of Nursing*, a book chronicling the history of nursing at VGH with a focus upon VGH nursing alumni. This book enriches this thesis by describing the education at the VGH School of Nursing and the traditional nursing culture at VGH. Therein, she illustrates how the traditions and manual labour of caring for patients in general provided a foundation for ICU nursing work.

Glennis Zilm and Ethel Warbinek’s book *Legacy History of Nursing Education At The University of British Columbia 1919-1994* provides a social historical analysis of nursing education at the University of British Columbia (UBC) School of Nursing in a rapidly changing
nursing education context. Their conclusions add depth to the historical evolution of intensive care nursing at VGH, during the 1970s when the VGH ICU nurses came to realize the limitations of their knowledge and sought out recognition of their knowledge and skill through standardized, continuing education that gave them credentials in critical care nursing beyond a basic nursing program.

**Methodology**

**Primary Sources**

This history about the emergence of intensive care nursing from the 1960s until the 1980s is written from a Canadian perspective. The primary sources that are used to collect evidence about intensive care include selected oral histories of former VGH nurses conducted by the BC History Of Nursing Group located at the College of Registered Nurses of BC, VGH annual reports and internal memos from administrators and staff members, and material from the University of British Columbia (UBC) libraries. Several photographs have been obtained from the BC History of Nursing group showing nurses working in the ICU circa 1980. Various other photographs from private collections of individuals who worked in the ICU during the last twenty-five years, and early photographs of the VGH ICU from the VGH ICU photo album, have been selected to illustrate the development of ICU nursing at VGH and are included in this study with permission. The City of Vancouver Archives (CVA) holds substantial VGH documents, as well articles written about VGH in *The Vancouver Sun* in the 1960s. The Dr. Sydney Segal Fonds (SSF) at the British Columbia Medical Association Archives (BCMA) were particularly useful for understanding the early ICU period. Academic nursing journals and non-academic professional nursing magazines, medical journals and health care industry journals written in the 1960s up to the 1980s also served as primary source material. Since there are limited numbers of archival and secondary sources of evidence available written from the nurses perspective.
pertaining to the historical development of intensive care nursing from 1960 through 1980, I have included the use of oral history.

**Oral History Approach**

Oral history is gathered by audio tape-recording the lived experiences of people. Oral histories bring meaning to events of the recent past using the voices of individuals who have first hand knowledge of the event being studied. Oral history cannot establish the ‘facts’ of history, but rather reveals the lived history of everyday life, to better understand the feelings, ideas and perceptions of the people who participated in the event.

Oral histories have been used as a research method when factual records do not exist, or there are gaps in the historical evidence, or to include the voices of some people have not had access to, or the ability to tell their own story in the written form. Paul Thompson’s book *The Voice of the Past* claims oral history gives back to those who tell their story in their own words so they can see “how they stand, and where they should go.”

Oral history grew particularly popular as of the 1970s to include perspectives of groups that were often overlooked in formal historical research. One of the main strengths of oral history research is to provide evidence where little other corroborating historical evidence exists. Since there is so little extant documentation to explain why and how intensive care nursing developed at VGH, oral history methodology becomes an appropriate avenue from which to collect data. As far as is known, the stories of the working lives of intensive care nurses in Canada have not yet been recorded for analysis.

Two key elements are important to oral history research designs. The first is the in-depth oral history interview and the second is the nature of memory and recall. The in-depth interview is understood to be a collaborative process between the interviewer and the participant. The researcher generally has an academically based working knowledge developed from primary and
secondary sources of the event to develop hypotheses or assumptions about the event in history. This knowledge is used to develop relevant broad research questions. The story however unfolds based on the direction of the interviewee takes in the interview and the experience they want to share.

The second key element in oral history is the nature of memory. Oral history interviews are based upon people’s personal memories of events. Memory is defined as the “capacity to store experience and then recall or retrieve it.” Since the success of the oral history interview depends upon a person’s subjective memory, the validity of a person’s memories are of interest to oral historians. Oral historians agree on the following assumptions about memory and memory recall and its use as evidence: that memories are subjective, and have their own truth that is often remembered by a particular feeling or emotion. Recall of personal memories are quite reliable, but the details of the stories may not be consistent when the stories are re-told. However, the essence of the story, and the emotions attached to the experience are generally preserved over time. Second, when people are given cues to jog their memories, generally, their memories are not influenced by the cues. Third, people’s memories of events usually coincide with the time or event as documented by formal historical records. Finally, when experiences are unique (not repetitive like Christmas holidays or vacations at the same place), or when experiences are traumatic, it has been shown that memories remain intact, even years later after the person has aged.

There are limitations to the oral history models. The first being the bias of the interviewer, and the second, the reliability of the participants’ memory. A researcher has specific knowledge of the historical event and is therefore biased by this knowledge. The researcher can use this knowledge to prompt the participant to reveal the essence of the experience so that ideas and feelings can emerge. However, at times, the participant may find it difficult to share
knowledge about sensitive issue with a knowledgeable researcher and valuable information may not be shared.\textsuperscript{84}

Another key limitation of the oral history design is the reliability of the participant’s memory. Sketchy or inaccurate memories may affect the participants’ interpretation of the experience and thus the meanings attributed to it may be inconsistent with other testimonies. Thompson argues that the oral historian is not seeking to confirm facts, but rather to understand \textit{how} people reflect upon and interpret their experiences over time, and to understand how people create meanings in the events that shaped their lives.\textsuperscript{85} Therefore, the reliability of a person’s memories may not actually pose a limitation upon the historical analysis, but becomes a way for historians to compare the details of different narratives for commonalities in the use of language, the chronological order of events reported, and the themes that emerge. Incongruities in these memories are considered in choosing to use or reject parts of oral histories.\textsuperscript{86}

Finally, oral historians are not as concerned about the generalizing their conclusions as other kinds of qualitative researchers, since the historians’ analysis springs out of the evidence collected about a specific event in history.\textsuperscript{87} Historians acknowledge the difficulties in locating people who lived during the events of the past. In some cases, finding one or two people who are able to provide testimony to the event in question may be the only evidence that can be collected. When only a small number of oral histories can be collected, these testimonies can represent important but specific aspects of a wider history.\textsuperscript{88} Oral historians recognize that the ‘truth’ that is established through an analysis of oral history reflects the quality and quantity of the evidence available as well as the historian’s particular interpretation.\textsuperscript{89} Oral histories are considered in this study as authentic and genuine testimonies of the participant’s experience.\textsuperscript{90}
Oral History Procedures - In-depth Interview

In order to conduct this research, interviewees selected were nurses and anesthesiologists who practiced at VGH between the 1960s and the 1980s, since this was the era in which intensive care emerged. Participants were invited to participate in this study mainly using snowballing techniques where one participant told me about other potential participants. All of the participants who were selected for this study had first hand knowledge of the events in question and they could provide many perspectives of value to this study. As a nurse who was educated in intensive care nurse at VGH in the early 1990s, and who has subsequently worked at VGH, I have developed professional relationships with the staff and talked about this history in collegial conversations. The content of some of these conversations in the VGH ICU are captured in this analysis and are footnoted as “personal memories.”

The call for participants was published in the British Columbia Nurses’ Union (BCNU) monthly journal as well as the British Columbia Medical Journal (BCMJ) for a one-month period in 2008. A request for participants was announced at the Annual VGH School of Nursing Alumnae Executive meeting. Furthermore, word-of-mouth techniques were also used to spread the call for participants. In total, seventeen people were sent information packages, invitations to participate and consent forms. Most of the participants were located through word-of-mouth. Eventually, eleven participants signed informed consents and participated in an interview. The interviews took place over a four-month period. All of the participants who consented for interviews also consented to reveal their identities. One retired nurse wrote me a letter including important historical facts. The contents of her letter are referenced in footnote form as “C.M.” with her permission. To conduct the interview, the researcher sat face-to-face with the participant and guided the participant through open-ended questions about their experience, encouraging as much of the
intimate details of the event as the participant was willing to share. The researcher audio-recorded the interview and took point-form notes with a pen and paper.

The researcher subsequently transcribed the interview with the assistance of a typist. Since the purpose of the interviews was to collect data about the events leading to intensive care nursing, the pauses and the hesitations in the participants voices were edited out, unless, they were unusual and meaningful for the analysis. The tapes and the transcribed interviews are considered an official historical record to be kept confidential and safely stored according to university policy. Only the researcher and the co-researcher had access to the tapes and transcriptions. The participant was informed that parts of the transcript were used in the construction of the history.

The single interview became part of a larger corpus of evidence that when compared with other single interviews, and primary and secondary sources of evidence, constructed an historical analysis of the history of intensive care nursing at VGH that would be understood in the larger context of social historical events. The strength of the taped oral interview once transcribed, is that it does not change with time and therefore is a more accurate account of the experience than any interpretation that is made from it. The chapter concludes with a listing of the biographies of the participants. They provide context for the analysis and discussion of their experiences in intensive care that follows in the subsequent chapters. Chapter two will subsequently start with the analysis of the historical development of the ICU at VGH.

**Participant Biographies in Chronological Order According to Graduation Date**

Pat Hare (Jones) graduated from a hospital based School of Nursing in Brockville Ontario in 1959. She had six years of PAR experience in Kingston Ontario where the first heart surgeries were performed. When there were no patients in the PAR, she was sent (floated) to the Pediatric Nursery where she didn’t feel very comfortable because she had little experience with nursing
babies. She then worked on the Intravenous Team (IV team) and worked in the maternity ward. She moved to Winnipeg and worked in psychiatric nursing before coming to Vancouver to nurse in surgery at the Department of Veteran’s Affairs hospital. In 1965, she applied for a position at VGH and started working in the PAR the next day. She transferred the first patient to the ICU in 1967. Hare left the ICU in 1973 to pursue community health and become the head nurse at student health at UBC. She became a clinical instructor at VGH teaching Licensed Practical Nurses before her retirement in the 1980s.

Mike Turner was the first director of the ICU at VGH. He obtained a degree in medicine from Cambridge, England in 1959. Turner was drafted to the British Army in 1959 and sent to Malaysia for two years during the guerilla war where he said he drifted into anesthesia. He returned to England where he learned to treat patients suffering from tetanus by paralyzing and sedating them with curare. These patients breathed on ventilators for long periods until they recovered. He did a residency in anesthesiology at VGH in 1965 and was appointed the first director of the ICU. He was the director of the ICU until his resignation in 1976. Turner summed up his term as the director of the ICU saying he metaphorically “moved from the bottom of medicine to the top of medicine” as ICU medicine developed. Turner worked as an anesthetist in the VGH PAR until he retired in the 1980s.

Daphne Francis began her nursing education at UBC, but transferred to VGH, graduating in 1963. She worked in pediatrics but moved to New York City’s Columbia Presbyterian Hospital to take a post-graduate intensive care course. She expanded her nursing knowledge and skill as she rotated through all of the ICU’s, and finally worked full time in the open-heart recovery room for over two years at the Columbian Presbyterian Hospital. She returned to VGH, and worked in the ‘back’ of the PAR with post-operative cardiac surgical patients. Francis retired
from PAR in 1966 to start her family, and tried to return to work following the birth of her children only to learn there were no part-time nursing positions at VGH.

Glenn Manning graduated from medicine in 1964 and became a country doctor in Williams Lake BC before pursuing a residency in anesthesia at VGH in 1968 under the supervision of Mike Turner. After his residency he worked as an anesthetist and as the ICU director for approximately six weeks a year until he was asked to move to the new cardiac surgical ICU (CSICU) service at VGH in 1981 where he continued to work until his retirement.

Bonnie Leal graduated from the VGH School of Nursing in 1971 and nursed in pediatrics and obstetrics but then wanted some general nursing experience. She worked on the general surgical floor, where she learned to nurse orthopedic and neck surgery patients. After her tenure there as assistant head nurse in 1976, she turned towards intensive care nursing and was hired immediately to the ICU. Leal continues to act as assistant head nurse in the ICU at VGH.

Colleen Varcoe entered nursing education in 1970 at the Royal Columbian Hospital in New Westminster. Upon graduation, she nursed at Peace Arch hospital in White Rock BC, in pediatrics and maternity and often floated to the medical and surgical ward. She became interested in intensive care and joined the CCU at VGH around 1974. In 1975, Varcoe became a CSICU staff nurse for ten years. She also took on some casual shifts in the VGH ICU. In 1979, she became the CSICU nurse educator at VGH. She left the bedside in 1986 and became the Program Head of critical care nursing at British Columbia Institute of Technology (BCIT) until 1997 when she earned a doctorate in Nursing in 1997, and works as an Associate Professor of Nursing at the School of Nursing at UBC.

Vera Gibault graduated from the Vancouver General Hospital School of Nursing in 1973. She enjoyed the operating room scrub nurse position as a student nurse, but felt she needed more interaction with the patients. Immediately after graduation, she took at position in the ICU
at VGH, even though she did not have any RN experience. Gibault worked as a staff nurse until 1975, when she moved to Kelowna where she worked in the PAR at the Kelowna General Hospital, and eventually left the hospital to work in the community.

Liz Akeroyd graduated from St. Michael’s Hospital School of Nursing in Ontario in 1974. She came to Vancouver on a holiday and never returned home. She worked in the burn unit at VGH for two and a half years. After a holiday, she decided she should apply to the ICU because she was young and knew that her former mentor who had become the head nurse in the ICU would hire her. Akeroyd worked in the ICU until she became a critical care supervisor. In the 1990s, she took a position as a nurse in the PAR of a private hospital in Vancouver.

Susan Dearlove (Archibald) took her nursing education at the VGH School of Nursing and graduated in 1976. Her first nursing position was on the orthopedic ward for a year which she considered an excellent job because of the acuity of the patient population. She moved to Trail, BC and worked on a surgical ward but was immediately attracted to the new seven-bed ICU because the working hours were better. She stayed for more than a year, but returned to Vancouver to take a position in the ICU at VGH in 1980 until 1984 when she moved to England.

Darcy Carnegie graduated from the VGH School of Nursing and initially worked in the burn unit around 1978. Her experience as a burn nurse led her into ICU nursing. She became the assistant head nurse of the ICU in the early 1980s, and was one of the first nurses to obtain a critical care nursing certificate. Carnegie then moved to the CCU at VGH where she continues to provide bedside nursing care to cardiac patients.

Patti Zettel graduated with a diploma in nursing from George Brown Community College in Toronto in 1979. She worked as a nurse in extended care at Sunnybook Hospital since there were very few positions for nurses at that time due to budget cuts in health care. She was afraid that she might lose her skills working in extended care so she applied to Women’s College
Hospital about 1981, and was hired, and mentored by the ICU nursing manager. Zettel worked for five years before becoming a relief nurse in the critical care areas of the downtown Toronto hospitals. She moved to Vancouver about 1986 and took a position in “Hearts,” the CSICU at VGH, which became her nursing base, but she eventually expanded her skill set again, working in the VGH ICU as a float nurse, until 2000 when she pursued nursing work in the community.

Suzie Logie graduated with a diploma in nursing from Langara College in 1979 and took her first position in neurology (brain) and neurosurgery. She worked there for three years, then moved to Winnipeg and enrolled in the critical care program and internship at the Health Science Centre in 1983. She graduated, interned for a year, and was hired at the VGH ICU in 1984. She worked as a staff nurse in the ICU until 2008, when she became a research nurse in the ICU at VGH.
Chapter 2-The Intensive Care Unit at Vancouver General Hospital: The Meaning of Place and Space

“My people will abide in a peaceful habitation, in secure dwellings, and in quiet resting places.” (Isaiah 32:18)

Introduction

Today, nurses, doctors and the general public commonly believe that intensive care units were established in response to the technological explosion of medical science in the late 1950s and early ‘60s, and that intensive care nursing was developed because nurses were needed to operate this new technology on behalf of doctors. It is also believed that nurses were given specialized training to integrate the new sophisticated medical technology into their caring practices. However, new historical analyses contradict these popular notions. Nurse historians Julie Fairman and Joan Lynaugh found that designated intensive care units had very few new biomedical technologies to treat the critically ill. Sophisticated biomedical monitoring and diagnostic equipment and drugs to treat patients were introduced over time. More importantly, intensive care nursing had its own tradition separate from technology. The tradition was recognized by the hospital administration, and ICU nurses were given space to direct the development of a specialty nursing practice. The story of the creation of the ICU at VGH is consistent with Fairman and Lynaugh’s findings in that the ICU and intensive care nursing were constructed from the ground up in a grassroots process.

Theoretical Perspectives in Medical Geography

In the sixties, new physical spaces like intensive care units were often created or re-modeled from existing hospital wards, based upon decisions made by administrators and physicians. However, the planning and implementation of new nursing ideas about the nature of
their work in these spaces was not necessarily the focus. Yet, nurses who were attracted to these new places to work became actively involved in making the space usable for the patient care they administered. The construction of new hospital places and spaces coincided with new nursing ideas. Making the space ‘work’ entailed creating new cultural meanings for the space which in turn shaped the care of the critically ill. Analyzing the construction of new spaces by employing concepts central to health geography forms the backdrop for the analysis of the meaning of place and space nurses ascribed to new hospital settings like the VGH ICU. Wilbert Gesler, who has been described as a humanist by some health geographers, provides a theory about ‘place’ and ‘space’ of healthcare that is particularly useful as a theoretical framework for the findings of this study. Gesler defines place as a concrete or physical location where people come and go. Similarly, places provide identity, "and satisfy a human's needs for roots.” Gesler argues that in health care, places matters to people because people form their identities based upon structural forces like the role of private and public health care provision, impact of legislative acts, how different cultures have managed in the past, how policies are made, and subsequently determines the organization's power at the bargaining table. At the VGH, three such places were designed to house intensive care patients. Most of the participants worked in at least two of these places, and spoke about their experiences in them being important to their professional development.

"Boundary” is another important concept when Gesler refers to a place because it describes how power is distributed between the people who occupy the place. People can create boundaries as strategy to control the space such that only certain people can be in the space, hold certain qualifications, or communicate (language) with others. The first intensive care nurses who worked in the ICU at VGH did not determine its physical location, but while working there, they created for themselves, a place 'to be from' that was different from the wards.
The remote location of the ICU in the basement of the Heather Pavilion at the end of a tunnel created certain boundaries around the nurses, such that other nurses had no reason to enter the ICU, giving the ICU nurses control over how they conducted their nursing practices. The also employed a gate-keeping strategy to keep lesser experienced, or less knowledgeable nurses out, until such time as they could prove their value to experienced ICU nurses. Thus, the physical location, as well as the boundaries put around a place, creates a kind of personality that insiders and outsiders alike can sense and act accordingly.100

Space, on the other hand, Gesler describes, is an abstract idea about a place. Space is where people imagine shapes, powers and feelings even if they are not necessarily physically in that space. Space is studied for its “quantifiable attributes and patterns.”101 Gesler calls the creation of such a space a ‘therapeutic landscape’ in which the combination of the physical geographic features are transformed by human activities to make meaning for what goes on in that place.102 The notion of a ‘landscape’ has recently been associated with the notion of "human landscapes," whereby people find ways to interpreting the symbols within the landscape to make meaning for their circumstances and often determines the meaning of the space. For instance, putting the nurses’ desks at the end of the patient’s beds was symbolic of their role as vigilant observers, and the introduction of new biomedical equipment symbolized cutting-edge scientific exploration on one hand, but also a stark recognition of the patient’s impending death. Since the actual space occupied by the ICU at VGH was so limited, nurses and physicians shared it with one another in new ways, creating new boundaries for unique relationships between nurses and doctor’s to develop both professionally and socially. An examination of the evidence provided by the oral histories of nurses and physicians who worked at VGH prior to 1967 until 1982, when the ICU was relocated to its permanent home, illustrates how the ICU physical location was determined, as well as the kind of culture that nurses created in the spaces the ICU occupied.
Focus of The Chapter

In this chapter, I outline the history that led to the construction and design of the adult medical and surgical ICU at VGH, the first of its kind in a teaching hospital in British Columbia. I argue that prior to 1967, intensive care nursing was a nurse-initiated practice on the wards in the absence of centralized nursing leadership. Nurses did not possess standardized education and skill in caring for the critically ill. When the ICU was established at VGH in 1967, there was very little physical space, nursing knowledge, or technology to guide the care and management of a new kind of critically ill patient with complex needs. The nurses who worked in the first adult ICU at VGH pioneered specialized knowledge and developed nursing skills to care for this patient population, many of whom were so ill that they were in the process of dying. There was no other therapy left to offer them except intensive care nursing.

This chapter will address the effect of the creation of a designated ICU within a hospital on nursing practice. Specifically, I analyze how the first ICU nurses at VGH created a particular culture, or therapeutic landscape from scratch, that combined the physical and geographical features of the hospital layout, established nursing techniques, and emerging medical knowledge. As the means by which nurses cared for this new kind of physiologically complex patient evolved in this therapeutic landscape, these nurses developed a professional identity that reflected a particular meaning and purpose: which was to continually nurse and observe one patient, and to immediately treat the patient when they became physiologically unstable for the duration of their critical illness. In the process, they distinguished themselves from other kinds of nurses and healthcare professionals. Following the analysis of this first location, I analyze how subsequently at two points in time, new space was designated for the ICU, eventually leading to a purposefully, newly built ICU in 1985.
Finally, this chapter will demonstrate that the designation of physical locations and spaces in hospital structures played an important part in the development of hospital culture as a whole. Specifically, the creation of an ICU at VGH determined the purpose of the work done in that space, and how that work was structured and enacted over time, noting how its function was used by other hospital services from outside of the ICU.

The chapter is organized according to the historical time line of the three phases of the ICU that evolved as three subsequent units, in different places in the hospital. The first unit opened in 1967, creating the foundation for intensive care nursing and culture at VGH. The second ICU, replacing the first, opened in 1983 at the back of the Centennial Pavilion emergency room (ER) and was the site where the expansion of nursing knowledge and introduction of medical technology really began. It was an interim unit until a third, and final, ICU was built in 1985. The final unit was characterized by a purpose-built physical space. It was intentionally designed for professional intensive care nurses who possessed their own body of knowledge to provide formalized intensive care. The chapter will describe the physical layout of the units. The changes that occurred in them will be discussed in order to comment on advancements in nursing practice that provided better care to the burgeoning ICU patient population. Finally, an analysis of the meaning that nurses who worked in the ICU ascribed to this particular place and space will be provided.

**Historical Background**

In the 1960s, VGH was the main treatment referral centre for British Columbians and it was the main teaching hospital for the University of British Columbia (UBC). Aiming to maintain this status, in June of 1964, VGH’s administration presented a proposal to the City, Provincial and Federal governments for a construction project which included building an ICU.
The need for an ICU had been expressed, and perhaps also conceptualized by Helen King, the Director of Nursing, in March of 1964:

The other area that gives us great concern is the post-anesthetic room in Heather Pavilion. This area is grossly overloaded because patients remain when their condition is such that they need intensive care and the equipment available for that care...we need more space, but where?\textsuperscript{108}

The lack of space was only one of the problems facing VGH in the 1960s. Not only was there a nursing shortage, but the 1600 beds the hospital provided to serve the population within Vancouver’s city limits were inadequate, because of the city’s substantial population growth since WWII. In the early 1960s, VGH was also experiencing financial trouble.\textsuperscript{109} The polio epidemic of the 1960s in Vancouver meant that many nurses were employed to provide 24-hour care to incapacitated patients, and also further financially strained the hospital’s coffers.\textsuperscript{110} Finally, the hospital realized that many of its buildings were now obsolete\textsuperscript{111} due to inadequate space and equipment, forcing its directors to appeal for funding to the Provincial Government and the City of Vancouver (as well as the Federal Government) in 1964. However, before any funding could be allocated to the hospital, the Provincial Minister of Health, Eric Martin, requested that a study be conducted to identify its needs and assess the cost of upgrading its facilities in order to improve services.\textsuperscript{112}

The consulting firm hired by the hospital, Agnew, Peckham and Associates produced a 355-page report outlining a master plan, which was presented to the Minister in early March of 1966.\textsuperscript{113} The report stated that VGH could no longer afford to be a ‘general’ hospital serving the needs of the whole community. The consultants recommended that VGH develop its diagnostic and treatment capabilities to provide “progressive patient care,” a new system of grouping patients on nursing wards according to their medical diagnosis and ranking them by the severity of their illnesses.\textsuperscript{114} According to this model, patients ranked as critically ill would receive intensive nursing care, which was defined as care “for those patients who are acutely ill and
require constant nursing and ready access to the best in bedside equipment.” Patients requiring intensive care were further categorized as “post-operative, surgical… crushed chest, acute cardiac, and comatose or other medical emergencies” (no infectious cases or patients with incurable diseases would be admitted to intensive care since they were already housed elsewhere in the hospital). If the severity of the patient’s condition worsened, they might be transferred to another nursing ward to receive the appropriate level of care.

The report concluded that VGH would benefit from a designated ward called Intensive Care, where critically ill patients could be nursed on a twenty-four hour basis in isolated or private rooms. The creation of an ICU fit into the hospital’s master plan to develop and support the now expanding medical specialties and subspecialties. According to the plan, specialized medicine would enhance the hospital’s reputation as a health care centre of excellence, increase the value “of the Hospital for undergraduate medical and other teaching,” and improve its research program. As such, it would generate much needed revenue for VGH. The report also suggested that if the patient wards in the different hospital buildings of the hospital (spread over two city blocks) could be consolidated, “more skilled nurses would result” and more efficient organization and use of equipment would save money. Although VGH proceeded to make plans to improve its reputation and generate money, there were barriers to implementing these plans, including internal resistance to the creation of an ICU.

VGH: Medical Politics of a New ICU

In February of 1966, the City of Vancouver approved $148,000 for the provision of the ICU and medical equipment. The Province of BC responded to the report by approving up to $157,000 from provincial grants to construct an eleven-bed ICU in March of 1966. By the time this plan emerged, VGH had already established a cardiac intensive care unit within the existing space of the post-anesthetic room (PAR) where patient requiring one to one nursing
recovered. According to some doctors, the very existence of this unit made the idea of an ICU redundant. Others disagreed. The effect of the disagreement was that the doctors resisted plans for constructing a general ICU that was distinct from coronary care. Even though the Hospital Board may have endorsed the creation of a general ICU, *The Vancouver Sun* newspaper published two full-page articles by medical reporter Arnie Myers, revealing philosophical disagreements about such a plan between physicians. In the 1960s, patients were cared for by their specialists according to the type of illness a patient exhibited. On the one hand, this was convenient for the specialist since all of their patients were housed on one ward. On the other hand, this approach may have limited the kind care and treatment the patient received from the nurses. For example, a patient who had suffered from heart disease complicated by kidney failure may not have received adequate nursing care from a nurse who perhaps had experience caring for a patient in heart failure, but did not know how to medically manage a patient with kidney failure. An ICU design allowed nurses to observe those various complex symptoms exhibited by the patient in an integrated fashion. Some doctors nonetheless believed it was best to maintain the existing specialist-oriented system, while others advocated for a progressive care model and believed it would be highly beneficial. Among them was Dr. Peter Lehman, a VGH staff neurosurgeon who publicly complained that “The hospital was woefully negligent,” stating that he had patients “who [had] to wait until their welfare [was] in jeopardy because of the lack of beds” and specialized nursing care.  

Articles written about the development of ICUs during this era suggested that internal politics and turf wars between doctors fed the debate about models of care. Following the publication of the first *The Vancouver Sun* article, Myers interviewed physician L.E. Ranta, the associate medical director of the VGH medical board. Ranta claimed that prior to the report, VGH had never “seriously entertained [the development of an ICU] because it was felt… that a
diversified program of intensive care was the best kind of program for this hospital.”¹²⁴ The medical board, who represented medical staff, conducted a study of intensive care and decided to “develop their intensive-care services within the PAR.”¹²⁵ Ranta was referring to a cardiac intensive care unit which had been established seven years earlier in 1960, in the PAR. PAR nurses like Daphne Francis and Pat Hare nursed a range of post-operative patients, but when open heart surgery patients came through the operating room doors into the PAR, the patient was cared for by one nurse, twenty-four hours a day, as long as they stayed in the PAR.¹²⁶ There were four beds at the ‘back’ of the PAR to accommodate these very ill patients in recovery. They were managed by the anesthetists from the operating rooms, and cared for by vigilant PAR nurses like Daphne Francis and Pat Hare.

Challenges faced by the PAR nurses had been acknowledged as early as April of 1962, when Helen King, the director of nursing, submitted a memo to the Board of Trustees at the annual meeting. In this memo, she stated that she represented seven PAR nurses who were “highly trained in resuscitative measures and emergency situations” [and that the PAR was] “to all intents and purposes an Intensive Care Unit. The PAR had a tense atmosphere all the time”¹²⁷ and the nursing care it required was even more labour intensive than caring for a patient in recovery from a general anesthetic. By 1966, there was just not enough staff, or room, to house all of the critically ill in the PAR. Although this space was generally used effectively, when operated at maximum capacity it became crowded, noisy and offered very little privacy to the patients. There were a minimum number of six registered nurses in the PAR at all times, especially when postoperative cardiac patients came to the PAR. Sometimes nurses were unable to receive any new post-op patients and surgeries had to be cancelled because they were caring for the cardiac patients. It became evident to medical staff and the PAR nurses that the ‘back’ of
the PAR was becoming a less and less suitable place to manage the growing number of complex post-operative and medical patients.\textsuperscript{128}

Mike Turner, the first director of the ICU stated in his oral interview with this researcher, that conditions in the back of the PAR were dire. He indicated that Ranta, who almost single-handedly directed the hospital’s administration, had resisted the plan for an ICU, which he believed delayed the construction of a designated ICU at VGH.\textsuperscript{129} Turner admitted that Ranta’s resistance may have been a result of a lack of knowledge of the meaning of intensive care saying, long-term mechanical ventilation of acutely ill patients “was a new concept and…according to Turner, the Hospital Administration (i.e. Ranta) believed the hospital had achieved modern standards when it completed building the Centennial Pavilion in 1959 since it had a new cardiac catheterization lab and a new state-of-the-art-emergency room that was much larger than the previous one, and much more useful to physicians who saw the increased medical benefits for patients in such a new facility.\textsuperscript{130}

In the same \textit{The Vancouver Sun} interview, the reporter, Myers, had his own notions of why VGH did not have a plan for a general ICU at VGH. Myers questioned Ranta asking him why VGH was not developing an intensive-care unit in a designated area, when other hospitals were. Myers claimed there was evidence that the combination of intensive nursing care and physiological monitoring devices increased the number of lives saved. To add to the controversy, Myers recalled that VGH had been offered the sum of $150,000 by a local businessman to finance an intensive-care unit.\textsuperscript{131} The offer was later withdrawn because of “the endless debate that went on about it…”\textsuperscript{132} Myers suggested to Ranta that the benefactor had withdrawn the offer because the hospital medical board’s inability to decide how to spend the money. In his, editorial comments he suggested that the hospital feared a reprisal for accepting private donations, which might cause the Provincial Government to reduce its grant monies to the
hospital. In other words, Myers thought the hospital put financial concerns before actual patient care, and this decision delayed the development of the ICU. In the hospital’s defense, Ranta stated he was unaware of that decision, and admitted that VGH was in fact in the process of planning such a unit. According to Turner doctors such as Kerr, a professor of medicine at the University of British Columbia, who eventually appealed to the hospital Board of Directors to construct the ICU, expedited the delay in VGH’s plan to start construction of the ICU. Turner stated Kerr “disillusioned the [hospital administration] by simply stating, “We don’t have an ICU and we need an ICU.” The notion of the ICU at VGH was finally accepted after hearing the voices of the physicians who saw the importance of a general ICU, and the planning began.

**Planning the Intensive Care Unit**

An intensive care committee was established to plan and implement the ICU at VGH about 1965, or early in 1966. The late Clara Lim, a graduate nurse (Registered Nurse) and the supervisor of the Private Patient Pavilion at VGH in the 1950s and 1960s, in an oral interview taped by the BC Nursing History of Nursing Group of the then Registered Nurses Association of British Columbia (RNABC) in 1987, suggested one of the reasons VGH wanted an ICU was to get Hospital Accreditation. Lim, who was charged with planning the ICU, alleged that the ICU planning process was not well organized and the problems “fell on [her] shoulders.” She was “left to do [the planning] with doctors,” choosing “ones who were interested in cardiology, respiratory, and life saving measures.” Lim also said that VGH sent her to see the ICUs in some USA hospitals all considered “to be way ahead of VGH.” She did not elaborate further about her leadership role in planning the ICU in her oral interview.

The planning stages for the ICU lasted about two years, and the unit finally opened in October 1967 in the basement of the Heather Pavilion, directly adjacent to the morgue and directly under the cardiac surgical ICU. Archival evidence suggested the Intensive Care
Committee believed there was simply no other physical space available in the hospital for an ICU.\textsuperscript{138} The choice of location perhaps reflected the experimental nature of intensive care medicine and a lack of knowledge about critical care medicine on the part of hospital administrators and the medical staff.

\textit{Management of Patient Care in the ICU: Teamwork}

Attempts to locate additional documents that explained the reasons why some of VGH’s medical doctors initially resisted the creation of a designated ICU have not been successful. However, it is clear that the question of who would oversee the care of complex critically ill patients was a key issue that may have delayed the construction of the ICU. Turner admitted that when the ICU opened its doors in 1967, the politics around who would be the most responsible physician was “difficult.”\textsuperscript{139} He elaborated:

[Physicians] played it by ear. The doctors who were capable of looking after their patients called all the shots but I tried to make it so that they gave their orders for the patients through the ICU residents…we tried not to let too many people write orders because that sort of confusion [was] very bad for medical care so if a nephrologists came in and said ‘I’m going to put this patient on dialysis because his kidney’s aren’t working,’ then of course that’s entirely his call. And we sort of a, filled in the gaps in care. Mainly because we were responsible for ventilated care because there was no one else…\textsuperscript{140}

As physicians and surgeons traditionally had a one-to one relationship with their patients, they were naturally concerned about who would oversee the care of complex critically ill patients in the ICU that might require involvement of several doctors.\textsuperscript{141} It is important to note that after the Second World War,, when the field of medicine started to organize into its respective specialties such as cardiology or general surgery, it became difficult for specialists to see the body as a whole system whose parts worked in tandem. For instance, it was not common practice for a neurosurgeon, an expert in the function of the brain, to make medical decisions about a diseased kidney. Consequently, when multiple organs were affected in a case of critical illness, it was difficult for various specialists to agree upon the correct treatment plans for the patients – let
alone determine how to bill for their services, or in which ward to house the patient. In the case
of the critically ill patient, multi-organ failure such as kidney failure, and pneumonia from a
blood-born infection, were often a cause of the critical illness, and a reason for a patient’s
admission to ICU. Then, several independent specialists became involved in treating the
patient at the same time.

The notion of sharing the medical management of critically ill patient, created logistical
problems for nurses at the beginning of the intensive care system. The nurse needed to know
whom to call when the patient needed a doctor: the primary physician, or the specialists who
were involved in the patient’s care. In some situations, it was necessary for the doctor to be
physically present when the patient’s condition became unstable, but surgeons spent long hours
in the operating room (OR) and could not leave the OR to care for such patients, especially when
a doctor was needed at the bedside several times during an hour. Internists spent a lot of time in
the ICU caring for patients, but they did not possess the necessary skills to perform many of the
invasive treatments critical care patients needed, such as the insertion of breathing tubes or
venous access lines. Moreover, most of the doctors (other than anesthetists) did not
understand enough about mechanical ventilation to write orders that nurses could carry out. In
these situations, the bedside nurse often acted as the patient’s advocate by informing one
specialist of another specialist’s plan of care.

Since there were so many doctors involved in the care of the critically ill patient, the
bedside nurse needed a comprehensive understanding of the patient’s history and disease process
in order to report the signs and symptoms of the disease, as well as report relevant data that
described the patient’s physiological status, to the appropriate physician. The bedside nurses at
the VGH ICU quickly learned the pharmacology of the drugs used in intensive care medicine,
and they noted the side effects, because one doctor would sometimes prescribe drugs that were
incompatible with the drugs described by another. Similarly, the nurse had to watch for, and report, signs and symptoms of drug incompatibilities to the appropriate doctor. For these nurses, managing the patient’s doctors became an acquired skill.

At VGH, the boundaries between various doctors and nurses as to who cared for patients became quite flexible when the ICU actually opened its doors in 1967. Turner, described it as an “open unit,” meaning that the care of the patient was the primary responsibility of the patient’s own physician, who collaborated with the intensive care director, medical residents and bedside nurses, although the communication at the bedside was rather informal. At times, Turner recalled ten or more “white coats all standing around the bed [and two nurses], discussing the patient.”

The bedside nurse and assistant head nurse listen to the discussion, and if necessary added pertinent data. Dearlove remembered that doctors actually discussed the patient with the bedside nurses, and listened to their reports to find out the condition of their patient when they had been absent for a period of time: “The ICU doctors and the neurosurgeons did that and the surgeons. …[I’d] give the reports…after a period of time [I] knew what things…there was certain questions [certain doctors were] always going to ask and so [I] knew what things he was concerned about so [I] could give quite a thorough report.”

**Working Relationship between Nurses and Doctors: New Professional Boundaries**

On some occasions the nurses did have difficulty with the primary physician’s orders, either because the resident in charge of the patient did not have the experience to manage the patient and the nurses feared that the patient was in distress, or because a doctor wrote what the nurse believed were inappropriate orders. One participant remembered a particularly difficult interaction with a surgeon in the cardiac surgical ICU (CSICU). On this particular occasion the surgeons had returned to the unit late in the evening and written orders…that the nurse believed to be “stupid.” She recalled “they…. ordered some potassium [for a patient] and I…said ‘I don’t
think you really mean that because look at the potassium level.’ I just kept mediating between their bad behaviour…and I modified their bad behaviour according to what was [the] reasonable sensible thing to do…” While this nurse was able to mediate this situation on her own, generally, nurses turned to the assistant head nurse (AHN) for advice concerning doctor’s orders for patient care. The AHN often took it upon herself to mediate the situation when it seemed a nurse could easily remedy it—especially at night. For example, in the case of a patient with a worsening chest infection breathing on a ventilator, she increased the oxygen on the ventilator in response to a blood gas result, and then called the doctor about it in the morning. If the patient was in real distress, all the bedside nurses interviewed said they felt free to independently go to the ICU director to remedy a problem since he was in the ICU during the daytime. If a patient was in trouble during the night, or a patient’s own physician wrote orders that conflicted with the ICU plan of care, the nurses simply phoned the ICU director (who was the medical doctor in charge of the ICU). The director would in turn, speak to the patient’s specialists physician to remedy the problem, and on some occasions, the director would return to the hospital during the night to oversee the patient’s care.

Most of the participants agreed that physicians respected bedside nurses’ judgments and decisions. If the nurse called the doctor, it was for serious reasons and the doctor knew the patient needed their expertise. All of the nurses believed they had a unique, collegial, and almost familial kind of relationship with the ICU director that broke down the traditional boundaries of professional doctor/nurse relationships typical of the era. They attributed this uniquely professional working relationship to a number of factors: there was only one director; all the nurses worked there full-time, everybody knew everyone else’s strengths and weaknesses, the nursing staff were mentored by other ICU nurses so they more or less, possessed much the same skill set, and everyone worked in very close quarters with the patients twenty-four hours a day.
In one instance, Dearlove remembered Ron Evelyn, the second ICU director, reprimanding the nurses in the morning for not calling him during the previous night, saying: “you girls knew better than this.”\textsuperscript{153} Dearlove reluctantly admitted to the interviewer that Evelyn was right, “he knew we knew…more than…I don’t mean we didn’t know maybe more than the junior doctors but we sure knew when the doctor was getting out of his…depth and there was more going on than he could handle.”\textsuperscript{154}

The tight quarters in which doctors and nurses worked at the VGH ICU illustrated the similarities in knowledge and skill shared by nurses and the resident doctors who rotated through the ICU during their training in the 1960s and 1970s, further solidifying the special relationship ICU nurses developed with physicians.
Figure 2.1 The high pressure environment of the intensive care unit, circa 1969.

The Physical Layout of the VGH ICU, 1967

The space used to create the ICU was actually an extension of the hospital’s underground tunnel system. It was officially called “A-2” in the Heather Pavilion. Most of the nurses who participated in this oral history project worked in this unit. They shared very similar and vivid recollections of the first ICU and some participants supplied photographs from their personal collections that illustrated the physical layout. The participants remembered that the physical layout of the ICU was very small. It had a very low ceiling and windows that were at ground level. The only source of natural light was a back door that opened out to a courtyard facing Heather Street. Two doors separated the ICU from the hallway and the nursing station, located at the entrance to the unit, was very small. It comprised of a desk, a telephone, and small room off to the side where supplies were kept. There was only one hand-washing sink, stationed in the middle of the room. The unit had space for 11 beds in total: one single room for isolation of burns, infectious diseases and later kidney transplant patients; two beds in another room; and eight beds lined up in a third room (four on either side of the room). A space was especially created for a ventilator on the side of the bed, near the patient’s head, and a shelf at the head of the bed was designed to hold a heart monitor. Shelves were also built into the head of the bed space to store supplies, and a cart containing supplies such as dressing gauze, suction and IV tubings was placed at the side of the stretcher for the nurses’ convenience. Oxygen and wall suction were fitted into the wall at the head of each bedside, which was a revolutionary arrangement in the 1960s. On the wall behind the head of the bed, there were at least two electrical outlets for the ventilator, monitoring equipment, or a small light. In addition, IV poles hung from the ceiling over the stretchers, ready for IV fluids to be attached to patients, and blood pressure manometers were attached at the head of the bed. Finally, a curtain hanging from the ceiling to two feet above the floor separated each bedside when pulled around the bed. The bed
space was very cramped and only had space for a gurney bed.

![Image of a nursing station in the first ICU, 1967-1983.](image)

*Figure 2.2. Nursing station in the first ICU, 1967-1983.*


When Turner first saw the physical location of the ICU, he said it was “pitiful.”¹⁵⁶ There was a Bird ventilator for each bedside, but just one heart monitor for the entire 11 beds. The heart monitor was simply an oscilloscope in a box with a 5-inch screen, large enough to see the heart’s electrocardiogram.¹⁵⁷ Turner regarded one heart monitor per patient as a basic requirement for the ICU, and he pleaded with the administration to supply them, but his request was denied.¹⁵⁸ Hare recalled that shortly after the unit opened, the family of a child who had
nearly drowned, and became severely brain damaged as a result, donated enough money to put a monitor at each bedside.\textsuperscript{159}

Turner believed that human observation was the best patient monitor.\textsuperscript{160} Therefore, he thought the nurses who were really the only ‘monitor’ in the 1960s, should observe the patient as close to the patient’s bed as possible. Just like an anesthetist sat beside the patient’s head to observe their breathing on a ventilator, while they were paralyzed and sedated with drugs, she could quickly intervene if the patient turned blue, the breathing tube became dislodged, or the ventilator malfunctioned (which sometimes happened). The example of the anesthetist as a guiding model for nursing care is a significant indicator as to how the role of the nurse in ICU was shaped since the ICU nurse’s responsibilities extended beyond that of the general bedside nurse on the wards, and was similar to an anesthetist, and included the observational duties like frequent blood pressure measurements, counting respirations, and drawing of blood samples. This development, in turn, elevated the ICU nurse’s status within the general ward nursing hierarchy.

One problem with the organization that the ICU nurses routinely dealt with was a lack of space at the head of the bed. Thus, the nurses were given small desks at the foot of each bed, which were actually patient over-the-bed tables, and sat at their desk to record their observations of the patient’s heart rate, blood pressure after having manually measured the blood pressure every fifteen minutes, breathing status and urine output. The foot of the patient’s bed was as a space where nurses could discuss patient progress, exchange information, and consult with the many doctors who were involved in the patient’s care. In fact, the bedside table that was designed to be the nurse’s domain was shared with other nurses, and the physicians. One participant recalled the ICU nurses did not rise, or give up their seats as the physicians came over to their desks, as they had been previously instructed to do on the general nursing wards.\textsuperscript{161}
nurse’s desk essentially became the nurse’s classroom, the place where nurses educated each other.

According to Turner, the ICU location turned out to be “strategic.” The advantage of housing this new unit in a separate space apart from the rest of the hospital was that the ICU was the only place in the whole hospital that could be reached by one and the same elevator from the ER, the Centennial Pavilion, and the OR’s in the Heather Pavilion. This location reduced the amount of time it took nurses to transfer unstable patients from one unit to another. Turner also saw the hospital laboratory being located right next-door to the ICU as an advantage. Blood specimens collected from patients for analysis could be quickly transported to the lab, and a hospital courier could expedite the results back to the ICU once they had been printed.

Nurses Impressions of the Place and Space

Funding for the ICU appeared to remain a low priority for the hospital administration, and it may not have considered that the physical location of the ICU bore any relationship to the kind of medicine and nursing practiced there. However, the nurses who were recruited to the ICU from the PAR became acutely aware of the symbolic relationship between the severity of their patient’s conditions, and the physical location of the ICU in the basement, across from the morgue as indicated from the interviews. The idea of intensive care was to nurse the most critically ill patients back to health, except that the patients were often dying and appeared to take a detour through the ICU on their way to the morgue. Hare, who claimed to have transferred the first patient from the PAR to the ICU on the day the unit opened, remembers very little about that day except that the space was so dark she did not know whether it was day or night. She stated it was kind of like working in the morgue itself and she felt that the absence of natural light was not good either for the patient’s health or her own. Nurse Akeroyd remembered there were no windows and that the nurses aptly named the unit the “dungeon” because it was so
“grotty.” The nurses were not the only ones who found it ironic to be working across from the morgue. Akeroyd remembered a patient’s family member being disgusted with the ICU’s location and commenting that this location made it harder for families who came to visit loved ones who were so ill they could, in fact, die at any time. Taking the elevator down to the basement, where signs led to the morgue in one direction and the ICU in the other, highlighted the possibility or inevitability of death, which could further distress already-distressed families. Bonnie Leal who began her career in the ICU in the 1970s after working in VGH’s 45-bed orthopedic ward, could not forget that the ICU was right next to the morgue when she was nursing patients there. She stated that: “esthetically, [personal relations]-wise, looking back on it, that probably wasn’t such a good way of doing things. I think it is quite realistic …it was advertised that ‘this is the Morgue, ok, but it was just right off the ICU.’” Leal believed the location of the ICU across from the morgue symbolically reflected the reality that in the first year of ICU at VGH, twenty five percent of the patients who were treated in the ICU died in the ICU, a statistic that actually stayed static until the late 1990s.

Patti Zettel, a float nurse who worked in the ICU in the early 1980s, had similar sentiments to those of Leal and Akeroyd:

I remember walking into the waiting room…to get my patient’s wife…and I remember my impressions of the waiting room. There were pipes running up the wall…they were cracking and there was big holes and asbestos beside this woman…and I remember how cold it was…and the impression of that room…what it must be like for these people to have to be sitting in there and how…. I would feel so hopeless.

**Drawbacks With The Space**

The small, dark space of the ICU also had a number of other drawbacks for nurses. First, the physical layout of the ICU proved to be physically challenging in terms of caring for patients. One nurse recalled that it was difficult to keep her hands clean between caring for different patients because there was only one hand-washing sink, located at the end of the ward. Nurses
were often stressed by the time it took to move to the sink and back to the bed. In addition, another nurse had to be available to watch the patient when the nurse left to wash her hands. There was a second sink in the toilet and bedpan washer room at the far end of the unit, but the distance took even more time away from the patient, and nurses involved in patient care preferred not to use it as they risked contamination from the toilet. In addition, there was limited space between the patient’s bedsides. Hare recalled that the nurses fought to take off their nursing caps which was a significant status symbol at VGH in the 1960s, which kept getting caught in the bedside curtains. Eventually nursing caps became an optional piece of the nursing uniform in the ICU. The ward lay out also made controlling the spread of infection difficult. Akeroyd stated that she could touch two patients at once when she stood between the beds. Being so close to one another, it was almost impossible for nurses to keep information about the patient’s condition confidential since the patients were only separated by a simple drape. Anybody in the unit could hear everything.

A further disadvantage was that the ICU was extremely noisy due to its low ceiling. Akeroyd believed the patients could not get much sleep due to the noise, and the fact that the ceiling lights were always on. Finally, the physical limitation of space made it very difficult to manage or store the equipment that was used for patient care. There was not enough room to house most of the necessary equipment, including patient lifting devices, dialysis machines and extra IV poles. The equipment was usually stored in the hallway outside the unit, thus obstructing the hallway space leading in and out of the ICU, and slowing down patient transportation in and out of the unit. Zettel remembered the ICU as a dirty and cramped space that was difficult to work in:

I remember it as cramped…having to walk big distances to get to sinks…. a sense of dirty, and I remember the chronicity…patients being there for a long, long time and really bad infections and really horrible secretions and I remember this smell of pseudomonas …it felt shoved, there was so much equipment, bed boards and spinal boards…and having to travel and
trying to get someone because you could not leave your patient…. the work being difficult because of the geography and how time-consuming everything was…

Advantages of the Space

The confined physical space also had some benefits. Most of the participants remembered that the space effectively facilitated the constant monitoring of patients. Dearlove noted that her nursing desk was situated at the foot of the bed. Her back almost touched the back of the nurse behind, on the opposite side and she could see and hear what was being discussed and happening at bedsides to her left and right, as well as the one behind her. Nurses’ close proximity to their colleagues, as well as their patients, gave the sense that they were never alone while caring for critically ill patients. Most of the participants noted that this closeness enhanced their ability to support each other, especially since they had very little formal in depth medical, or nursing education to rely on in caring for these patients. Leal stated: “it helped when you were first starting to have your own patient…that somebody was right there…I think you always felt there was someone to collaborate with, someone to maybe point out that this is the way to do it, someone to ask questions…”

The open ward design of the ICU was a critical factor in facilitating a therapeutic environment for the nurses as they learned how to care for a new kind of patient. Patients were extremely vulnerable and needed constant supervision because most of them were paralyzed and sedated unable to breathe on their own. The drugs, and some of the procedures were new to nurses as well as physicians, and nurses therefore relied on each other to maintain the patient’s safety and comfort while they were in such a vulnerable state. Further, although the types of technologies were simple by today’s standards, they were not always reliable indicators of patients’ actual conditions, since they had limited functions. Given that there were no alarms on the equipment such as the ventilator, it was paramount for nurses to be close enough to see and
hear their own patient breathe.\textsuperscript{175} Using these machines was precarious if they malfunctioned, or in the worst-case, became dislodged from the patient and caused the patient harm.\textsuperscript{176} Most of the participants believed that patient instability, and the precarious nature of the monitoring equipment made it important not to find oneself alone when caring for a critically ill patient. The open ward design made team work possible.

**The Significance of the new ICU Space: Expansion of Nursing Knowledge and Practice**

The close proximity of nurses to each other at the bedside also meant the nurses could easily access one another for information and knowledge. Dearlove explained that since the unit as a whole was so physically small, nurses were also able to listen to doctors’ plans for patients, access doctors’ knowledge, and observe and emulate the medical procedures performed at the bedside. What they learned was in turn shared and reinforced between nurses. Dearlove describes the experiential nature of this process:

You learned from the doctors sort of by watching and seeing what [the doctor did] and just experienced...sometimes...he was teaching the residents on rounds...you would learn things about your patient or see why things were happening...I don’t remember a lot of theory at all, but I remember just learning sort of so much and knowing what was going to happen because it had happened before or somebody’s potassium’s going to go down because you’ve given this or the potassium’s going to go up because you’ve given them so much blood or they’re going to get acidotic...things like that. It was just purely by experience and hands-on.\textsuperscript{177}

In the ICU, the nurses enjoyed a new space in which to learn the art and science of caring for critically ill patients. Even though it was impossible to change most of the physical boundaries of the unit, the boundaries around what nurses could learn were malleable given the fact that that this type of nursing had never been attempted, and the provincial regulating body the RNABC imposed few limits on nursing practice and nurses’ learning and experience. The development of intensive care nursing education is further discussed in the next chapter.
**Job Satisfaction**

Most of the nurse participants had an extremely positive view of the evolution of their professional culture in VGH’s first ICU. Despite the difficulties of working in a basement with little light, drab décor, and the physical space restrictions, almost all of the nurse participants acknowledged that the physical limitations of the space contributed significantly to this evolution. In fact, the participants believed that working in the ‘Tunnel’ was the most rewarding period of their professional careers because their work behind the unit’s closed doors allowed them to break new ground in the care of patients. Francis, who worked in the PAR but left shortly before the ICU opened, said of advanced nursing practice in the PAR, which she reflected was similar to ICU nursing, “the thing I loved the most was I was able to use my brain. You know what it’s like on a ward, you [usually] can’t do anything that isn’t ordered…The excitement of working quickly and being challenged…and not [having to] check with somebody all the time before you did something. That, to me, was the most wonderful part of the intensive care.”

Dearlove commented that she never again had the same job satisfaction that she had in working in the VGH ICU. She stated: it was “the most rewarding place I ever worked because…they did give you respect…the new residents came and they were scared…[they] and sat at the end of the bed with their doctors orders sheets and we would say ‘this is what you’ve got to write down…CMV…they need this drip…this is dopamine…this is how we do the order for that.”

Akeroyd enthusiastically explained in her interview that when she went to work in the ICU she was not concerned about the location. She was just excited that she had the job... and “wanted to look after people who were really sick.” She felt she knew her patient extremely well because she had access to the patient’s chart and time to read it.
Increased Status Among Nurses

The close quarters of the ICU and exchange of information between doctors and nurses working closely together changed the political and social dynamic between doctors and nurses. As nurses acquired new medical knowledge, they began to share important medical and nursing data with the medical specialists and ICU doctors, giving nurses a more equal footing, and more authority in determining patient care, even though they earned a mere $4.00/hour in 1971. Gaining respect from the physicians was extremely meaningful to the nurses who worked in the ICU. It meant that intensive care nurses were given some autonomy in their working life, and perhaps more importantly, were able to break down barriers and reduce the difference between physician and nursing knowledge. Engaging in frequent discussions with physicians further distinguished the ICU nurses from ward nurses, as on the wards doctors did not discuss the patient’s condition or plan of care with nurses. The ICU was thus a space set apart from the rest of the hospital campus where the traditional social and professional ordering of doctors and nurses with regard to the learning and practicing of medicine’s evolution was reconstituted, and enabled a unique culture to develop in the ICU.

The ICU directors shared the nurses’ impressions. Turner felt that the nurses “were the most essential part of the team and [stated that] they did all the natural things that needed to be done for those patients.” Manning concurred with Turner: “at the foot of the bed, there was a freefall. Oh…yes, the nurses knew everything. It was the old time head nurse…knowing all the patients on the ward and making the attending, you know fix whatever problem was.” Manning’s quote reinforced the nursing participants’ sense that they were performing extraordinary nursing care and skills they could not expect to learn as ward nurses. Moreover, Manning’s sentiments also reflect the high regard physicians held for the nurses who worked in the ICU.
The ICU Patient Population

As mentioned, those who worked in the ICU often (and fondly) called it the “Tunnel” or the “dungeon.” These terms encapsulated the darkness of unit’s location in the bowels of the hospital, where very tiny windows provided scant natural light. However, the darkness was also profoundly symbolic of the critically ill patients treated in the ICU, who were often on the verge of death, or fighting ‘for their life’ against the likely eventuality. When Turner stated, “there were no precedents [for ICU],”187 he meant there were no limitations as to who would be treated there and few, if any, limitations as to the extent of treatment. If a doctor believed that a patient might benefit from mechanical ventilation and constant nursing care, the patient came to the ICU. The ICU director rarely refused any patient, even if they only had a remote chance of benefiting from intensive nursing and medical care. In its first year alone, the ICU admitted 448 patients, including pre- and post-operative surgical patients, patients suffering from chronic disease, and one kidney transplant recipient. A few children were admitted to the ICU, one with diphtheria and several others suffering from some kind of trauma, and there were some 100 cases of drug-overdose.188 Of those 448 patients, 100 died,189 a mortality rate nearly 25%.190 The nurses who participated in this study admitted that at times they preferred not to think about how gravely ill the patients were, or the lengths to which physicians would go to save the patient, in part because of the combination of the one–to–one nursing care, and the effect of mechanical ventilation that in some cases increased the lifespan of the critically ill patient.

The nurses were exposed to some horrific cases since every patient was given an extraordinary opportunity to life. The patients were given any available drug, medical therapy, or technological aid that might help to save their life. The nurses learned that working in the ICU meant, “we had to do everything that was humanly possible…we were incredibly vested in being able to know that absolutely everything that could be done was done…and just [had to] buy
Hare reflected occasions when she thought the nurses “…had more nerve than skill,” because they were called upon to do their utmost in untenable circumstances. That is, they were required to work far beyond their experience and training to supporting patients who were so sick, and had such complex conditions, that they would have died in any other hospital ward. Akeroyd explained that the VGH was a unique place that took extraordinary measures to try to save the lives of their patients it treated because VGH was a teaching hospital where the expectation to help were especially high.

Hare remembers caring for post-operative throat cancer patients who had had whole jaws replaced, causing most of the face to disappear. As a young nurse, she found it very difficult to provide emotional support to these patients while trying not to look at what was left of the patient’s face. Hare also found it trying to care for children, and recalled that at one point she could not go to work because she just could not handle another child dying. Dearlove recollected caring for a little girl who was flown in from Edmonton for treatment at VGH, because a small plane had landed off the runway near where she was playing and drove right into her, the propeller virtually sliced her in half. Dearlove also remembers washing (debriding) and dressing burn patients whose skin was almost totally burned off, as they continuously bled. Burn patients like this were often in the ICU for weeks before dying. Akeroyd recalled that she washed and dressed burn patients every four hours during the night shift, and by the time she had finished with each patient, so much time had passed that she had to start over again. The burn patient workload was extremely demanding since there was not enough time to do the dressings as well as monitor vital signs every fifteen minutes. Nurses created a “burn book” to record the dates nurses cared for these patients in order to ensure that the work and the stress of caring was evenly shared by all the nurses.
The nurses did not become blasé about the fact that many of their patients died in spite of their best efforts. They knew they did their utmost best with the skills, knowledge and equipment at hand, and that their nursing work was exceptional. In fact, in the first annual report of the ICU committee to the medical board, Turner stated he had been giving daily seminars to the nurses about various intensive care subjects. He also strongly suggested that the physicians required further education about the use of intensive care, stating that the use of “respirators” is not a “hospital service…. Specifically, if a doctor refer[ed] a patient to the [ICU]…. then he should be fully capable of directing the use of the respirator, or he should refer the patient to someone who is able to do so.” 199 In other words, Turner believed physicians needed to understand the purpose of intensive care before referring hopeless cases to the ICU.

The ICU patient population thus challenged and contributed to ICU nurses acquisition of knowledge and skills. In the early years, the development of ICU nursing culture reflected the intense and sometimes unachievable demands of practice. An additional obstacle that nurses faced was that, intensive care therapy was not an in-house hospital service until it moved to the Laurel Pavilion in 1985. Intensive care nursing was not recognized as a specialty practice until the 1990s when a certificate in critical care nursing became a mandatory requirement for employment in the ICU at VGH.
Figure 2.3  ICU nurse caring for a patient in the first ICU, 1979.

Nursing Environment and Routines Conforming to Limited Space

The limitations of space in the ICU required nurses to create and institute certain routines to nurture a sense of security and comfort for their patients and the families. Family visiting was limited to two visitors at a time, and visits were kept quite short. No visitors were allowed in the unit during shift changes, so that information could be freely exchanged between the nurses. The drapes between the patients were usually closed, increasing the patient’s feeling of privacy, although this added another limit to the nurse’s workspace. To reduce the potential for delirium caused by the lack of sensory stimulation in the darkened unit, the nurses opened the back door of the unit, which led to a private patio, and let in daylight and fresh air. In the summer, patients who were well enough or who were not breathing on ventilators were wheeled outside in their beds “into the sunlight and the breeze and they could have their dogs and pets…we celebrated birthdays out there with a barbecue for some of the patients.”

The nurses were also cognizant of the effect of the constant din of the medical equipment, such as the swooshing of the ventilators, which was particularly apparent at night when patients were sleeping. Nurses therefore organized their duties to give patients as much peace and quiet as possible. For example, they did minimal charting at night, and lights were turned off or on to create a sense of day and night, which facilitated better sleep. The custom of bathing the patients in the early morning hours at the end of the night shift likely became a tradition because nurses realized that the only time a patient could experience real privacy was during the night, when there were few disruptions by staff, who would normally open the drapes to observe the patient. During the night, the nurses had more physical space at the bedside, since no other health professionals took up the space with their machinery like the dialysis machine or X-ray. In the daytime, space was sometimes completely lacking due to the number of staff administering therapy at the bedside. For example, when dialysis was performed, the machines occupied most
of the available floor space for the extremely long period of time it took to perform the procedure. It was also not possible to ambulate patients from their beds to a chair because there was just not enough room for the nurses to perform the transfer. Such considerations shaped the therapeutic environment created by these nurses, which was uniquely linked to the physical layout and environment of the ICU.

The social relationships between staff members and patients in the ICU was much more intimate than many of the participants had experienced in their previous positions. Dearlove remembered that when she started working at the VGH ICU, she could not believe how positive the atmosphere and rapport between the nurses was, given the space and pressure caring for critically ill patients demanded. She stated:

It was quite daunting…the day they showed me around the patients had a lot more equipment probably around their bedside and every patient was on a ventilator. The IV poles hung from the ceiling and there was just a lot of equipment and people weren’t like talking and acting normal, which surprised me because…. staff were talking normally amongst themselves and actually laughing at one point and I thought ‘Oh my God…how can they do this in this place’ because on first seeing it, it was a bit…you know…daunting…the patients were just side by side…it was such close quarters.

The participants who were interviewed for this study did not recall any major structural changes that improved the physical environment of the ICU in the 1970s. Turner noted that when he left the ICU, the layout of the ICU remained the same as when it opened in 1967, but the practice of intensive care nursing incorporated new scientific knowledge. New medicines like antibiotics, and inotropic drugs (increasing blood pressure and kidney function) were prescribed to support patients with infection. New treatments were implemented, for example the construction of the burn shower used to wash burned patients, or the construction of pressurized isolation rooms that protected patients from patients with airborne infectious diseases. And, medical equipment became more sophisticated, and invasive such as the Swan-Ganz catheter that was inserted directly into the heart to monitor heart function, and arterial lines were inserted into
arteries to continuously measure blood pressure. Most importantly, a new generation of ventilators like the Puritan Bennett was introduced to intensive care therapy which assisted patients to take spontaneous breaths, and reduced the need for paralyzing agents and sedation, so patients were more awake and able to participate in their own care. However, in some cases the new equipment made it more difficult for the nurses to perform their duties at the bedside. For example, the new hemo-dialysis machines were as large as a kitchen refrigerator, and were too cumbersome for nurses to accommodate while performing their nursing duties at the bedside.207 These innovations in intensive care medicine eventually forced administrators to reconsider the ICU space. Doctors and nurses pushed for change. It was time for a new ICU unit, and more space to provide one-to-one nursing care.
Figure 2.4 Nurses and patients outside the first ICU, 1967-1983.


In November 1979, the ICU Committee, comprised of VGH doctors and Ms. Beresford, the nursing supervisor of VGH, held an emergency meeting to discuss the situation in the Heather ICU. The unit was operating at maximum capacity and did not turn down any requests for patient care. It treated approximately two overdose patients per week with ventilatory support while they recovered, but most of the other admitted patients required mechanical ventilation for increasingly longer periods. Since there were only nine working ventilators in the unit, the demand for ventilation therapy exceeded the ability of the ICU to
provide care. As a stopgap solution to the overcrowding, some of the ICU patients were transferred to the PAR, but dividing time between the PAR and ICU reduced the number of post-operative patients the nurses could recover and stretched PAR nurses’ resources thin and elective surgeries were sometimes cancelled.209

The ICU began to encroach upon other specialty areas, and something had to be done. The ICU needed about 4 or 5 more beds with ventilatory support, and in the emergency meeting, the doctors and Beresford discussed several options to address this need. One solution was to increase the ICU’s capacity by setting up satellite units throughout the hospital. One possible solution was to transfer ICU patients to the neurosurgical unit for ventilation. This idea was rejected because the unit was a singularly designated space, and could not be logically split up. Evelyn, one of the ICU directors, claimed that patients would not receive the appropriate level of skilled one to one nursing if the patients were located outside of the designated ICU. A motion to manage the overcrowding of the ICU was made including a request that efforts should be made to find a new space for the ICU that could staff more personnel.210 The plan for a new ICU was outlined in a letter composed after the emergency meeting and sent to the Hospital Administration.211

The Administration heard the intensive care committee’s request and in its 1982-83 Annual Report commented on the “drab surroundings in the basement of Heather Pavilion” and inadequate resources in the ICU.212 It recommended that ICU should be moved to a larger more modern space in the new Centennial Pavilion. In 1983, the newly designated ICU space was moved to a renovated section of the back of the ER in the Centennial Pavilion on the main floor, adjacent to the largest trauma and emergency centre in BC.213 The ICU at VGH was becoming an important and essential service in the hospital.
Physical Layout of the Second ICU

The newly figured ICU, coined “back of emerg” by the staff nurses, housed 16 beds and had more general space to work in. The windows were still tiny, nurses could see out of them but they provided little natural light. The main nursing station was located in the middle of the unit and not visible from most of the patient rooms. There were four beds in a rectangular formation directly across from the nursing station, three beds to the right of the nursing station along the wall, and old operating rooms at the back of the unit were remodeled into four large private rooms, aptly named the “surgical area.”214 These rooms were designated for burn patients or patients who needed to be isolated due to infection or transplantation. The participants noted that these rooms were much better than the old ICU, where patients had no physical barriers to protect them from the spread of infection.

Nurses Impressions

The move from the tunnel to the back of emerg took place in February 1983, and was well planned by the hospital administration and head nurse Carol Kennedy.215 The ICU instructor R. Bachman had stated that the ICU was moving because “[we] feel we will be better able to provide [more] high quality care for our patients.”216 Zettel recalled that the move was necessary because the old space just could not accommodate advances in technology.217 IV pumps needed electrical outlets at the head of the bed, new ventilators took up more space at the patient’s side, and there was not enough room for new monitors with larger technological capabilities.

Patients were moved to the new unit by a moving team comprised of “highly trained doctors and nurses…. as well as a large number of additional staff”218 who transported the patients in their beds into the elevator and ascended to the new unit. ICU nurses helped to transport patients in the beds with the aid of a manual breathing apparatus (bagger) to administer oxygen. After ascending to the new unit, the patients were handed over to another nurse waiting
to receive them in the new ICU.\textsuperscript{219} Dearlove planned a party to celebrate the move out of the ‘Tunnel.’ She described the move as follows:

[It was like] surfacing…we were coming out of the basement…so we had a big party in the old unit…[and] invited old patients to come back to the old unit. I remember moving…we were pleased to be moving because the old unit was…it was pretty grim and there was no light and it was dingy…However I do think the dynamics within the Unit changed when we went to the new Unit. It obviously was time for more modernization and you know…nursing and everything had changed. I think the camaraderie amongst staff was still there but it wasn’t quite the same.\textsuperscript{220}

The nurses who had worked in the Tunnel and moved to the new ICU had mixed feelings about the practicality of the new ICU’s layout. Carnegie said they knew it was no more than an “interim stop” because it was “just as stark” as the other unit.\textsuperscript{221} The windows let in even less natural light than those in the old ICU. ‘Surfacing’, or moving from the basement to a new physical space on the main floor, inadvertently created new challenges for the intensive care nurses at VGH.

The most significant challenge was that the space was no longer one long narrow room, but rather a series of smaller rooms with a few beds per room. This new spatial arrangement instantly altered the way the nurses organized their work and changed the relationships between nurses, nurses and physicians, and nurses and their patients. Since there were just three or four beds in a room, nurses could obviously only observe three or four patients at a time. All the rooms and patients were not visible from the nursing station,\textsuperscript{222} making it more difficult for nurses to know when extra assistance was urgently required. The nurses spent very little time at the nurses’ station, but it became the place where staff congregated, to discuss patient issues, instead of at the bedside. However, as the distance between the nursing station and bedsides had increased, nurses who were at the bedside were not able to participate in these conversations as they had done in the Tunnel ICU.
As nurses were also more distant from physicians and allied staff, it took more of an
effort to communicate with them as well as more of effort to share what they had learned with
other nurses; they could no longer effectively multi-task by communicating, observing the ward,
and caring for patients all at the same time. In the old ICU, nurses had overseen the care of all
body systems, but in the new ICU, the patient’s body was essentially divided up between
different ICU staff. For example, the bedside nurse had to make inquiries of the doctor and the
respiratory therapist (RT) to learn when the patient would start weaning from the ventilator, in
order to allow the patient to breathe on their own again, so that she could be on the lookout for
any signs of patient distress.

Nurses who had known the day-to-day condition of every patient when they worked in
the Tunnel, could not expect to do so in the new unit. However, this change was not necessarily
a disadvantage, except when nurses left the bedside or needed someone to watch their patient, or
during an emergency. On the new ward, nurses who came from other parts of the unit did not
really know the history or condition of the patient well enough to provide quick and effective
assistance. They would assist another nurse by running to get equipment, collecting blood work,
or assisting a doctor while not really knowing the origins of the crisis until it had passed.
Moreover, nurses had to shout for help at their bedside if there was an emergency, which
increased the noise level of the ICU and unsettled other patients or visitors in the immediate area.
Dearlove explained:

The nurses could not leave their cubicle to help a patient because they
were…geographically quite a long way from [the] patient and prevent…your alarms…well, you
could leave one nurse to maybe help…stand in the middle with six patients…not that they would
look after the six patients in the old unit, but just standing there, sort of doing a 360 and
checking, checking, checking, and checking and shout if you needed help…and you didn’t have
a sense of what was going on in the other areas of the unit. You wouldn’t know if there was a
crisis in the four isolation rooms at the back because you couldn’t see them…whereas before you
could see everything…if you were a more senior person, you just might not know that somebody
around the corner was actually not coping very well because you couldn’t see it…223
Carnegie, who was a full-time charge nurse at the time of the move, recalled that she started to feel a loss of control with regard to the day-to-day activities of the unit since she could not actually see all of the staff and patients. At that time, it was still very important for the charge nurse to see every bedside because the patients were often pharmacologically sedated and paralyzed, which prevented patients from doing their own breathing while on the ventilator. At the same time, nurses caring for patients who had new invasive (dwelling in the body) hemodynamic monitoring technology, like the Swan-Ganz catheters had to meticulously observe the patients, meaning they were frequently unable to leave their patient to help other nurses in crisis. The overall number of staff able to help in an emergency was therefore reduced, in comparison to the Tunnel. To address this issue, an intercom system was installed at each bedside, allow that nurses to immediately call for help, and be heard by the whole unit, so that nurses who were not giving direct patient care could give assistance.

New Places, New Spaces: New Developments in Nursing Education, Allied Health Professionals

The oral interviews describe changes in the relationship between bedside nurses due to the increased distance between them on the ward. Most of the participants stated that the distance between nurses at the bedside and the increasing complexity of patients’ conditions reduced the time available to teach each other. The oral histories also indicate that while in the interim ICU, nurses sought to expand their nursing education beyond their work place. According to Manning, college based nursing education signaled the beginning of the “deterioration of the inter-relationships” between the intensive care doctors and the ICU nurses. He observed that nurses no longer invited doctors to contribute to their education. This change was an important historical event because it marked the beginning of intensive care nursing as a separate and distinct nursing specialty taught by nurses for nurses.
In time, the new emphasis on formal education increased the level of qualifications of other professionals seen as necessary to practice in the ICU. In the interim ICU, new allied staff were hired, that had the education to take over some of nurses’ responsibilities. The “O2 guys” from the Tunnel ICU days gradually joined the ICU team as Respiratory Therapists (RT) who set up and monitored aspects of the patient’s breathing patterns, although the nurses continued to observe the majority of the patient’s breathing, and suction the patient’s trachea while they breathed on the ventilator. The collaboration between ICU nurses and the RTs was a significant change, as in the Tunnel ICU, the bedside nurse, the director, and the anesthetists had been the only health care professionals who really understood mechanical ventilation. Leal was among the participants who admitted that it was initially difficult to “relinquish control of the ventilator.” But as Leal noted, nurses could no longer manage the demands of mechanical ventilators and keep up with all of the other new technologies. As a result, the addition of RTs to the ICU team, actually freed the nurses’ time to care for the patient in other ways. Their image as intensive care nurses in the interim ICU was newly defined by the kind of care they provided, as well as the use of sophisticated and complex technologies.

The move to the new physical space at the back of emerg thus went hand-in-hand with the evolution of intensive care nursing. Signs of this evolution can be illustrated by the physical boundaries between the ICU and the ER. Zettel recalled that when the move to the back of emerg occurred, “the divisions were a bit more blurred” between the two units and ICU nurses were ‘floated’ (sent by a nursing supervisor to nurse in the ER when they were short staffed for the shift) over to the ER. The ICU nurses resisted being sent to ER because they identified themselves as “ICU nurses.” They felt they were making a choice to work in the ICU, not the ER. The physical barrier that separated the ER from the ICU was symbolically used to delineate the differences between ER and ICU nursing. It acted to protect ICU nurses, allowing it
to develop at its own pace, with its own body of knowledge and skill set, although some nursing supervisors were at times not able to honour the new specialty practice, and floated nurses according to staffing levels. Akeroyd remembered she was floated to the ER and felt extremely uncomfortable when she arrived. The very first time she floated there, the staff said to her “Well you’ve got ICU experience, you’re on the trauma team” but she felt being an ICU nurse was different. She explained the difference being the patient’s condition was much more controlled as compared to the ER where anything could come into the unit. For example, a gunshot victim was brought into the ER with a hole in her ventricle (part of the heart) and the doctors opened up the chest. She said “honestly, I didn’t take my breath…I just stood there in awe and I just learned and I looked…. really it was so different at that time.”

**Advantages to the New ICU Space**

The evolution of intensive care nursing was further enhanced by the ICU’s more central location, which was closer to the OR, and was close to the PAR in the basement in the Centennial Pavilion, where other types of critical care medicine was practiced, (excepting cardiac surgery and its ICU, which was located in the Willow Pavilion until the late 1980s). Bonnie Leal outlined how ICU nursing expanded during this period:

> It was a couple of things… we were expanding beds so we went there…it was a larger unit. More centrally located…we were getting somewhat outdated [in Heather Pavilion]…there was more development of spaces…isolation rooms…and there was esthetics about having an ICU that opened outdoors onto the ground…there was a thought that maybe we could have a more efficient unit and more patient focused with space…

Leal suggested that moving the ICU from the basement of Heather Pavilion into the main hospital complex made intensive care medicine a legitimate patient therapy which was accessible to all physicians. Although the old ICU had been an ‘open unit,’ some VGH doctors had not understood its purpose or value at the time of its opening. When it moved into one of the main hospital buildings, it was more visible, and attractive to physicians, and they were able to see its
value. For instance, the doctors saw that putting patients on ventilators gave them the benefit of having more time to examine and revise prescribed patient treatment regimes. New heart and blood pressure monitoring devises generated new data for doctors to interpret, and an expanded variety of intravenous fluids kept the patient alive long enough for doctors and nurses to explore the effects of new medications and technologies, also giving nurses an opportunity to improve their care techniques. Leal thought that the physicians believed the ICU was a place where collaboration between scientists who made the technology, and doctors using the technology, could better solve patient problems and provide patients with new benefits.\textsuperscript{238}

While this newfound purpose for the ICU emerged in the mid-eighties, professional nursing and intensive care journals had begun to publish promising articles about improved patient outcomes due to the new medical technology.\textsuperscript{239} According to Leal, who nursed in the 1970s, stated the expansion of medicine at VGH held similar hopes for improved patient outcomes with intensive care therapy. Intensive care at VGH became a place that experimented with medical treatment and sought answers to questions. Some experimental medicine had been tried in the Tunnel ICU and included dialysis to remove fluid in the lung of the ventilated patient, or the use of positive pressure ventilation. However, at the back of emerg, Leal described a new attitude among physicians about their ability to treat diseases as part of medical research. She stated,

\textquote{The expectations of what each service [felt] they should supply to patient care…crossed all specialties…and relieved] the burden of 90% that we palliated in our day…without any hesitation suddenly [became a question] in this day and age ‘should we maybe do something?’}\textsuperscript{240}

For example, nurses and doctors tested the capabilities of ventilators to help patients breathe at the bedside. Some of the participants told a story of a particular case involving the ICU director Ron Evelyn. Evelyn sat by his patient’s bedside all night ‘playing’ with the ventilator, turning the dials and evaluating the effect of the changes he made by taking and
analyzing blood samples. When he did not get the results he desired, he actually inserted a second breathing tube into the patient alongside the first tube and hooked it up to a second ventilator on the other side of the patient in order to see if this improved the patient’s respiratory condition. In their oral histories, the participants remembered feeling amazed that there was enough time and space for such an experimental therapy to be executed. This kind of experimental medicine was welcomed by the ICU staff, and accepted by patients and their families because there was hope that this therapy it might help patients recover from their disease or condition. Unfortunately, the participants pointed out that in spite of the technological experiments, the additional support of the allied health care professionals, and improved medical knowledge, the patient mortality rate did not decrease during their time as nurses in the ICU.

Zettel reflected:

The scope of what we were able to do for folks was so much smaller that they just didn’t make it through… the Emergency department [to the tunnel ICU]…if they came in [to the ICU] and were really really sick…. there was a lot of deterioration that would happen…[but] by the time we got to the new ICU we were able to keep people in that state for a longer period of time…they were sicker because they lived to be sicker and to get sicker…we were able to keep them alive and that’s all we were doing.

The move to the second ICU at the back of the emerg at VGH from the Tunnel in the 1983 solidified the ICU as a valuable nursing ward in a large teaching hospital. The physical location of the ICU made it visible, accessible, and the nurses began to create a body of nursing knowledge of providing one-to-one specialized nursing care within the confines of the place that physicians realized could benefit their patients. Nurses recognized their expertise was unique among the critical care specialties around them like the ER, PAR and the CSICU. Expansion of the place created space to introduce new medical technologies. Yet, eventually, the ICU outgrew this place as well and found its new permanent home in a new purposefully built place, and intensive care nursing was acknowledged as a specialty practice.
The Third ICU: Laurel Pavilion, 1985

In October 1985, the ICU moved to its present home on the second floor of the newly built Laurel Pavilion, an area that was intentionally designed by the hospital in its original plan to house all of VGH’s critical care units. I found only one document explaining the choice of location – an article in Lifeline, a Vancouver General publication. The article stated that the Laurel Street Pavilion was built to “alleviate the problems identified by the VGH master plan of the 1970s.” 243 Towards this end, the ICU was situated on the same floor as the operating rooms and post-anesthetic room. The CSICU did not move into its location beside the ICU in the Laurel Street Pavilion until 1987, initially under the direction of the ICU, highlighting the ICU’s prominent function as an essential service, meriting its designated place in VGH. 244 Four of the nurses who participated in this study worked in the Laurel ICU when it first opened: Bonnie Leal, Liz Akeroyd, Darcy Carnegie and Suzie Logie.

Physical Layout

The new ICU unit was similar in layout to the Tunnel ICU in that it was a long ward. There was a wall-to-wall window on one side, and each room had two solid walls. Sliding glass doors separated the rooms and curtains hung from the ceiling could be drawn around the patient for privacy. When the curtains were open, the nurse could see the beds on either side of her own patient’s bed. Most of the bedsides opened out into the main corridor and each had a heart monitor and ventilator and its own sink. There were two beds directly behind the nursing station and four windowless, and pressurized isolation rooms separated from the rest of the ward by glass doors (the isolation rooms could not be seen from the nursing station.) Two of these rooms had an attached shower room suitable to give burn patients showers as they lay in their beds. The ICU also had a number of beneficial features: an X-ray review room, several classrooms, a physiotherapy room; a blood-gas analysis room for quick blood test results; separate lockers for
men and women; offices for the nursing manager and charge nurses; a large nursing staff room at the end of the corridor; and a waiting room for families outside of the ICU.  

**Nurses Impressions**

The nurses who worked in the new ICU described the Laurel Pavilion ICU and the impact it had on intensive care nursing. Akeroyd remembered her first impressions when the ICU moved from its interim location at the back of emerg to Laurel Street:

> [It was] good for the patients because it was just so much nicer and there were windows. You know…they [the patients weren’t] going to get confused about day and night…it was great for us. I mean ‘Wow’ This is really…There was space and it was clean and the equipment was all new and it was really exciting…You did feel separated, you didn’t feel like it was kind of like you were in three units or something…Because it’s huge, so you just knew what was going on in your immediate space…with maybe a few people around you.”

Carnegie referred to the Laurel Street ICU as “upstairs,” a welcome change of location. The increase in square footage of the area could accommodate up to sixteen patients in private cubicles. The increased capacity changed the ICU culture, increased the working distance between nurses, and between nurses and doctors. Most importantly, there was more physical space to traverse, between nurses and patients. Patient rounds were held at the door of the patient’s room, at the side of the patient, rather than at the foot of the bed, as had been the tradition in the older units. An important development at this time was that nurses began to present their head-to-toe assessment findings, at the beginning of doctors’ rounds, to the ICU team of physicians, RTs, pharmacists, and dieticians as well as social workers. This new approach to rounds gave the bedside nurse a leadership role to co-ordinate the patient’s care and become the patient’s advocate. During rounds, nurses often made decisions on their behalf. ICU nurses increased their competencies with regard to assessing the patient, making astute nursing judgments, and effectively evaluating…the patient in the “head-to-toe assessment.”

Nursing assessments had become so comprehensive in scope that resident doctors rarely
performed their own head-to-toe assessments. Nurses presented their findings at the morning bedside rounds, which reflected recognition of, and respect for, the advanced level of nurses’ knowledge. In the old ICU, conscious patients could hear the doctors talking about them during rounds, but this was not the case in the new unit, due to the increased distance between the bedside and the door. The physical space was just side enough between the desk and the patient’s bedside that residents did not usually enter into patient’s room to examine patient themselves. Directors and resident doctors had come to rely on nurses to give them the information they needed to make medical diagnoses and plan patient’s daily care.

\textit{Drawbacks to the Space}

The new space also had its drawbacks and created some new problems as well. In contrast, Logie remembered she was not fully impressed with the new ICU. She recalled that when the new unit opened. All of the old equipment was brought upstairs, including the manually cranked guerney type beds. She said “it just seem[ed] so bizarre in the kind of area we were that was sort of so high-tech that we had these primitive pieces of crap…we didn’t come up to the unit and there was cash, [everything was new] with bows on it…We had crank [manually operated beds] beds for aeons and then we finally got electric beds [in the 1990s] and that was just like ‘WOW.’” Logie recalled that as soon as the ICU was occupied with patients, renovations began to create additional space for the CSICU, which included knocking out walls, reducing the number of ICU beds, and moving offices and classrooms. Logie stated that this was unfortunately disturbing to both patients and the staff during the day.

Leal further recalled that patient overcrowding quickly became a problem in the new ICU, since many doctors who would have not have utilized ICU beds in the previous locations began to consult with the ICU to admit their sickest patients. There was just not enough space to accommodate the patients, largely because the patients required longer ventilatory support.
Carnegie remembered doing rounds of patients in the PAR for six to eight overflow ICU patients on some days, and consequently, surgeries were cancelled. ‘Overflow’ ICU patients as they were commonly named were transferred to other critical care areas, which according to Zettel did not receive them happily simply because the patients were “a mess in pretty much every system…so septic, and they were so chronic; those were the patients that the [float nurses] got…really, really dirty… there was very little reward for looking after a patient like that on a given day.”

The traditional collegial relationships that had developed over the years between the nurses and doctors, and between the doctors became less collegial and more distant, particularly when additional directors, including the first woman director, Judith Vestrup, were hired to care for the increased patient load. The ICU nurse staff numbers increased, so that the nurses and doctors did not work together on a regular basis, and therefore did not know each other personally as well as they had done in the past. Carnegie believed that the culture of the ICU was affected by the ‘views of the director.’ Some nurses felt frustrated about having to deal with more than one director, believing the patients did not have the same continuity of their care as they had when there was one director of the ICU in the old unit. For example, Carnegie recalled “sometimes we’d feel like we’d get ahead with weaning someone [from a ventilator] one week, but [they’d change] the next week, and [the wean] didn’t carry on.”

The new ICU layout afforded the nurses more space to work around the patient while accommodating more machines to monitor them. The new place could accommodate an oxygen saturation monitor and portable fluid pumps but shelves had to built at the head of the patient’s bed for other equipment. They were above the nurse's head, which increased the floor space, but sometimes made it difficult for nurses to operate or maneuver around them. This set-up was a drawback because it increased the nurse’s workload, since the pumps had to be transferred from
the head of the bed to a pole when the patient left the unit for a test. The pumps were transferred back to the shelf upon the patient’s return, taking the nurse’s attention away from patient care.

Finally, there were many more people around the bedside at any given time, including dieticians, social workers, chaplains, and various teams of specialists. Bedside morning rounds conducted by the various teams began at the first bedside and could take all day, delaying patient care at the last bed in the unit. The increased number of patients also meant more visitors. Since the patients were nursed in private cubicles, more than two visitors could visit the ICU at one time. People were always walking up and down the main corridor of the ICU in the day and during the night, especially when a patient was dying. This increase in traffic distracted nurses and at times, because the increased noise and activity disturbed the patients who were not as deeply sedated, due to the innovations in mechanical ventilation, that allowed patients to spontaneously breathe. In addition, ICU physicians had discovered new scientific evidence that the conscious patient weaned much quicker from the ventilator leading to earlier patient discharge from the ICU.259

**Summary**

The three places and spaces the ICU has occupied over a twenty-five year time span have functioned as benchmarks in the evolution of intensive care nursing as a specialty nursing practice. The participants of this study were asked to describe the physical, clinical and cultural attributes of the three ICUs, which they did with very little variation between the nurses, and they shared very similar memories and perceptions. Framing my questions with reference to the physical locations of the ICU was an effective method that prompted participants to remember significant events in the development of ICU nursing practice in an orderly fashion.

The notion of the place in which they worked was symbolically important to the participants because the ICU moved from the basement of the Heather Pavilion—one of the oldest
standing structures on the hospital grounds, to a place beside the cardiac surgical unit in the newly built Laurel Street Pavilion. The ICU became one of the most essential nursing units in the hospital because of the specialized nursing work that these nurses provided the sickest patients. The ICU was also a meaningful space for the nurses. It was in these three spaces that nurses reinvented their traditional nursing practice to care for the critically ill. The advent of the ICU removed barriers that had in the past inhibited nurses’ professional growth, giving them a place to acquire new skills that other nurses were not invited to master. The chance to learn new medical knowledge that had previously been beyond their scope of practice imbued their professional lives with new meaning and purpose, as at last their traditional caring practices were progressively given legitimate professional recognition with each space they occupied.

Nurses forged new clinical and social relationships with physicians who gave them respect and realized their authority at the bedside. These developments elevated them in status, distinguishing the ICU nurses from their peers in other wards. The ICU became a special space to be ‘in’ since it provided so many opportunities for growth and development, as well as a special place to be ‘from.’ It was as if nurses came to see their own critical care nursing expertise when the ICU moved to its permanent home.

The first intensive care unit that was established in 1967 was so dark and dingy that it may have frightened both patients and visitors. Nonetheless, the nurses were able to successfully navigate unchartered medical territory to create a therapeutic nursing landscape in which patients, and their families felt safe and cared for. The nurses designed and instituted appropriate nursing routines and organized their regimes in the hope they could create a space where patients could rest, and attempt to heal during their critical illness. These routines were maintained in the next two ICUs because they were highly beneficial, even when new spaces and technology did not necessitate their continuation.
The interim ICU established in 1983 created its own set of challenges for nurses, such as having to learn to monitor patients in new ways and operate advanced biomedical technologies. The final ICU space, which opened in 1985, created more physical distance between nurses, as physical walls partitioned off patients’ beds, and new biomedical technologies made it unnecessary to directly stand beside the patient, or touch the patient. These changes were paralleled by changes in practice. In particular, nurses felt a need to become more accountable for their actions as they took a leadership role in the patient’s plan of care during bedside rounds.

Gradually, hospital administrators accepted the idea of ICU as a modern, clean, state-of-the-art unit housing a vast array of complex biomedical technologies intended to save lives. However, in the 1950s and 60s, when intensive care practice was not yet acknowledged as such, the renovated places designated to intensive care medicine were not designed to meet such expanding demands. ICU nurses and doctors had little certainty that what they were doing would save the patient from certain death, and many of their treatments were experimental. Nursing work was further challenged, because there were no clear boundaries regarding the medical management of patients, and the scope of intensive care practice had no real limitations for almost 20 years after the first unit opened its doors. The nurses believed that with time, the specialized knowledge and vigilant nursing care of working in a designated ICU would allow them to make a difference in patients’ lives that they could not make elsewhere at VGH.
Chapter 3-The Professionalization of Intensive Care Nursing: Experience and Education

“I knew that I didn’t know … it was so accepted to be practicing… without any kind of foundation…I mean my whole background in nursing had been ‘just go in and do’.”

Focus of The Chapter

Chapter three traces the development of intensive care nursing as a special nursing practice at VGH. Intensive care nursing education at VGH began at the grassroots level, challenging the traditional nursing education structure at VGH. The education emerged within the immediate context of nurses’ work with the critically ill. At VGH, most of the nurses had obtained their education within the hospital-based School Of Nursing. Nurses’ education in the 1960s was primarily designed to serve the needs of the hospital in the most efficient manner. Although the hospital established an inservice education department in 1967, to meet the growing demand for education of staff nurses in the hospital, it did not thoroughly address the provision of care on specialized wards such as the VGH ICU. When intensive care nursing first emerged in the hospital in 1967, ICU nurses depended on what they had learned during their School of Nursing days, their own experiences as general duty RNs to provide basic nursing care to their patients. They learned critical care nursing skills on the job from physicians and then taught other nurses these skills at the patient’s bedside. Gradually, nurses generated new critical care nursing knowledge, eventually articulating their skills within a theoretical context and a formal set of courses. They advanced the professionalization of nursing by creating a more formalized and standardized education curriculum. Eventually, specialty education gave critical care nurses a thorough practical and theoretical foundation for practice that was recognized as a key dimension of ICU nursing, thereby creating a new specialty practice in nursing that had not been previously recognized at VGH. The efforts of critical care nurses to create the theoretical
foundation for intensive care nursing contributed to setting the standards for bedside intensive care nursing practice in BC. I will describe this development in this chapter.

**Historical Background**

There were three significant changes in health care from the mid 60s to 1985 that influenced the development of intensive care and intensive care nursing education. The introduction of the Medicare care health insurance program by the Canadian Government that gave hospitals money to expand their programs allowed more patients to be treated in hospitals regardless of their income.\(^{263}\) When the ICU at VGH opened in 1967, any Canadian who became sick and believed they should be admitted to the hospital, was then admitted by their doctors.\(^{264}\) Doctors’ willingness to admit patients so easily likely reflected a strong cultural belief that “there could be a scientific cure for all ills, either through a magic pill or wonderful surgery.”\(^{265}\) The ICU was one place in the hospital that benefited from the new insurance program, physicians were given the opportunity to treat patients with diseases they had not previously been able to cure with new drugs like antibiotics, new procedures such as long term mechanical ventilation, and new biomedical technologies like the continuous ECG monitor as they became available.

New technologies became unprecedented sources of information that created new medical diagnoses and treatments. The advances in medical knowledge and technology that occurred during the 1950s and 1960s meant that Canadian hospitals could no longer depend as heavily on a student nurse workforce to care for the patients, especially during polio and tuberculosis outbreak, or in the case of patients experiencing trauma, and infections such as pneumonia.\(^{266}\) The resulting reality of patients living longer, with more complex disease processes, required nurses not only to understand these diseases, but also to meet patient needs that extended beyond the basic skills they had mastered as student nurses. Concurrently, the demands to provide competent care to progressively complicated patients increased, since nurses
had to manage more patients during their shifts. Nursing knowledge therefore grew tremendously and many nurses no longer accepted the alleged perception of nurses as being merely doctors’ helpers. In recognizing that their role at the bedside was essential to patient safety, they asserted their need to understand the theoretical foundation of their interventions and clinical decisions, whether independently taken or based on the doctor’s orders.

Some early attempts to design and administer a critical care nursing education program to critical care nurses were made by nursing educators at VGH. In 1967, The Registered Nurses’ Association of British Columbia (RNABC) and the British Columbia Hospital Association (BCHA) approached VGH’s director of nursing, Mary Richmond, in the hope of establishing an eight-week course in intensive care nursing. The three parties designed a one-time eight-week pilot project for eight students. VGH nurse Shirley Stokes was hired as an instructor, although she assumed this role “without academic preparation.” This likely meant that in the 1960s, there were few nurses with advanced degrees to teach specialty nursing courses, but Stokes had expertise in critical care, which was considered the most important qualification to teach such a course. Whether the course actually took place could not be confirmed by records, but the request indicated that the nurses sought ways to enhance their education. The quest for advanced nursing education continued and was not limited to VGH critical care nurses.

In a movement to recognize nursing as a profession, and give nurses a legitimate role in their work places in the 1960s, obtaining a baccalaureate degree in nursing was becoming more important to all nurses. Marking the transition from the hospital based diploma programs, to academic based nursing education at the university level, many nurses went back to school-university this time-to obtain a baccalaureate degree, often through a post-RN program. Others entered the baccalaureate degree directly, without previous hospital experience and graduated as RNs. During this transition, tension was created between experienced nurses who worked at the
bedside, and other nurses who pursued the baccalaureate degree out of interest since it offered them general nursing education. Other nurses obtained degrees hoping to enhance their careers in nursing administration. Nevertheless, the baccalaureate degree did not help ICU nurses learn the particular specialized in-depth knowledge and skill they needed, although obtaining the degree elevated their professional status. Bedside nurses in the ICU wanted more education, but also specialized education, not necessarily the knowledge offered in the new degree programs. What exactly was the desirable preparation for nursing in the ICU became a question in a rapidly changing educational nursing context.

In 1971, the UBC Faculty of Nursing tried to find a method to deliver critical care education. Thoughts of specialized advanced clinical education at the master’s level was considered as a bold idea to meet the demands of critical care nursing, but it could not be realized for several reasons. The universities offering baccalaureate degrees in nursing did not have enough nursing faculty with master's and doctorate degrees to teach such a specialized program, and funding to move enough nurses through the program fast enough to maintain the staffing levels of established ICUs was unavailable.

In the late 1970s, UBC nursing faculty attempted to meet the demand for critical care education in workshops taught by the continuing education department at the UBC School of Nursing. The workshops were expanded into two parts courses, and offered in the Vancouver area twice a year in the early 1980s. Hospitals around the province could purchase the course to teach to new critical care nurses, and they were generally well attended. However, some of the faculty at the UBC School of Nursing believed the School should not develop “‘dead-end’ specialty courses for diploma nurses,” but rather offer degree courses for RN’s. The dilemma of where to put critical care education was not solved by the Schools of Nursing, but rather by
the efforts of critical care nurses who created their own critical care knowledge in a grassroots process.

In 1977, the RNABC set up a task force to develop standard critical care nursing care plans that could be used in all critical care units for all types of critically ill patients. Documents that explain the context in which the task force was created and its purpose for writing critical care nursing care plans could not be located for this study, but these care plans may represent the initial first attempts to formalize critical care nursing specialty in British Columbia.

In general, critical care nurses in Canada had not yet authored their own theoretical framework to teach graduate nurses. By 1979, in British Columbia, critical care nursing had not evolved into a recognized nursing specialty. The establishment of a professional nursing association like the Canadian Association of Critical Care Nurses (CACCN) in 1979, and of its journal Canadian Critical Care Nursing Journal in 1985 that was later re-named Dynamics, described the nurses’ role in becoming more accountable for critical care actions and practices. It also helped to further define this new role in specialty practice. In particular, the creation of the critical care nursing specialty was discussed in several Canadian Critical Care Nursing Journal articles written by Irene McArthur, a nurse and a national liaison officer for the Canadian Association of Critical Care Nurses (CACCN), who chronicled the inception of the CACCN in Southern Ontario in the 1980s. McArthur stated that critical care nurses’ education largely consisted of hands-on experiences, such as using the clinical institutions’ equipment to care for patients, and whatever advanced anatomy and physiology physicians were willing to teach. She and many other critical care nurses in Ontario believed that nurses needed standardized continuing education and skills development to keep up with “fast-paced technological change.” Unfortunately, no evidence was found linking the RNABC care plans
from 1977 to the CACCN's process to develop Standards for critical care nursing but the initiatives do indicate that all provinces tried to find ways to formalize standards and education in critical care nursing. Slowly, perhaps but surely, critical care nurses pursued the formal recognition of their nursing practice as a specialty in Canada.

In the 1980s, critical care nurse leaders at the CACCN organizational level, believed critical care nurses needed advanced specialized education for the professional development of critical care nurses, and to keep up with the fast pace of technological change in their working environments. In response to these pressures both within nursing at VGH, that was also facing a critical shortage of critical care nurses, and from the influence of critical care nurse leaders, critical care nurses organized their own critical care education program in a grassroots process. In the 1970s and 80s, VGH expanded its hospital’s services to the public, including procedures such as heart surgery and liver, lung and heart transplantation, and treatment of chronic illnesses such as diabetes that increased the complexity of patient problems. Critical care nurses who cared for these patients made important clinical decisions as they administered new therapies, and new drugs. However, they did not necessarily have enough in-depth theoretical knowledge to support these decisions. In addition, nurses were increasingly becoming accountable for their decisions, since they had more responsibilities and were beginning to teach patients about how to care for their bodies and how to self-medicate upon their discharge from the hospital. Thus, critical care nurses understood the value of specialized education, and desired formal recognition of their knowledge from other nurses and from physicians, and from their employers. Establishing such specialized education for critical care nurses was difficult considering the context of nursing education in the 1980s, which was in flux. The question was where, within the context of nursing education should specialty education for ICU nurses be taught? The process
by which critical care nurses developed and administered critical care education at VGH is the focus of this chapter.

VGH provides one example of the process, which encompassed the transformation of critical nursing education and will be analyzed in the remainder of the chapter. VGH critical care nurses became part of a larger group of critical care nurse educators that led critical care nurses to assert their accountability, which required the attainment of advanced theoretical and scientific knowledge. One of them, Colleen Varcoe, I interviewed as part of this study. These educators had experience in critical care nursing. They realized that the foundation of intensive care was in the practice of nursing the acutely ill, and required an advanced theoretical education that extended above and beyond the regular basic nursing education, whether offered as a degree or as a diploma program, in order to ensure that all ICU patients received competent, safe and eventually standardized nursing care. These nurse educators pioneered the development of specialized programs in critical care nursing in BC, beginning this evolution from their work places and work experiences, while moving it into broader critical care education, for example, in a program at the community college level. Before I trace the actual development of critical care nursing education at VGH, I will first outline the general development of nursing education and its integration into the work culture at VGH.

**Nursing Education, Work and Culture at VGH: A Foundation for Critical Care Nursing Practice**

In 1902, VGH established its School of Nursing. It was designed to meet the needs of the institution. Student nurses were taught that service to the hospital was their first priority, followed by obedience to nursing instructors and the doctors. Even as late as the 1950s, in their lectures to nursing students, nursing instructors believed the “nurse had two related functions: to care for the patient-to make him easier and more comfortable and to watch over him, and to help
the doctor by taking over much of the medical work that had to be done in order to leave the
doctor more time for his specialized tasks,” a belief that could be traced back to the beginning of
the century.280

The ways in which nurses were educated at VGH created a foundation based on which
nurses could develop intensive care nursing as a specialty at VGH. This foundation was created
through the model of education characterized by apprenticeship, and repetition of skills in order
to create a competent bedside nurse. Student nurses worked in most areas of hospital and had
exposure to critically ill patients. The VGH School of Nursing graduate was well rounded and
prepared to work in any nursing capacity in the hospital. Most of the staff nurses were VGH
graduates.

Physician shortages in the 1960s created opportunities for nurses to expand their nursing
knowledge and skill set and take on many of the skills once reserved for physicians, which in
turn increased the bedside nurses’ autonomy, and capacity to make clinical decision in the
absence of physicians. The cost of nursing care forced the hospital to relieve nurses of non-
nursing duties, increasing the nurses’ time to develop nursing knowledge and skill. 281

**VGH Nursing Education Model**

Most of the existing education at VGH involved learning to perform tasks by repetition in
the most efficient and quickest manner. It was essential for the student to learn to ‘do’: to
perform skills in order to manage the volume of work involved in caring for the sick on a daily
basis. 282 Nurses in the 1960s believed they needed to be proficient at performing basic nursing
skills such as maintaining patient comfort and safety by giving bed baths, changing dressings,
administering injections, manipulating IV fluids, and administering drugs. Nurse scholar Patricia
Benner defines nursing experience as “the refinement of preconceived notions and theory
through encounters with many actual practical situations that add nuances or shades of
differences to theory…Clinical practice is always more complex and presents many more realities than can be captured by theory alone.” It is precisely this definition that some of the participants in this study described in their testimonies. That is, once the hospital-based educated nurses had mastered what they considered at the time to be the basics of nursing care, they were able to see “many more realities” and this awareness, and confidence gave them an advantage over other graduate nurses on the wards, who earned their baccalaureate degree. However, they also noted how learning how to ‘do’ nursing, and a solid work experience, was not necessarily guided by clinical nursing theory that guided the nurse to ‘think.’ Such advanced theoretical clinical knowledge, is what ICU nurses felt they needed more of, in order to understand the scientific rationale behind what they were doing and why, to enhance the meaning of their work, and give them professional credibility at the bedside.

Shortages of Physicians, and the Advancement of Nursing Skill

A chronic shortage of physicians at VGH also necessitated nurses to perform and advance in skills once reserved for physicians. This was challenging because the addition of skills increased the already burdened ward nurse, but on the other hand, nurses benefited from the opportunity to increase their medical knowledge and skills. The expansion of nursing skills that occurred in the 1950s and ‘60s became the precedent for managing the hospital’s growing need for more skilled nurses. For example, when penicillin became a common treatment for infection in the 1950s, two nurses were specially trained to give intravenous injections, and another six nurses were trained to administer blood transfusions. In 1960, all nurses were taught to insert intravenous catheters “in order to relieve the situation should the doctors be unavailable and in instances of extreme urgency [when] their skill will be invaluable in commencing life saving measures.” The tradition of authorizing RN’s to perform previously sanctioned medical procedures continued in the ICU when it was opened in 1967. For example,
nurses had the authority to puncture the radial artery to collect blood samples which was a skill previously performed by physicians.

**Economics of Nursing Care**

The reality that nurses spent so much time on more basic and nursing related duties, forced administrators and nursing educators to re-examine the role of the nurse at VGH. The hospital employed nurses’ aides to take over much of the so called ‘dirty’ work\(^\text{286}\) nurses had been expected to do in the past: time-consuming work that entailed handling bodily substances such as administering enemas, bathing and shaving patients to prepare them for operations, scrubbing patient beds, sterilizing bloody rubber gloves for the OR, mopping floors, autoclaving operating room instruments, and preparing dressing trays. Relieving nurses of these duties which were increasingly framed as non-nursing duties, created time for RN’s to focus on learning new advanced skills such as IV therapy, blood transfusion administration, and some medication administration procedures previously only performed by medical interns and doctors.\(^\text{287}\) The new nurse skills set reflected a more medical, as opposed to care-giving, orientation and created time for nurses to learn medical knowledge from a nursing perspective. In reflecting upon the VGH nursing culture, Kelly states: “provisions of the old-fashioned comforts of a gentle hand, a friendly voice, and a familiar face was no longer [the RN’s] special duty. [Their] time had become too valuable for such tasks.”\(^\text{288}\) She summarizes the image of the graduate nurse at VGH as follows:

…Traditionally [nurses] accepted whatever the doctor has chosen to delegate; this is because the nurse has been viewed, and has viewed herself, as the doctor’s assistant. And most doctors have known little and cared less about the legitimate role of the nurse…and the nurses have had to fight for recognition of their separate sphere of competence.\(^\text{289}\)

VGH nurses were beginning to assert their importance to the hospital as providers of patient care. Nursing students who graduated from the three-year VGH Hospital Nursing
program were in fact well rounded. During their nursing education, they had acquired a wide range of experience on different nursing wards and received practical instruction with regard to working in the medical and surgical wards, obstetrics, burns and plastics, operating room and post-anesthetic room exposing them to critical care in their last year of their program. Yet, the goal was still that when nurses graduated they would exercise professional competence and could work anywhere in the hospital. Although this approach originated from the tradition of nursing education and work established in the hospital, in the 1960s, this culture needed to be re-worked in order to allow for the development of more specialized nursing expertise.

**Relevance of Hospital Based Nursing School**

The pressure put upon the School of Nursing by students wanting advanced nursing education caused the VGH School of Nursing to question its ability to teach nursing within the hospital. In the 1950’s, the VGH School of Nursing realized that its basic hospital-based nursing education did not provide the nurse with an adequate foundation for expanding her knowledge and skill set to expand her knowledge and skill set. The demands of the nurses’ work were such that there was little time to spend on the academics of nursing. The limited classroom lessons the nurses were expected to attend, were squeezed into the evenings and the student’s off-duty hours. Doctors often lectured the students because VGH could not afford to hire any more nursing instructors. In the 1950s, the VGH student nurses’ hospital curriculum was updated to reflect the needs of the post-war medical and surgical patient. Instructors encouraged student nurses to “question everything” except for the image of the nurse and her relationship to physicians. Nurses were still expected to maintain rigid standards of professional and personal behaviour in practice, including upholding the dress code (on and off duty) and observing particular etiquette around physicians, such as carrying out doctors’ orders without question (which was contradictory to their teaching to say the least) or surrendering her seat to a physician who came
into the nursing station. If a student nurse was insubordinate to any of these rules she could be banned from work or lose her nursing cap for a period of time, which was a humiliation since the cap was a status symbol for both student nurses and RNs.\(^{293}\)

Although nurses appeared to be trapped by an old set of professional nursing values, they were also catapulted into new roles and given new power to assist patients. As a result, they attained more authority and eventually challenged out-dated standards for practice and work habits. For example, nurses increasingly felt freer to remain seated upon a doctor’s entry to the nursing station.\(^{294}\)

The fundamental importance of teaching nurses from a nursing perspective was acknowledged and for the first time in VGH’s history, nursing instructors took charge of nurses’ education in the 1960s.\(^{295}\) As a result, the nursing education at VGH was made more relevant to nurses. The student nurses were taught more pathophysiology and pharmacology in the course of their hospital education, although there was little discussion between doctors and nurses about the patients’ conditions and doctors often denied nurses valuable information that would have helped them to nurse their patients. For example, a doctor may have ordered a nurse to measure a patient’s fluid intake and urine output or to infuse a certain kind of intravenous fluid, but not explained to the nurse why it was necessary to perform these activities. In addition, in-depth nursing theory that provided the nurse with a medical rationale from a nursing perspective was not sufficient to adequately enhance nurses’ understanding of these tasks. In recalling her student days, one nurse stated:

Nursing at that time had, I think a limited valuing for its own knowledge and for knowledge in action…biomedical knowledge was the only knowledge that I could even see. In nursing school there were six months of combination theory and practice…then very quickly that diminished…to one day of theory and five days of practice…there was specialty specific…pediatrics…maternity…which focused on nursing care of a patient …it was all oriented around pathophysiology and biomedical knowledge…I never heard anything about nursing theory…\(^{296}\)
The importance of understanding the intersection between theoretical nursing knowledge and nursing practice became more evident to nurses as they took on more responsibility for sicker patients with more complex diagnoses. They increasingly had to make independent clinical decisions at the bedside. Nurses therefore began to ask “why” they were exercising the skills they had learned, and the School was called upon to give them answers. However, by 1965 it was clear that the VGH School of Nursing could not achieve these standards. Richmond wrote:

A group of our teachers has been meeting regularly...some inescapable facts stand out. Not only can we not teach successfully, we cannot provide safe supervision to students in clinical areas, with the ratio of two instructors to 45 students...the students are increasingly aware of the pressures on them in difficult clinical situations, and the relative lack of challenging instruction...they both locally and provincially, are asking that something be done, And particularly asking for a reduction in their service load.\(^{297}\)

Nurse leaders like Richmond acknowledged patients were becoming more complex. The faculty of the VGH School of Nursing became increasingly ambivalent about its abilities to teach new nurses the theory they required to care for the more complex needs of patients. One solution was to combine the VGH School of Nursing with the baccalaureate degree in nursing offered at the University of British Columbia School of Nursing. Ambivalence about the degree in nursing was reflected in the sentiments of VGH nurses, who were becoming increasingly resentful that the UBC student nurses were using VGH for their clinical experiences. Some VGH nurses believed that the UBC student nurses were not adequately prepared to work on the nursing wards after graduation.\(^{298}\) Leal stated her VGH School of Nursing education gave nurses more hands-on experience than nurses in degree programs. Leal compared the competence between the two kinds of RN’s this way. Hospital based nursing graduates

Acknowledged night shift, patient care ratios, the system, the limited time maybe to do an assessment with your patient...We found the nurse with the degree really had a challenge to get over that...the reality of this is no longer your education anymore...this is what you’re required to do today and you’ve got five patients...You’re going to be handling up close and personal body fluids and you’re going to have patients die.” \(^{299}\)
Furthermore, nurses who graduated from hospital-based nursing programs believed that university-trained nurses did not want to work at the bedside, preferring to work in nursing management or education. This was one of the reasons why Leal did not pursue a degree.

**Baccalaureate Nursing Degree**

In 1971, just 6% of graduate nurses in British Columbia actually held nursing baccalaureate degrees, even though VGH and the RNABC authorized an increase in pay for nurses with a baccalaureate degree since 1957. In the 1970s, many nurses were ambivalent about the value of university-based nursing education and did not believe it was necessary to practice nursing. Moreover, according to the nurses interviewed in this study, baccalaureate nursing education did not seem a relevant avenue to prepare for intensive care work in the early 1970s. Some of participants remembered feeling pressure from the hospital to pursue university baccalaureate nursing degrees. Hare recalled the VGH director of nursing stated that if nurses didn’t go back to school to obtain baccalaureate degrees, they would be fired, though it must be noted that no documentation was found which indicates that any VGH nurses were ever actually fired for such a reason, the memory still reflects the pressure nurses felt.

The baccalaureate degree was not a practical solution for critical care nurses wishing to pursue advanced education in critical care because it was a general nursing degree that did not address the particular learning needs of bedside ICU nurses wishing to specialize in critical care nursing. Further, Hare echoed the sentiments of other participants in pointing out that it was next to impossible for ICU nurses who worked full-time and had children to find the time or money to pursue a baccalaureate degree. It was not prudent to take out student loans to pursue the degree and then return to essentially the same job for the same pay. Leal likewise thought that returning to school was impractical and would not be sufficiently rewarding. She believed she was learning what she needed to learn on the job and took it upon herself to engage in self-
This reflected the common belief among nurses in the 1970s that specialized skills were best learned on the job, not in school. Varcoe explained:

The people who did the hiring [into critical care units]...were themselves diploma prepared [who] really favoured those of us who were diploma prepared because we could just walk in and do...even though we really, in fact, had no clue of what we were doing, we were constructed as ‘knowing’ what we were doing and as very confident.

On the other hand, some nurses perceived the degree as a way to receive credit for their nursing knowledge. Nurses like Varcoe, for example, opted to obtain a baccalaureate degree in nursing, even though she was already a skilled critical care nurse. She wanted to get credit for what she knew, since she and other nurses had been teaching resident doctors how to defibrillate patients, start IV's, or insert nasogastric tubes, without any formal recognition from the hospital and medical staff for their efforts. Varcoe implied that the degree program was broader than the immediate knowledge she would need to do her job in critical care. She stated: “[the program] open[ed] my eyes to many things...the most important was the notion of nursing as a profession...taking up other kinds of knowledge other than strict bio-medical knowledge...and I learned more than I could use.” The degree in nursing thus provided Varcoe with a foundation that eventually lead her to contribute to the formalization of critical care nursing theory when she became a critical care instructor at VGH.

Most of the nurses who participated in this study graduated from the VGH School of Nursing, or from other hospital based schools in Canada. Two attended community college nursing diploma programs. The participants except for Gibault did not expect to work in the ICU immediately after their graduation, even if they had trained in the ICU as student nurses and were familiar with the kind of ICU practice. Actually, a mastery of basic nursing skills learned on the wards was considered essential in preparing nurses to work in the ICU. Leal said that nurses who hoped to work in the ICU had to have a high degree of organization in their work and this was not a skill that could be taught at school. Rather, it was the product of extensive bedside nursing
experience (i.e. ward nurses had to become capable or remembering histories, treatment plans and medications for as many as six to ten patients at one time). This organizational adroitness had to be achieved before ward nurses could competently manage unexpected crises when the patient deteriorated and make immediate changes in the patient’s care plans.\(^{309}\) It included performing duties such as bed bathing or preparing and changing dressings using the aseptic techniques (a method of keeping materials free from human touch) in a timely fashion to effectively manage the workload. All of the participants felt that they first needed to gain the wisdom of experience and perfect the skills of nursing before they could provide competent critical care. When Zettel began working as an RN, she believed she needed a “kind of work up” to be able to go to the ICU “…the acquisition of skills was for me…[the definition] of a good nurse”\(^{310}\) “I needed to be really proficient and have a really great skill set…I had done a bit of critical care for my last [student nurse] practicum” which helped to guarantee a position as a staff nurse in critical care.\(^{311}\) Experiences like this were essential for ICU practice and nurses could not survive working in the ICU before skills that extended beyond the basic could become second nature.\(^{312}\)

During the late 1960s and into the 1970s, ICU nurses at VGH were focused on developing and honing their skills. Although they generally didn’t consider baccalaureate nursing to be relevant to their practice, they began to recognize that that theoretical knowledge would help them to manage the ever-expanding population of patients who were living with, as opposed to dying from, chronic diseases that flared up into acute illnesses\(^{313}\) such as kidney failure; blood infections; new chronic diseases; new kinds of cancers like leukemia’s which were responsive to bone marrow transplants; rare diseases like Guillain-Barre Syndrome that paralyzed the patient; or sudden illness associated with multiple traumas, such as gunshot wounds, which had previously been rare in Vancouver.\(^{314}\) The needs of this more complex
patient cohort forced intensive care nurses to look for ways and means to deepen their knowledge of patient care and disease processes in order to fulfill their heightened responsibilities at the bedside.

**Inservice Education**

In February of 1967, a nursing inservice education department was formed at VGH to provide education to nurses at the bedside to meet the growing demand for education for nurses. Its responsibilities were to orient and teach nurses who were new to critical care as well as to provide continuing education for staff nurses. In her annual report in 1968, Richmond defended the inservice program, noting that the availability of increased life-saving equipment increased the need for nursing care and that the life-saving equipment was valueless unless knowledgeable personnel attended it to. The hospital introduced RNs to new procedures or equipment, offered voluntary in-service training, and gave nurses information about new hospital policies. Hare said she was quite blasé about attending in-service hospital training during work hours and many other nurses resisted attending because they felt the in-services would not be that useful for the hands-on bedside nurse. As Hare stated, they were taught by “somebody who had a degree…who was a briefcase nurse,” and was not even an intensive care nurse. In-service education continued to be used to teach nurses about new nursing techniques and new treatments and devices, but generally, it did not meet the needs of nurses in search of new critical care knowledge. This was because gaining that knowledge could not be learned in an in-service session.

**Grassroots To Advanced Practice**

The oral histories provide insight about how nurses began to organize specialty practice education and help to describe the history of advanced specialty education. Varcoe was the only
nurse in this study who discussed the development of critical care nursing theory and education in detail, but other participants referred to the critical care course that Varcoe and other critical care nurse educators at VGH created in their interviews.

The development of critical care education at VGH occurred in two phases. The first phase was an in-hospital education program, started in the late 1960s and lasted until 2000. A second phase, began in the 1980s, when critical care education gradually moved into community colleges, and evolved into a college credentialed continuing education certificate. This program was offered simultaneously with the in-hospital program, and eventually replaced it. There was also a UBC based critical care program, through the continuing education department of the UBC School of Nursing that has already described. Many of the VGH critical care educators taught in both the community college and various in-hospital programs with educators from other hospitals that had ICU’s around BC.316

The First Stage. Hospital Based Critical Care Nursing Education at VGH: Orientation

As of 1967, nurses who worked in the cardiac care unit, the cardiac surgical ICU, post-anesthetic room and the adult ICU were given a two-week instructional program designed by the in-service education department.317 The program consisted of lectures and self-directed reading modules about CPR, ECG monitoring and rhythm interpretation.318 A general course on fluid and electrolyte management was later added.319 Following the two weeks of classroom instruction, the nurses were “budded,” or partnered with an experienced nurse for two to five weeks before caring for a patient on their own.320 The knowledge the nurses gained in the orientation and buddy shifts was augmented by the medical-oriented discussions that took place at the bedside every day. Akeroyd described the on-the-job learning in this way: “the neuro guys came down and said, ‘okay, you need to keep this [patient] at this pressure and not above that and if it goes up there, you gotta call us right away, and keep [the patient] sedated.’” When asked if she knew
the rationale behind these instructions, she said “We understood… how to do it… and what to watch for…”  Dearlove recalled she did not receive much textbook or classroom education when she first came to the VGH ICU in the 1970s. She listened to bedside discussions between doctors that taught her some important information to help her predict changes in patients’ conditions. At times, she did not really know the rationale behind certain therapies the physicians ordered, but came to understand the cause and effect of what was happening to the patient through her experiences with that patient. She explained she knew because “[the patient’s response] happened before or somebody’s potassium [went] down because [I’d] given this or the potassium [went up] because [I’d] given them too much blood or they [went acidotic]…”

Nurses depended upon physicians and their senior staff nursing colleagues to explain what they were doing, but these mentors did not actually provide them with much evidence-based knowledge as to why they were doing what they did, or help them predict the effect of their treatments on patients with differing diseases.

**Uncertainty in Practice: Knowledge Deficit**

The nurse participants who took the hospital’s two-week instructional program remembered the two courses about fluid and electrolyte imbalance and ECG monitoring, but could not remember much of the curriculum’s content. The instruction the nurses received was meant to be an introduction to critical care but it did not include a rationale or an explanation as to how this biomedical knowledge translated into nursing care. As such, it did not provide nurses with a theoretical framework for interpreting pathophysiology that could help nurses to clearly define their roles and obligations as they cared for the critically ill.

Although in the 1970s, nurses were expected to learn the skills of caring at the bedside, many of the participants admitted that the knowledge they gained in the two weeks of orientation was not enough to sustain them as they cared for an ever-increasing population of acutely ill
patients with complex diagnoses. The participants remembered times when they felt uncertain and even unsafe while carrying out doctor’s orders for patients. For example, Varcoe reflected on caring for a patient who became newly paraplegic (both legs paralyzed):

I was the only person looking after him…I was taught how to turn a Foster frame but I didn’t know the first thing about what [being a paraplegic]... meant for his life Physiologically…no idea!...I [looked] after a woman [who] had burns to 75% of her body. Did I know anything about burns management? Nothing! I knew that I didn’t know and yet wasn’t…it was so accepted to be practicing ‘doing things’ without any kind of foundation…I mean my whole background in nursing had been ‘just go in and do regardless of whether you actually understand it.’

Carnegie felt it was common for critical care nurses to not know the full extent of their patient’s disease, or the outcomes of the treatments they administered. Some nurses in this study expressed feelings of anxiety and stress as they recalled their knowledge deficits, and upon reflection, acknowledged that there were times when they felt their nursing practice was risky or unsafe. Indeed, one nurse asked the interviewer to turn off the tape recording during her interview as she explained a situation that she felt was particularly unsafe because the nurses did not know how to cope with the patient. Carnegie said she did not know much about the physiology of critical care, but she really did want to learn more in order to have a “better idea about predicting when [she] should ask for help or a patient [when] there wasn’t any actual sign or symptom yet that [I] just had the feeling the patient wasn’t as good as at the beginning of the shift.”

Varcoe said that as a staff nurse in the 1970s there was “no legitimate way to say ‘I don’t know’ or ‘ I want to know’...the more I learned the more I became aware of the limits of my knowledge and how I was making all kinds of decisions that actually required [more] knowledge.” Critical care nurses believed they could no longer rely on the education they received at the bedside, during doctor’s discussions, or from other bedside nurses. As Varcoe pointed out: “it just seemed stupid to be practicing on so very little knowledge…to always feel
that you really didn’t understand what you were doing was just wrong. I mean some of the things that we did…it was just unconscionable that…you would practice based on bravado...just finding one’s self in situations…was a way of life.\textsuperscript{328}

In an attempt to meet the demand to provide experienced ICU nurses with continuing education, Dearlove remembered the ICU hired its first clinical instructor, Judy Shields, in 1979. Shields a nurse, worked exclusively worked in the ICU and gave inservice lectures to nurses away from the bedside. Dearlove thought Shields was an academic nurse who shared in-depth\textit{medical} knowledge of intensive care, which the nurses certainly welcomed. At the bedside, however, Dearlove felt Shields’ ability to demonstrate the relevance of that medical knowledge to nursing practice was limited. This left Dearlove with the impression that Shield did not have very much intensive care nursing experience, which Dearlove highly valued. As far as Dearlove was concerned, this diminished Shield’s credibility as a teacher.\textsuperscript{329} Dearlove’s sentiments were indicative of the dynamics of the grassroots nature of critical care nursing education in the 1970s. Critical care nurses like Dearlove desired more theory that enabled them to provide comprehensive nursing care to their patients, but they were also ambivalent about the new approaches used to balance nursing experience with teaching more theoretical concepts. The older belief that the reliance on experience was the key to effective nursing sometimes could also serve as a barrier to learning about new theory.

The inservice education, that basically followed the traditional model of hospital-based education and training, continued while nurses worked in the ICU, provided them with short training sessions in the ICU at the patient’s bedside, or in the lunchroom in the ICU. Nurses found it was not the most effective method to teach critical care nursing. The classes were scheduled at inopportune times: on a nurses’ day off or during day shift, when the nurse had to find someone to watch her patient while she was away from the bedside for an hour. It was
difficult for the bedside nurse to concentrate on the lecture knowing that while she was away, the patient’s condition could take turn for the worse, and she might be called out of the class. Or, when she returned to the bedside after the lecture, she knew she might find that only minimal work had been done during her absence, which could potentially harm the patient. As a result, the classes were small, and were often interrupted by nurses coming and going, and information was not well disseminated to those who could not be present to hear it. It was clear that another method for the continuing education of nurses had to be found. Critical care nurses began to take nursing education into their own hands and sought out more formal methods for advancing their capacity to nurse the critically ill patient.

**Critical Care Nursing Theory**

Nurses who came to work in the ICU in the 1970s and 1980s realized the benefits of learning nursing theory that they could apply to practice, and sought out formal ways to learn. New critical care nursing textbooks, most often published in the US, noted each nurse needed to know the core concepts of nursing theory in order to competently practice critical care nursing. In 1973, nursing theory was defined as the process by which the nurse “seeks the rationale base for all her interpretations and actions.” It was further defined as a scientific process of describing the phenomenological characteristics of human behaviour, and their relationship to other phenomena, the process was scientific in that it could be repeatedly observed and named.

The nurse-patient relationship was fundamental to nursing theory. For example, nursing interventions to ensure patients’ safety and security helped patients to perform daily activities; such nursing interventions were applied, tested and found to be effective to responses to certain phenomena as they occurred. Theory became part of the “background knowledge that enable[d] the clinician to ask the right questions, or look for the correct problems,” and determine appropriate interventions.
One of the first nursing textbooks published in 1973 that was devoted specifically to intensive care nursing called *Critical Care Nursing* was published in the US, and it was not widely available to critical care nursing education at VGH, although Carnegie remembered using the text, during her course work at Vancouver Community College (VCC) in 1985. The concepts in critical care nursing theory captured clinical knowledge about four main body systems the cardiovascular system (heart); the respiratory system (lungs); the renal system (kidneys); and the nervous system, as well as the relationship between the systems in the presence of critical illness. In addition, each chapter of the book described the biomedical technologies ability to monitoring the patient, and outlined the nurse’s responsibilities while using the equipment according to the body system. For example, while learning the cardiovascular system, nurses learned how to read ECGs. Procedures that described how the nurse obtained blood gases were explained, and how to interpret the results were taught in the text. Critical care nurses at VGH desired these core concepts in critical care, yet this formalized text was beyond their reach. Varcoe indicated that there was a complete lack of published nursing theory available to her on which to base a critical care course and consequently, there was not substantial content to support the course’s learning objectives, which the nurses were expected to meet. Intensive care nursing education at VGH was therefore designed by a select few nurses in the hospital system who became employed as full-time educators, and to nurses who had opted to pursue academic degrees to teach college programs, both of which, took a good deal of time and effort to establish.

Varcoe recalled the process by which she became involved in the development of critical care education, first at VGH and then at community colleges around Vancouver. Upon completing the last exam required by her degree in 1979, Varcoe received a phone call from Beresford, the director of nursing at VGH, asking her to become an instructor for a new six-week
post-graduate course in open heart surgery offered by the hospital as a recruitment strategy. Varcoe accepted, although she had no teaching experience and was the only nurse who had a baccalaureate degree in nursing in the critical care nursing department. She and Jean Anderson, the CSICU clinical instructor, designed what she termed “behavioural objectives” over the course of three months. During the same time, they crafted lectures from the fluid and electrolyte and ECG monitoring courses provided by the hospital, using the notes Anderson had developed from in-service talks she had given in cardiac surgery since 1965. Varcoe also talked about researching medical textbooks to create the curriculum that was relevant to critical care nurses at the time:

Trying to glean a better understanding of the physiology but it was all medically...you know...medically oriented and then trying to derive the nursing implications from that...I mean I was studying the coronary artery disease until it came out of my ears...all different forms of heart disease...basically having tried to pull the theory from textbooks and journal articles and know and meld it with experience, try to produce some kind of understanding why it is that we nurse the way we do. 

According to Varcoe, the first course that she and Anderson taught was “bloody awful.” She said that in essence it was a glorified cardiac surgical nursing orientation, because she and Anderson did not know the difference between what nursing knowledge was generic and could be applied generally, and what knowledge was specifically designed for her particular unit. Further, some of the students knew as much or more than she did since the hospital had advertised the program across Canada. Ten students who attended the program already had open-heart surgical nursing experience, while some others had also taken post-graduate courses relevant to cardiac or intensive care nursing. The high interest in the course Varcoe and Anderson taught illustrates the profound need for more specialized nursing education in critical care in the 1970s.
The Second Stage. Certificate in Critical Care Education at Vancouver Community College

In 1980, Varcoe was asked to become the cardiac surgical instructor at VGH and the course was reconstructed to include intensive care nurses. While she was teaching her course in cardiac surgery and critical care nursing at VGH, Varcoe noted that VCC had subsequently received provincial funding to provide nursing courses, and invited nursing instructors from other Vancouver hospitals with ICU’s such as St. Paul’s Hospital, to design and teach fluid and electrolyte management, ECG interpretation, and the management of the critically ill patient. These courses were considered part of ICU nurses’ continuing education, and were open to graduate nurses, but did not give any credentials to the nurses who attended.

In or around 1979, VCC had proposed the introduction of Level I and Level II critical care certificate courses that would be jointly taught by VGH and St. Paul’s Hospital nursing instructors “under the auspices of VCC.” This constituted “more of a formalization of the educational component of nursing.” As such, formalized specialty education was important to nurses who attended hospital-based continuing education courses, but who had not received any recognition for their efforts, such as a formal certificate. Although VCC credentialed nurses who completed the critical care courses, no historical evidence was found to indicate that VGH or the RNABC recognized these credentials.

Not many nurses took advantage of VCC’s new credentialed certificate course in critical care during the 1970s and 1980s. Varcoe explained that nurses continued to value experiential knowledge over academic learning. It was not only costly since ICU nurses earned roughly $11.58/hour in 1980, but continuing education for nurses did not result in a significant increase in pay, or professional status to be gained upon completion of the program. VGH encouraged Carnegie, an assistant head nurse who worked in the ICU for about two years during the early 1980s to attend the critical care level II program. She did so, but said she did not know any other
VGH nurses who took the VCC critical care program. She recalled that the course was “very intense,” and emphasized physiology and pathophysiology. Upon completion of the course, she felt more confident in her medical knowledge as a bedside nurse, but at the same time, felt that her hands were tied because she was unable to use what she knew. This was because she did not have the authority to take action when a patient was unstable or to make timely and appropriate decisions without first discussing the situation with the resident doctors, many of whom did not have as much critical care experience as she did. For example, Carnegie remembered caring for a patient who was struggling to breathe. She wanted to administer Lasix (furosemide), a medication that would dry out the patient’s lungs and prevent or stave off intubation (the insertion of a breathing tube, and attachment to a ventilator). However, the resident doctor didn’t order the medication and in 1983, it was still frowned upon for nurses to directly tell doctors what treatment to order. The VCC course appealed to nurses who were looking for continuing education and an acknowledgement of their efforts, but VGH paid nurses five weeks of full-time salary to attend its own program. Essentially, there was little incentive for nurses to continue formalized advanced education at community colleges.

It could be argued that even though nurses desired advanced critical care nursing education taught from a nursing perspective, nurses could not build and acquire more in-depth medical knowledge, a situation which was not unlike that of physicians, who also had to develop their own specialized medical knowledge of the treatment of critically ill patients. Manning, an anesthetist who worked in the ICU during the 1970s, stated that from a physician’s point of view, patient care was essentially about addressing the problems of compromised breathing, altered heart function and poor blood circulation. He stated:

In those days, a lot of fluid…corrective things needed to be done. They [the patients] were either too dry and their kidneys had gone amok and they were hypotensive [low blood pressure] and their heart was hurting and the brain was hurting and needed to get it straightened
out of the other way around and got too much fluid and needed to get it straightened out diuresed [dried out with ‘water pills’] out of them while they were coasting on the ventilators.  

The content that nurses extracted from their lectures to explain or provide a rationale for the care of the critical care patient often reflected the knowledge of doctors. Leal explained that in the early days of intensive care, nurses performed head-to-toe assessments, but the depth of the data they measured was limited.

In the beginning days, you may be talking…‘this is what the patient’s doing, chest sounds, why limited blood work you may have had, urinary output, if you had a central line, and there you are.’…Nurses…their knowledge is growing as that goes, so if you wanted to know about sepsis in the early days…not as much as I know now. Did I see sepsis patients? Yes, I did. I probably saw them at end points because identifying them, unless it was a ruptured appendix or something like that, wasn’t always as astute as it is now.

Leal’s statement indicated that nurses had a limited understanding of their patient’s symptoms in the 1970s, and in-depth knowledge was in the process of development.

**Early Tensions Between Philosophies of Teaching ICU Nursing: Experience Versus the Classroom**

In the early 1980s, tension grew between those nurses who believed that intensive care nursing was best learned at the bedside, and nurses who believed that learning theory in the classroom was essential to providing the highest quality of care. Participants expressed this tension in their oral interviews when they spoke about their own educational experiences. For example, Leal, who learned how to be an ICU nurse through the hospital orientation, had a positive attitude towards continuing education, but emphasized that: “If I had two nurses in front of me and one [had] worked in intensive care for five years and I now have a nurse that’s gotten her credentials in intensive care nursing and has worked for one, I’d still like to have the one with five years because it’s the *application* of that knowledge [which is important].”  

This application of knowledge involved critical thinking, a skill all ICU nurses had to use in the ICU setting. Thus, for Leal, any continuing education was only useful if the person learning it was able to use that knowledge appropriately to make clinical judgments. Critical thinking entailed
consideration of all aspects of the patient’s physical and psychological condition in order to evaluate and resolve preexisting or new problems. She believed that nurses’ professional development was nurtured by experience and that attaining a certificate could never substitute for experience.

In contrast, Logie, who graduated from The Health Sciences Centre’s critical care certificate in Winnipeg, (an internship program) in 1983 before practicing in the ICU in Winnipeg, stated that “advanced education” was the skill of critical thinking, that could be learned in the classroom and helped to prepare the nurse to anticipate patient problems at the bedside. Logie recalled that when she first worked in Vancouver in the late 1980s, she was surprised to find that bedside nurses did not exhibit critical care thinking skills. She said, “I felt people really didn’t know why they were doing certain things and I didn’t understand why they didn’t take the initiative to find that out…for their own professional development…[I could see that] they didn’t have the…advanced education [they needed].” Logie explained that nurses who lacked advanced knowledge of nursing theory were unable to see the patient as a whole, in terms of their physiological and the psychosocial aspects, and they were unable understand that technology and pharmacology were tools to help them see the patient holistically. In other words, from Logie’s perspective, advanced theoretical education gave nurses the ability to understand and manage the relationship between the functions of different body systems. Moreover, advanced education enabled the nurse to engage a more theoretical understanding of the supportive function of biotechnology in the management of critical illness. As an example of the difference between a nurse with a theoretical foundation for critical thinking and a nurse with practical experience, Logie stated:

Nurses either get it or they don’t…in the ICU setting. The ones that don’t get machine oriented and that’s…they’re treating numbers, they’re nursing lines, they’re nursing suctioning, they’re ‘nursing’ the tasks. They’re not nursing the person who’s attached to all of that and that’s what I think is the shame in that…because you have to get through all that shit’s around and it’s
only numbers, it’s only lines…numbers can be wrong…lines might not work…there’s someone attached to the end of that and that’s the person that I like to look after. All that other stuff was helping me do that but it’s not my focus. My focus is at the end of that tube.358

Logie clearly believed that that nurses could not see the critically ill patient as a whole person if they did not have advanced theoretical knowledge. Instead, nurses inevitably understood their patients in terms of a series of machines and devices that needed constant maintenance, which included the aid of medications. In other words, if nurses did not know the theoretical underpinnings of critical care nursing, patients’ experiences as whole persons became secondary to the mechanics of performing tasks by rote. Fairman calls this kind of nursing “functional” nursing.359 Nurses who practiced functional nursing, might miss addressing important psychosocial and clinical needs. For example, since unconscious patients could not express their emotional needs in an observably meaningful way, the nurse might miss critical findings in the patient’s behaviour that could cause negative patient outcomes. If these behaviours could not be predicted, they could cause harm. This view reflected an increasing awareness of the need for critical care nursing education to integrate theory and skill development in a formalized standardized curriculum. Creating such a curriculum was easier said than done. Given the context in which critical care nursing education was created, it required a long process of negotiation to establish critical care education in BC, but also to change the mindset and nursing mentality in such a way that a theoretical foundation was seen and accepted as an integral part of nursing practice. 360

Summary

This chapter has traced the evolution of critical care nursing knowledge over the course of two and a half decades from 1960 to 1985, with a focus upon the contributions VGH critical care nurses made towards its evolution. Therein, the chapter has detailed significant developments in VGH’s hospital-based nursing education curriculum that responded not only to
technological and medical change, but also to academic advancements. As more RNs acquired continuing or university education, and applied their knowledge to practice, standards of nursing caring became higher. At the same time, the expansion of internal medicine and surgical techniques put new demands upon RN’s to understand physiological processes and disease, in order to meet a patient’s basic needs while they were acutely ill particularly in the ICU. Consequently, there was doubt as to whether the traditional way of educating VGH nurses at the bedside was the best method, and theoretical knowledge was increasingly seen as essential to practice but also received with ambivalence. Further, many nurses who worked in critical care believed that attaining formalized education would allow them to receive appropriate recognition for their expertise from physicians as well as general duty nurses.

In the 1970s and 1980s, it was difficult for critical care nurses to obtain advanced nursing education for social, political and economic reasons. Some nurses pursued baccalaureate degrees but found that the education they received did not directly deepen their knowledge of critical care nursing practice. Other nurses recognized the value of nursing theory and applied the principles of medicine to critical care nursing. They also helped to create it and deliver specialty practice theoretical knowledge and skill to their nursing colleagues. Lessons learned from the experience of nursing the acutely ill thus formed the foundation for a course and then a standardized critical care nursing theory program. Eventually, this program was taught to all new critical care RNs in standardized curriculums not only providing a professional identity for critical care nurses, but also acknowledging the value of their work, and securing critical care nursing as a specialty practice in BC. In the next chapter, I will explore the relationship between biomedical technology used in the ICU and its significance to the development of critical care nursing knowledge, and the image and identity of the critical care nurse between 1960 and 1985.
Chapter 4-Technology in Practice

The lifesaving and clarifying features of technology, coupled with nurse competence and patient and family perception of the nurse, define the ICU nurse as a powerful—indeed, superhuman—figure.\textsuperscript{361}

**Focus of the Chapter**

The purpose of this chapter is to understand the relationship intensive care nurses had with biomedical technology including the electrocardiogram (ECG), the ventilator and the Swan-Ganz catheter during the twenty-five year period of ICU nursing history under study. I focus on selected case examples to illustrate broader patterns of the nurse and technology relationship. Biomedical technology is defined as the machines, tools or devices that nurses and doctors used directly or indirectly to treat patients.\textsuperscript{362} Nurse historians, Fairman and Lynaugh, as well as Keeling and Toman provide a framework for the experiences of VGH’s ICU nurses as they began to use new technologies in their caring practices. This framework is outlined in chapter one.

I argue that although vigilant one-to-one nursing was the cornerstone of intensive care at VGH, the monitoring and managing of technological devices and machines became critical aspects of this care. The knowledge and skills that this entailed, made a crucial difference in patients’ healing journey, or journey towards their eventual death and as such, became a definitive characteristic of critical care nursing.

Further, I examine the impact of the expansion of biomedical technology using the technology-in-practice framework outlined in chapter one, with an emphasis on the changes in the power dynamics between physicians and nurses, and between nurses themselves, that developed with the introduction of biomedical monitoring equipment to the ICU. The machines and devices used in critical care, particularly the Swan-Ganz catheter, produced unprecedented data about patients’ physiological conditions. It became too demanding upon the doctor’s time to
perform the tests, and then interpret the results for one individual patient at a time, making it almost impossible for them to stay abreast of the condition of the other critical care patients who may also have Swan-Ganz catheters. Nurses therefore, had to incorporate technology and the analysis of technological data into their practice. Nurses in the VGH ICU did not need to directly persuade doctors of the need for them to learn new technological skills. Rather, they negotiated the use of technology in responding to the critical data it enabled them to collect (i.e., data collected during the resuscitation of a patient in a state of cardiac arrest). As ICU nurses developed expertise in particular technologies, physicians became dependent upon nurses’ findings in order to treat the patients who depended upon those technologies. Consequently, experienced ICU nurses commanded a new level of respect from physicians. Less experienced ICU nurses, and general duty nurses. The nurses who worked with the new technologies on a regular basis thus “actively participated in the reconstruction of their practice and negotiated new roles and identities.” This substantiated nursing practice and raised nurses’ status in the eyes of hospital physicians.

Providing a historical context for nurses’ development of technological skills illuminates the process by which they became experts in the use of biomedical technology. This process began with the expansion of the coronary care specialty at VGH in the 1950s. Some of the equipment such as the Swan-Ganz catheter was used in the ICU patient population in the 1970s and the 1980s. A description of the ways in which nurses developed their technological expertise in the context of the VGH ICU is the focus of this chapter.

**Historical Background: Medicine, Cardiology and Biomedical Technology**

From the 1950s onwards, the belief that new medicines and technologies in heart diseased patients, could effectively treat and even cure debilitating chronic diseases grew among health professionals and health scientists alike. The new technologies which supported
patients while they healed, and inspired so much hope for cure from critical illness, included the ventilator, which artificially breathed for the critically ill patient; machines which monitored patients’ physiological organ functions, like the ECG; and devices to heal the patient, such as the defibrillator machine, which applied electricity to restart the heart when it was in a state of cardiac arrest.

The advancement of medical science in addition to new medical equipment encouraged patients to trust the medical care. In 1953, VGH opened its first “Heart Station,” where the heart’s electrical activity could be monitored in the patient with heart disease from their beds. VGH’s medical doctors believed that ECG was an essential part of a complete heart examination. In a VGH newsletter in 1953, articles were written boasting that VGH owned five ECG machines and expected ECG technicians to perform 7500 ECGs a year. The names of the supervising doctors were listed and the hospital applauded their accomplishments in the life-saving surgeries they had successfully performed in response to ECG monitoring. However, articles did not acknowledge the VGH nurses’ contribution to the care of patients who had received the sophisticated surgeries, although there were pictures of nurses at the bedside, presumably caring for them.

Further, in its “Annual Employees Special Edition” of News in General, in 1967, VGH outlined its plan to redevelop an old hospital building into a cardiac suite at a cost of $240,000; the equipment costs were close to $80,000 and were jointly financed by the province and the hospital. VGH proudly asserted that the new unit represented the “continu[ation of] its best efforts towards the public good” as a health care provided. At the same time, it acknowledged it could not provide such sophisticated technologically based care without the support of the hospital ‘staff.’ In 1970, VGH published a memo announcing that it would open a new teaching unit to train nurses in the care of patients undergoing cardiac monitoring. It
acknowledged that nurses’ assistance was crucial to the use, and maintenance of, sophisticated biomedical devices in cardiology:

Heart disease is the most frequent single cause of death in Canada, and because the demand for nurses skilled in the life saving techniques afforded by modern electronic equipment is rapidly increasing, the Vancouver General Hospital believes the training of capable, qualified nurses in this specialty is extremely important…the course is specialized for nurses working in acute care areas such…as emergency, operating rooms, post-operative recovery rooms, coronary care units, intensive care units…

A hospital making the decision to train and certify nurses to work with sophisticated medical equipment once reserved primarily for doctors was a revolutionary event for the time – so groundbreaking that *The Vancouver Sun* devoted an article to it. The article quoted Shirley Stokes, a nurse who was hired to instruct the nurses in the new program: “Training in the use of this new equipment [ECG and defibrillator] is a relatively new approach…if a patient with a heart complaint has to wait to see a doctor…it could be too late. If a trained nurse is on hand it could be the difference between life and death.” As Stokes implied, the opening of the cardiac monitoring training unit reflected the hospital’s new philosophy with regard to the relationship between nursing and medical technology in general. However, only nurses in critical care, surgery, and cardiac care were given the opportunity to attend the program. These educational opportunities distinguished nurses with specialized training from general duty nurses and further solidified the hierarchy among nurses.

**Technology and VGH Critical Care Nurses**

New equipment to monitor and treat patients was introduced into critical care as physicians found relevant applications of biomedical monitoring devices, and new ones were invented in the context of caring for the critically ill patient in the ICU. This expansion had a profound effect upon the way nurses cared for their patients, especially since the new equipment enabled patients with chronic conditions to live longer than they had in the past. The nurses in
this study were not directly asked about the meaning of technology in their practice when they were interviewed. Rather, the participants were simply asked if they recalled any changes to their practice. Each participant noted that nursing practices became more scientifically and technically oriented when new invasive technologies were introduced into critical care. In their oral testimonies, they also emphasized how nurses were increasingly expected to know how to work with biomedical technology as a standard part of their job. As I explained in chapter 3, the hospital accommodated the increasing need to know by introducing new training programs in the 1970s.\textsuperscript{378}

When the ICU first opened its doors in 1967, all of the old medical equipment that nurses had used in the PAR, and on the wards, was moved to the new unit and used to care for the critically ill, including manually operated patient beds; glass thermometers, blood pressure cuffs, piped in wall suction, which replaced portable suction devices at the side of the patient’s bed, metal framed beds, urinary catheters, and chest tube set-ups.\textsuperscript{379} Some nurses did not consider certain medical technologies as ‘new’ technology because they had already incorporated the use of this equipment into practice and understood how they worked. For example, this included the X-ray machine that was routinely brought to the patient’s bedside to take daily chest X-rays, pictures of the lungs that nurses became accustomed to seeing, or endotracheal tubes which were inserted down the patient’s throat into the lungs in order to protect their airway from collapsing and allow oxygen to enter the lungs. Nurses became accustomed to seeing in patients, since they were used so frequently in the ICU patient population.\textsuperscript{380}

Nurses who worked in the first ICU in 1967 stated that there was very little technological change during the first ten years following its inception.\textsuperscript{381} The exception came when old machines had new components added to them, such as the ventilator, and ventilator components such as the PEEP (Positive End Expiratory Pressure), a small device that was added to the
ventilator which improved the transfer of oxygen across the air sacs of the lungs and regulated positive end expiratory pressure, making breathing easier for the patient.\textsuperscript{382} The nurses and physicians interviewed observed that the patient’s lungs healed faster on the ventilator with PEEP, and they were able to spontaneously breathe, as opposed to having their breath controlled by the ventilator, which doctor’s believed reduced the patient’s stay in the ICU.\textsuperscript{383}

Aside from the ventilator and ventilator components, the only ‘new’ equipment that was brought to the new ICU in its first ten years was a heart monitor for each bedside, otherwise, there were no new invasive monitoring medical devices or machines which interpreted patient signs and symptoms.\textsuperscript{384} Two new technologies introduced about 1976 at VGH that significantly impacted the nurses’ work included the arterial line blood pressure monitoring catheter, and the Swan-Ganz catheter. The use of this particular catheter, which was used to measure the function of the heart in heart failure, and dominated the participant’s testimonies when they spoke about changes to practice, but they often did not remember precisely when it was first introduced. The remainder of this chapter will explore the meaning of three new technologies to critical care nursing practice, namely the ECG monitor, the arterial line and the Swan Ganz catheter, which expanded the development of critical care nursing skills and knowledge.
Figure 4.1 Nursing a patient attached to a monitor and ventilator in the first ICU, 1967-1983.

Note. From Vancouver General Hospital Public Relations Department. Vancouver Coastal Health. Reprinted with permission.

ECG Monitors, and Arterial Blood Pressure Lines

As technical know-how became an essential skill, ICU nurses learned how to use the machines, interpret the data they produced, and connect the data to patients’ symptoms and treatment, in order to provide comprehensive nursing care. In 1967, the only way nurses could assess patients’ cardiac status was to listen to the heart with a stethoscope and palpate patients’ pulses with their fingertips. When continuous ECG monitoring became standardized for each ICU patient, in or around 1969, nurses learned how to monitor the heart rate by applying the three electrical leads that attached to the patient’s chest, and plugging the leads into a six-inch
screen (oscilloscope) located at the head of the bed. As the ECG did not provide a printed tracing on paper for the nurse to study after the fact, nurses had to constantly look at the oscilloscope to ensure that they did not miss a heartbeat. This task was time consuming and distracting for the nurses, but as many of the patients had unstable hearts, nurses had to vigilantly watch the monitor for fatal heart rhythms, in case an intervention was urgently required.\textsuperscript{385}

Monitoring blood pressure was also an awkward task for nurses.\textsuperscript{386} Nurses leaned over their patients once every 15 minutes (and sometimes more often when the patient was unstable) during their shift, stethoscope in their ears, in order to apply the manual blood pressure cuff around the patient’s arm and take their blood pressure. Nurses became frustrated by this time-consuming responsibility because they felt it interrupted their other nursing duties and made it more difficult to meet for the patient’s other needs. Sometimes the blood pressure readings required them to adjust patient medications and then observe how the patient responded to the interventions. At times, patients were bathed in cold water since measuring their blood pressure and making changes to important blood pressure supporting IV drips caused significant delays in their personal care. Back strain was common and one nurse recalled that by the end of her shift she had earaches from inserting her stethoscope into her ears.\textsuperscript{387}

Nurses’ back strain was relieved tremendously in the late 1970s, when technological advances made it possible for physicians to insert the indwelling arterial cannula into the patient’s radial artery.\textsuperscript{388} The arterial line to the monitor made it possible for nurses to continuously observe and record blood pressure, gave nurses precise blood pressure readings, and provided nurses with instant feedback after adjusting blood pressure medications, or giving IV fluids. It was also less painful for patients to have the indwelling arterial line, than to have their radial artery (wrist) punctured each morning to obtain blood gas samples. Ventilator changes were made based on these results. One nurse said that the nurses competed to improve
the blood gas results from the arterial line and see “whose patient would be extubated first the next day.” This pioneer ICU nurse exclaimed that “soon [we] became experts, better than the doctors in taking blood samples.”

Most importantly, nurses felt less task-oriented in using the arterial line, as it did not interrupt their caring practices or prevent them from giving her patients the full attention they needed. In particular, they were more able to attend to the psychological needs of conscious patients, for example, who were unable to talk because of the breathing tube that obstructed their vocal chords or to help patients’ families come to terms with the patient’s critical illness. Nurses did, however, have to give their full attention to setting up and maintaining the machines to keep them clean and in working order, to reduce the risk of patient infection. Varcoe recalled that during their critical care orientation in 1979, nurses followed the instructor, who wore a construction worker’s tool belt around her waist, to learn how to set up machines and fix them after they were attached to patients.

We used to set up all our own transducers and…we didn’t have biomed techs…we set up the [Continuous Positive Airway Pressure] (CPAP) systems, the bird ventilators and we participated in setting up the balloon pumps when they first were brought in…the tools of our trade weren’t just the stethoscopes…our tools included wrenches and screwdrivers and clamps…all kinds of things.

In the 1980s, computer technology facilitated the invention of more sophisticated and less mechanical biomedical machines with many parts. Manning, who had taken courses in electronics at BCIT before attending medical school, became the “troubleshooter” for most of the electronic equipment in the clinical side of the department of anesthesia. He solved technical problems that arose when nurses were monitoring patients, and initially relayed the pertinent information to nurses. For example, he stated that the arterial blood pressure line:

Came in a sterile kit that was made of a metal transducer and plastic intravenous tubing. The parts had to be screwed together and the transducers were clamped to the bedside…because they were heavy and they had a screw-on top…a kind of plastic dome that developed a film for inside…[to] maintain sterility. Then the diaphragm protected the patient after we sterilized the
transducers…sometimes we had to troubleshoot when the waveform [the transducer] wasn’t working…was reading too low or whatever.\textsuperscript{393}

It became more difficult for nurses to troubleshoot all of the machinery. The computerized machines were precarious, and as result, required much attention from nurses. This was particularly the case when the equipment was already attached to the patient. Nurses therefore had to expand their technical know-how to include computerized technology skills. These skills became essential to practice. In 1980, the hospital established a biomedical department which relieved the nurses of time spent trouble-shooting computerized equipment so they could concentrate on nursing care.\textsuperscript{394}

\textit{Swan-Ganz Catheter}

When the Swan-Ganz catheter was introduced at VGH in 1976, it was used exclusively on cardiac surgical patients, by doctors in the operating room. Patients were transferred to the CSICU with the Swan-Ganz in-situ for post-operative care, but if the patient experienced complications from his operation, they were transferred to the ICU. The use of the Swan-Ganz catheter was later used in the ICU patients experiencing serious infection. This machine stood out among the participants in my study, as one that seemed remarkable, and even mysterious, when first encountered. It illuminated a dramatically new way of understanding the heart’s functions, and as such, generated another level of expertise among the more experienced nurses who were taught how to use it.

The Swan-Ganz catheter was a 50-centimeter long catheter that was inserted into the pulmonary artery (a part of the heart circulation system).\textsuperscript{395} Inserting the catheter was particularly dangerous for physicians because it had the potential to generate lethal heart arrhythmias like ventricular tachycardia, which required immediate defibrillation with electricity. The catheter had a balloon that inflated with a syringe, which was attached to the end of the
The first test involved ‘floating the balloon’ to ‘wedge’ it into the pulmonary artery. The balloon was sometimes inflated more than 50 times a day and could rupture. If it was left inflated too long, or if the catheter spontaneously floated into the pulmonary artery, the artery could burst and the patient could experience serious and life threatening hemorrhages that required emergency surgery to correct. The second function of the catheter revealed the strength of the heart’s pumping action, by inserting freezing IV solutions through a syringe into one of the heart’s chambers; a sterile technique was employed to prevent introducing infection into the patient’s heart. Initially, nurses prepared for this procedure by putting the IV tubing to into a bucket of ice to cool the IV fluid before the doctor inserting it into the patient. The physician then measured the data the Swan-Ganz produced on a portable machine on a cart the physician brought to the patient’s bed. When the Swan-Ganz was first used at VGH, its use was “poo-poo’d,” or not seen as an important diagnostic instrument because doctors thought it only gave a pressure reading. At that time, VGH doctors did not know much about the catheter’s thermo-dilution cardiac output function, which measured the strength of the heart to pump blood to the body. The lack of knowledge about the Swan-Ganz’s functions in combination with the severe complications it could induce in a patient, making it a dangerous device for nurses to use, provided the rationale for limiting its use to doctors.

As Fairman notes, the new medical technologies gave nurses glimpses into patients’ disease processes which they had not seen before. It was so new to critical care in the 1970s, that the first ICU nursing textbook, *Critical Care Nursing*, published in 1973, did not even describe it. Nurse educators did not publish scholarly articles about the care of Swan-Ganz patients in nursing journals until the 1980s, an indicator of how far nurses were behind physicians in educating nurses about the bio-medical technologies they used. Educators who did write about the Swan-Ganz claimed that when nurses first worked with it, they found it
“intimidating” and “overwhelming.” For these reasons, the Swan-Ganz therefore became a powerful status symbol among nurses that marked their rank in terms of advanced knowledge and skill.

At VGH, physicians performed the cardiac output function and were dependent upon physicians to share their knowledge of the Swan-Ganz catheter. Only senior nurses actually cared for patients with Swan-Ganz catheters since the patients were extremely ill, and needed constant nursing care. Zettel recalled that when she realized she would be working closely with the doctors who cared for critically patients supported by the Swan-Ganz, she saw it as an opportunity to learn more about advanced cardiac physiology. She therefore studied and worked very hard, in order to show physicians and other nurses that she could be trusted to work with patients requiring the support of the Swan Ganz.

Logie was another nurse who worked with the Swan-Ganz catheter. The experiences she described in her oral testimony illustrate the advanced nursing knowledge she accumulated while working with the catheter. She explained that interpreting and applying the data she collected from the Swan-Ganz catheter helped her to understand patients’ symptoms. For example, she remembered looking at the numbers she had recorded over a few hour period and thinking: “[I] have to think it through and say ‘no’ this isn’t jiving…there’s something wrong here…thinking it through and taking it step by step…from the cellular level to the presentation that [I had]”

Logie indicated that attaining the knowledge she attained from working with the catheter was empowering. It enabled her to collect scientific data, which she could present to physicians in a knowledgeable and comprehensive manner. This made her more equal to doctors as a bedside critical care nurse. Since the doctors could not ignore her findings, they had serious discussions with her as an equal. In fact, Logie found that working with the technology provided
her with knowledge that helped her to link her nursing care to medical science. Technology made nursing in the ICU, despite its hard work and stressful environment, quite satisfying.\textsuperscript{408}
Figure 4.2 ICU nurses Marg Fick and Susan Archibald in hat, mask, gown and gloves. Preparing for a procedure requiring sterile technique.

Note. From ICU Photo Album. Vancouver General Hospital. Reprinted with Permission.
Nursing Expertise and the Swan-Ganz Catheter

Nurses assisted the doctor by preparing the catheter for insertion, inflating the balloon during its insertion, monitoring the pressure waveforms that the catheter produced, and recording them each hour on the nursing flow sheet. The responsibility that these tasks entailed indicates that nurses required a degree of expertise even to assist physicians.

The degree of responsibility of caring for a patient needing a Swan-Ganz could cause the nurse to experience a “set of tension and pressure because you knew that if you were doing it [working with the Swan-Ganz] for your patient, your patient was really, really at death’s doorstep.” Zettel’s comment indicates that a degree of expertise was required even for nurses to assist doctors as they used the catheter.

The nurses had to know how to employ sterile technique in the set up of the Swan-Ganz catheter, so it would not become contaminated, which substantially reduced the risk of introducing infection when it was inserted. The sterile technique required the nurse’s full attention and they took steps to ensure they were not interrupted during the set up of the Swan-Ganz. The nurse might need another nurse to watch the patient while she set up the Swan-Ganz and could not attend to the patient’s needs until the catheter had been safety inserted and sutured in place by the physician. Zettel offered a glimpse of the expertise involved in working with the Swan-Ganz and the performance anxiety nurses experienced when working with new technology:

The Swan-Ganz came in about ten different parts and…at least ten different parts and the thing I remember about them was we would set [it up] in a clean utility room and it was almost like we were mixing chemotherapy meds. We set them up under laminate flow…the dome…the diaphragm…the pressures were actually balanced off of was a separate device and [we] had to prime it with a little bit of water and there had to be a bubble on it and there could not be any gaps in this bubble or it wouldn’t transfuse properly and it was fine meticulous work…we were gowned, we were gloved, we were masked, we were under laminate flow…these transducers were metal and they were reautoclaved and the dome that went over the diaphragm was the only part that was disposable but it cost hundreds of dollars and dropping that or contaminating it…contamination was the biggest dealing with these things…it was really, really challenging to
do and we would have to do maybe three or four of them because of the number of surgeries that day…I think when we got really, really good at it, you could do it in about 30 or 40 minutes and no one could come into the room…You had to put a sign on the clean utility door and you had to let everybody know that there was a Swan-Ganz [in there].

Nurses prepared for the Swan-Ganz testing procedures by putting the IV tubing into a bucket of ice to cool the IV solution the doctor inserted it into the patient. The nurses had to prepare this ice bucket in anticipation of the physician deciding to perform cardiac outputs, but not knowing when the physician might do the tests. Nurses constantly filled buckets with ice during their shift to be ready for the physician. Finally, the nurse was not authorized to remove the Swan Ganz catheter from the patient’s body, although, the nurse cleaned the patient following removal and sent the catheter to the lab for analysis, as well as disposing of the remainder of the catheter.

Engendering of Technology

The participants in this study did not remember precisely when ICU nurses were first authorized to perform cardiac outputs, and wedge the Swan-Ganz balloon. Nursing journal articles published in the early 1980s note that wedging the Swan-Ganz into the pulmonary artery was the sole responsibility of physicians, as previously noted, this was also the case at VGH when doctors started to use the Swan-Ganz in 1976. Logie recalled that this authorization was given to nurses about two years after she started working in the ICU, approximately in 1981. Prior to that, she remembered feeling extremely frustrated because she had experience performing these tests with the Swan-Ganz in Winnipeg and could not understand why she was not allowed to do the same at VGH.

The Swan-Ganz [was becoming] more and more about a ‘tool’ for direction of care and if we were going to use that as a tool, then it had to be more accessible to use as an evaluator and you know if you have one physician who is on call, he’s not going to come around and [do] 30 wedges…forget it. So…what’s the point in having the tool there if you’re not going to use it?
In other words, Logie believed nurses had assisted with catheter care long enough to gain the experience they needed to manage it on their own. The control which doctors maintained over the Swan-Ganz catheter, reflected the gender bias that characterized the use of new medical technology in the ICU.

In the 1960s and 1970s, the increasingly complex and technological nature of nursing practice led nurses to challenge the limitations of their gendered role. ICU nurses at VGH strove to share the medical prestige accorded only to doctors, which they felt was rightfully owed them to achieve more independence from physicians as is discussed in chapter two. The Swan-Ganz catheter thus came to be seen as a symbol of nurses’ increased professional role and an indicator of their right to higher status. The status they sought was higher than that accorded to the general duty nurse and seen to reflect a reconstruction of their identity as intensive care nurses who used technology competently in practicing new ways of caring. As characterized, the process involved nurses gaining “access to power and biomedical knowledge.”

Thus, relationships between doctors and nurses were renegotiated in terms of who had the ability and authority to use the Swan-Ganz. Once senior nurses demonstrated their capability, they were taught to wedge the catheter. Later, they were taught to perform cardiac outputs. This capability was evident when nurses informed the directors of the ICU that they actually taught resident doctors not to keep the balloon inflated too long. Use of the Swan-Ganz was never fully delegated to critical care nurses, as were other technologies like the insertion of the nasogastric tube into the stomach, insertion of the catheter into the bladder, or the intravenous catheter inserted into the patient’s vein, and even the manipulation of some intravenous drugs in the treatment of blood pressure and kidney function. This was due to the Standards of nursing practice mandated by the RNABC, which prohibited nurses from performing any medical procedures such as piercing below the skin, or intravenous catheters into the heart. Although
the Swan-Ganz became less important as a diagnostic instrument over time it signified a change in ICU nurses’ status that reflected their capacity for technological competence. The use of biomedical technologies also created a hierarchy amongst nurses. ICU nurses who could handle new technologies were perceived as having more status than general nurses, or junior ICU nurses who did not have this skill. Zettel described the skill set of competent ICU nurses and the ranking of nurses according to skill:

The good nurses were really, organized, attentive, on top of things, proactive, strong patient advocates [who could] put together the signs and symptoms that their patients were manifesting… There were other nurses who were able to accomplish all their tasks, keep their patients safe, [give the patient] nice bed bathes and [get them] ready for the next shift…they were quite content and weren’t as competitive and as aggressive.

Zettel added that the ranking of nurses was extremely important to senior nurses: “There was very much a strong recollection of…nurses who had been there and in terms of [the] respect [other nurses] gave them because they [had the skills] to keep people alive…”

The elevation in status experienced by nurses who could work with technology reflected their relationship with doctors. Patients who required the Swan-Ganz needed the doctor to be at the bedside more often, so senior ICU nurses had more of a chance to develop rapport with physicians than junior ICU nurses. Physicians developed trust in the nurses who worked with patients supported by the Swan-Ganz, which led them to grant nurses the autonomy to make clinical judgments on the physicians’ behalf when absent from the bedside. Zettel claimed that senior ICU nurses could be “extremely bossy to the doctors and got a lot of kudos [from doctors]… for what they knew and there was just this inherent culture of respect…among that level of nurses.”

Critical care nurses at VGH welcomed the opportunity to learn how to use the Swan-Ganz because they realized that attaining advanced skills would lessen the difference in the depth of knowledge between nurses and physicians. Some nurses in this study, believed that the
development of technological expertise should be the product of experience, since learning new skills was associated with new professional growth and increased status. This perspective suggests that learning new skills was almost a ‘right of passage,’ which nurses earned with experience.

**Inappropriate Use of Technology: Professional Stress and Strain Upon Nurses**

Although technology had many positive effects on nursing practice, it also created burdens. The most significant of the latter was the emotional strain and ethical dilemma that nurses experienced when they witnessed the suffering of patients who did not benefit from one-to-one nursing and the medical therapy. Further, the participants in this study believed that many of the technological devices used in patient care had the potential to cause harm. Tubes could dislodge, machines could give incorrect readings, and patients could bleed to death if a catheter dislodged from the vein. Nurses saw that they played a critical role in ensuring the safety of patients who were in a vulnerable state of critical illness because they were always present at the bedside, watching and listening to the patient. The responsibilities associated with observing the monitors could be a burden for nurses, especially if accidents occurred, creating potentially dangerous situations. As Zettel stated, “if I make a mistake, people can die.” The responsibility nurses carried for preventing accidents also put them in a very powerful position. Their front-line role in the use of technology was such that they were responsible for providing medical doctors with feedback as to the effectiveness of certain equipment, particularly when they believed that a device was ineffective. For example, at a 1987 VGH ICU medical staff meeting nurses reported that the graphic trace produced by a particular device was “rarely acted examined or acted upon.” When they complained to the physicians, their “suggestion” to stop this practice was approved by the medical staff.
Inappropriate Use of Technology: The Dying Patient

Nurses’ power to intervene when technology was inappropriately or ineffectively used was particularly evident when the nurses believed that their patient’s natural death had been delayed. This most commonly occurred when patients were suffering from chronic and debilitating disease, or when frail and elderly people who were too weak to breathe on their own were brought to the ICU. Nurses became more mindful of the need to consider the harmful effects of technology by observing recurrent cancer patients who had been put on ventilators and then died. One nurse who was interviewed said she knew when patients were dying because she was there “minute to minute,” and could see and hear the deterioration in the patient’s condition:

Varcoe gives a powerful example of nurses’ control over technology in describing a case where she believed using the Swan-Ganz was inappropriate because her patient was facing imminent death. The patient’s daughter had come to see him and Varcoe stated:

Varcoe implied that although it was unusual for ICU nurses to defy doctor’s requests, they felt obliged to do so when they believed that using technology to perform certain tests created additional suffering or discomfort for the patient. Essentially, nurses felt obligated to exert their authority as patient advocates when they believed that a patient was dying, in spite of
doctor’s best effort. Leal summed up the nurses’ responsibilities in cases where the patient was
dying. Nurses had to inform the doctor that the patient was deteriorating, to point out that the
technological interventions which aimed to support the patient’s life were failing, and advocate
for palliation. As Leal stated: “at the time where you cannot help, [you can] still help the passage
to death that is respectful, dignified and pain-free.”437

While nurses believed in the benefits of advanced biomedical technologies, they could
often see its limitations and harmful effects before the physicians could. ICU nurses like Varcoe
were therefore willing to push the bounds of their professional practice in their relationship with
doctors, in order to minimize the suffering of patients who were dying. The knowledge and skill
that nurses acquired while using technology thus informed their nursing practice and gave them a
voice with which doctors had to reckon.

Summary

Developing their expertise, and gaining recognition for it in caring for the critically ill
patient was very important to nurses during the first twenty-five years of intensive care nursing
history. Nurses had very few tangible ways to describe the importance of their role in caring for
the critically ill patient prior to the advent of new biomedical technology. For the most part, they
were delegated to a subordinate role which focused on caring for the patient’s bodily functions,
or observing the patient, or controlling their pain, while following doctors’ instructions or
waiting for new instructions. In analyzing the impact that the development of medical
technologies had on ICU nursing practice, this chapter has demonstrated that the technologies
provided ICU nurses with an opportunity to gain new knowledge and skills which substantiated
and legitimized their professional status as critical care nurses. Therein, it has also shown that the
nurse faced new challenges and received new rewards in assuming greater responsibility for the
care of critically ill patients.
The new technologies were both invasive and non-invasive. They were beneficial to nurses because they generated new and valuable physiological data. As nurses became more competent in the use of technology, their expertise in critical care became essential to the treatment of acute and life threatening diseases or conditions. Physicians recognized the value of ICU nurses’ technological knowledge and skills, which further enabled them to connect patients’ symptoms with the data generated by machines. As a result, physicians saw ICU nurses as valuable participants in determining treatment plans, and the ICU nurse-doctor relationship assumed a more collaborative nature. Concurrently, there was a substantial increase in the regard and respect that families and patients had for ICU nurses, and in the trust they placed in the nurses with regard to their lives.

Further, the Swan-Ganz serves as an example of the way in which technology changed the power dynamics between nurses and doctors as well as amongst nurses. A hierarchy was created among nurses because only senior ICU nurses could manage the Swan-Ganz. The Swan-Ganz became a symbol of expertise between novice and junior nurses, even though the care of patients using this catheter was only partly delegated to nurses and they aspired to attain this expertise. The Swan-Ganz symbolized the gendering of nurses work, that elevated their status among their colleagues, but at the same time, de-valued the skill of using the catheter, as the Swan-Ganz became less important as a diagnostic tool to physicians.

Essentially, the delegation of patient care, that required technological competence from ICU nurses, gave nurses new and important responsibilities which increased the scope of their authority and raised their status. As a result, the identity of critical care nurses was reconstructed. Over time, improvements to medical technologies allowed ICU nurses to devote more attention to meeting patients’ psychosocial needs in addition to caring for their bodies. Technology continues to evolve and grow and the ICU nurse’s role in the care of the critically ill patient
remains a vital one. This role requires nurses’ to engage in the ongoing acquisition of new technology and scientific knowledge while simultaneously retaining their focus on patient advocacy.
Chapter 5-Summary and Conclusion

“[Nurses] have to provide their own internal celebration and validate themselves. I would say if [any nurse has] been requested by a family member to be at their bedside, there can be no greater celebration than that.”

This thesis outlines the historical development of intensive care nursing at Vancouver General Hospital from 1960-1985. Using the notions of place and space, education, practice and technology in light of the broader social, economic and political influences in health care in the 1960s, this thesis explains how careers, experience, and the expertise of nurses evolved over time. Also, the development of the ICU as a constructed reality is described. An analysis of the transformation from one-to-one nursing of the most critically ill patients practiced on the general nursing wards, to critical care nursing in a designated ICU, significantly contributes to the history of nursing. In the 1960s, patients were diagnosed as ‘critically ill’ when they experienced acute severe disease processes like infection, organ failure of the heart, or of the lungs, or hemorrhage, which interfered with their ability to breathe on their own. The usual medical therapies including antibiotics were ineffective to prevent the continuous deterioration of the patient’s health. Without advanced medical intervention, the critically ill patient’s death was imminent. Doctors referred these critically ill patients to the ICU, believing the patient would benefit from the continuous nursing care from a bedside nurse in the ICU.

The ICU’s place and space is as unique as the patients it serves. Its development was dependent upon many factors, such as the levels of government funding given to the institution, the receptivity of the hospital’s administration to support new areas of medicine that required sophisticated technological devices, and the need for continuous nursing observation. Finally, the ICU demanded a concentration of more knowledgeable and motivated nurses to create such a specialized caring environment for the critically ill than could be provided elsewhere in the hospital.
The VGH ICU was set up in previously occupied areas of the hospital that were then renovated for intensive care. Its beginnings were simple. Its function reflected the kind of vigilant nursing practice that had traditionally been found elsewhere in the hospital. The ICU was not a showcase for hospitals to show off their new technologies, since there were very few new technological devices in the 1960s. The ICU at VGH was unique in that its remote location in the basement of the hospital gave the ICU nurses an advantage to develop unique nursing expertise. This included learning medical knowledge, including major organ function, and life saving drugs, as well as the added advantage of working with biomedical technology that ward nurses were not authorized to master. The limitations of the ICU space created an environment for collaboration between nurses and doctors that was unique to nursing wards in VGH.

As a teaching hospital, the ICU at VGH admitted a unique patient population. ICU nurses were exposed to patients suffering from rare diseases like Guillain-Barre, extensive burns, trauma such as gunshot wounds, infectious diseases requiring strict isolation from the public, and severe head injuries among others. As nurses demonstrated their competence in observation and intervention in the care of ICU patients, the ICU overflowed with patients, necessitating new places and spaces more central to other critical care areas like the PAR and the OR.

This historical analysis of VGH’s ICU provides an intimate look at the culture and work of intensive care nurses, often in minute detail, in an effort to illustrate how the nurses had to build their expertise from the ground up. These nurses brought with them varied cultural norms and assumptions about intensive care that invariably shaped the kind of caring environment experienced by patients and their families as well as other health care professionals. The new expertise they developed also changed the day-to-day work relationships with other nurses and other health professionals. Nurses took on new leadership roles when they presented their findings from their patient assessments to a team of health professionals, and collaborate with
physicians in the plan of care. ICU nurses also took an active role in collaborating with
physicians to make end of life decisions in the dying patient, and their opinions were respected
by ICU physicians. ICU Nurses became experts in the understanding the medical technologies
physicians used. They were given authority to use these technologies, and were given more
autonomy to make more clinical decisions than general duty nurses. Experienced ICU nurses
were in a unique place to develop specialized nursing knowledge from the bedside, as intensive
care medicine also evolved into a specialty practice, which served to elevate the status of the
nurse working in ICU. Their expertise improved the working lives of ICU nurses.

The VGH School of Nursing was unable to prepare student nurses with the necessary
knowledge and skills required for nursing in the ICU in the 1960s. RNs worked in general
nursing wards to master their basic nursing skills before getting jobs in intensive care. The
content of the continuing education that was offered by the hospital, in the form of inservice
training, was not sufficient for nurses to build up their practice. Thus, ICU nurses took their
education into their own hands, creating educational programs to give nurses’ theory to provide
rationale for the kind of work they performed that directly related to their patient’s physiological
processes.

It was important for the first ICU nurses to receive recognition through formalized
education, for their advances in nursing knowledge to build up their professional credentials, and
distinguish themselves as critical care nurses. Formalized nursing education was one way for
nurses to gain status at the bedside, where their expertise was not formally recognized by some
physicians who were unfamiliar with the ICU environment. More importantly, formalized
education provided a standardized core of critical care nursing theory that every nurse learned
and articulated in practice. The community college certificate program in critical care that was
eventually offered to experienced RNs, who may not have had university degrees, but had
expertise in ICU nursing gave nurses tangible evidence that acknowledged their expertise in critical nursing, from within the profession.

This historical analysis gives a better understanding of the evolving relationship between nursing practice and the use of technology in the ICU by demonstrating how technologies such as the Swan-Ganz catheter were used and defined within the context of nursing, and shaped the critical care nurse’s contemporary role. With medical innovation, critical care nurses soon realized their work with the critically ill was limited, without the supporting knowledge of the devices they used. Nurses embraced new technologies as they were introduced to ICU, as they were able to see and know more advanced physiology than ever before. This new knowledge assisted them to anticipate patient responses to care, especially in a crisis. Biomedical technology helped nurses stand on equal footing with physicians, as they discussed patient problems with physicians based on the data they collected. Likewise, when physicians no longer saw technology to be the important diagnostic tool it once was, the skills to manage the device were delegated to nurses, and some authority to make clinical decisions in relation to the device was transferred to the nurses. Although some technologies may have lost some of their status as nurses began to use them, nurses developed expertise in handling the devices that engendered a hierarchy between experienced and novice critical care nurses. Nurses may not have had full control over the kinds of devices they were expected to use, but they used their collective voice to control some technologies when they believed the device appeared harmful to patients, or was inappropriately used when patients were dying.

Dynamics of Oral History

This historical analysis provides a comprehensive history of the building of intensive care nursing at VGH from 1960-1985, but many voices were not heard in this analysis. The silence may be due in part to the small number of participants. The oral history technique is an effective
method of research for intensive care nursing history, since many of the primary documents that pertain to the ICU have not been archived, thus there is a scant written record. The oral histories and the analysis of historical documentation, has helped put the history of intensive care nursing in its time and context. In addition, many of the nurses who consented to be interviewed dedicated most of their nursing career to the practice of intensive care nursing, but were initially hesitant to share their experiences on tape with the interviewer. In contrast, the two physicians interviewed spoke openly of their contributions and accomplishments in the advancement of patient care as intensive care medicine at VGH progressed. These differences between nurses and physicians may reflect the larger power structures that shaped the ICU nurses’ experiences. The nurse participant’s hesitation may be attributed to the image they had of themselves as members of a team of nurses who cared for patients in the ICU. Likewise, the nurses’ accomplishments could only be seen in context with the progress of their patient. Nurses handed the care of their patient to the next nurse coming on duty, and the care continued around the clock. Nurses did not have tangible evidence of their successes, like medical doctors could. The bedside nurses also worked collaboratively with physicians to constantly avert patient crises, without any fanfare. Nurses therefore, could not easily claim their individual accomplishments since often times they went unnoticed by others, or were believed to be just doing their jobs. Although it was made apparent in the interviews that the nurse participants held high personal standards for their own bedside practice, the participants continue to hold a modest image of the ICU nurse’s role in patient care.

**Implications For Research**

Lynaugh and Fairman argue that in a sense today’s hospitals are one large critical care unit, as the needs of patient population have become more complex by way of biotechnological hardware that is inserted into their bodies like pacemakers, or attached to their bodies like home
ventilators for the quadriplegic patient, and home hemodialysis for the kidney failure patient. While Fairman and Lynaugh make this important observation, I argue that by dispersing the physical location of ICU, its expertise loses some of its specialized status. The ICU holds an important and special function in the general hospital, which cannot be easily duplicated. With the advancements in undergraduate university nursing education, RNs who graduate from university with a baccalaureate degree in nursing having had experiences in specialty practice such as medicine, surgery, or mental health. Even with experiences in these specialties, they do not possess the depth of knowledge, or the specialized skills, or the authorization to administer one-to-one nursing care of critically ill patient, or the life-saving drugs required when patient’s are in crisis. Moreover, the cost of disseminating biological technology throughout the hospitals is prohibitively expensive for today’s already overburdened hospital budget.

Continuing education for critical care nurses remains an area for further development. After ICU nurses complete the certificate in critical care, formalized continuing education for ICU nurses was not a professional requirement to maintain a nurse’s competency to practice, even though many continuing education courses became available through community colleges and specialty practice groups as intensive care nursing as a specialty evolved. Most ICU nurses at VGH continued to depend upon inservice education as their main method to expand their skill set and learn new nursing knowledge as new technologies and medical procedures in patient care were invented. Some VGH ICU nurses have become members of the CACCN. Generally, critical care nurses are not obliged to certify themselves through the CACCN. It is still a debate within the profession, and workplaces whether membership in specialty organizations or specialty certification, for example, through the CACCN, should become a requirement for critical care nursing practice.
In light of the now chronic shortage of experienced critical care nurses since the 1980s, critical care nurses have become a professional mobile work force. Experienced ICU nurses are recruited, but then leave their current jobs, to find new opportunities to practice in different ICUs around the world. The notion of place and space actually matters to critical care nurses who are looking for new working experiences. Contemporary ICU nurses might find it useful to understand how shifting expectations of critical care, education and technology has contributed to, and shaped the ICU nurse’s contemporary role. Often times the transition to a new ICU and its nursing culture can create tension between the new and old staff members, especially when new staff question old nursing rituals, or introduce new evidence based nursing knowledge to bedside practice. Although nurses may be looking for new ways to improve nursing practice, instituting change into an established nursing culture can be difficult.

The history of the VGH ICU provides a context for experienced ICU nurses and new staff members alike to understand the rationale behind certain nursing rituals, and practices. In addition, the historical background serves to illustrate how change has come about in ICU nursing practice, at the local level from the patient’s bedside, and in response to the demands of the larger institution and government health initiatives. This knowledge helps to identify clearer directions for the future of ICU that includes strategies for incorporating new technologies and therapies into their caring practices, as they treat new and increasingly complex patient populations, and in more broader terms, increasing the nurses role in intensive care education and research, and in the ethical decision making processes in the treatment of the critically ill patient during a time of scarcity of health care resources.

Topics for further historical analysis arising from this study include the evolution of the Canadian Association of Critical Care Nurses in BC, and its relationship to the Registered Nurses Association of BC in developing the critical care nurses’ standards for critical care nursing
practice. Did ICU nurses embrace these standards? How were these standards employed by nurses in their work places? The analysis of the development of critical care education at VGH, is a case study in a grassroots process of the development of formalized critical care nursing specialty education. This research reveals there were other ICU nurses from other ICUs in the Vancouver area, who were involved in the development of this specialty education. An analysis of their experiences could further our understanding of the shift from hospital-based nursing education to the community college level which was in flux in the 1980s, and debated by nursing educators.

Another area of research arising from this history that was not a focus of this study, is an analysis of the impact of caring for the critically ill in the Canadian critical care context. Critical care nurses have collectively had over forty years of experience working with the critically ill at VGH, and have important insights about how working in the ICU has impacted their nursing career. Some of the participants of this study about the VGH ICU recalled feeling distressed while caring for some of the most critically ill patients, especially patients who became disfigured, or were suffering the effects of chronic disease. Some of the participants stated that these feelings were one of the main reasons why they could not continue working in the ICU. Yet, there is little documentation of these experiences in nursing history, that can broaden our understanding of the distress nurses feel in caring for the most critically ill patients. Further research into the impact of caring for people suffering from critical illness, can be used to develop strategies to help ICU nurses cope with the degree of human suffering they encounter in their practice. The answers to these questions can only broaden and deepen our understanding of intensive care nursing at VGH in relation to the three place and spaces ICU nursing was practiced, its quest for professionalization through advanced education, within the larger hospital political structures such as the medical doctors and nursing administration.
Footnotes


4 Interview with Joyce Campell by Registered Nurses’ Association of British Columbia. History of Nursing Group, oral history tape recording. North Vancouver: Registered Nurses Association of British Columbia.


* Heart surgery patients were recovered in a specially designated cardiac surgical post-anesthetic room called the Cardiac Surgical ICU (CSICU) that was established in 1960-61. (Donald Luxton, “Vancouver General Hospital, 100 Years of Care and Service, Vancouver: Vancouver Coastal Health, 2006), 81.) Coronary care became a recognized medical specialty in the hospital complete with its own surgeons and anesthetists and had its own specially trained nursing staff. Coronary care patients were not typically nursed in the general ICU unless they had respiratory failure and needed extended period of mechanical ventilation (Interview with Turner, 293-295).


Donald Luxton, *Vancouver General Hospital. One Hundred Years of Care and Service* (Vancouver Coastal Health, 2006). See also Nora Kelly, *Quest for a Profession. The History of Vancouver General Hospital School of Nursing* (Vancouver: Vancouver General Hospital Alumni School of Nursing Association, 1973).


Harriet Tholin, Nurse Manager, Intensive Care Unit, Vancouver Hospital. Personal communication with author, October 1, 2007.


21 Kelly, *Quest for a Profession. The History of Vancouver General Hospital School of Nursing* (Vancouver: Vancouver General Hospital Alumni School of Nursing Association, 1973), 129.


24 Interview with Mike Turner by author, oral history tape recording, Vancouver: February 20, 2008, 293-295 (Hereafter cited as interview with Turner).


31 Kerr, “Narcissistic Fit,” 304.

32 Kerr, “Narcissistic Fit,” 304.


38 Ibid., 133.

39 Timmermans and Berg, “The Practice of Medical Technology,” 103.


41 Keeling, “Blurring the Boundaries” Coronary Care Nursing, circa the 1960s,” *Nursing History* 144.


44 Fairman and Lynaugh, *Critical Care Nursing*, 3-4.


46 Ibid., 29

47 Fairman and Lynaugh, *Critical Care Nursing*, Chapter 5.

48 Ibid., Chapter 5


50 Ibid., 65.

51 Ibid., 30.


53 Ibid., 74.

54 Fairman, and Lynaugh, *Critical Care Nursing*, 74-76.

56 Ibid., 41.

57 Ibid., 41.

58 Zalumas, Caring in Crisis.


60 Ibid., 123.


62 Ibid., 102.

63 Ibid., 122, 131.

64 Keeling, 159. And see Valda Wiles and Datthy Daffurn. There’s A Bird In My Hand and a Bear By The Bed-I Must Be In ICU. The Pivotal Years of Australian Critical Care Nursing. Chapter 2. Cardiac Arrest, Cardiopulmonary Resuscitation and Coronary Care, 33-54. Marickville, NSW: Southwood Press Pty Ltd. 2002 for an extensive bibliography about the development of CPR and defibrillation in Australian Hospitals.


68 Nora Kelly, Quest for a Profession. The History of Vancouver General Hospital School of Nursing, (Vancouver: Vancouver General Hospital Alumni School of Nursing Association, 1973).


72 Reimer, *Voices*, 12.

73 Ibid., 7

74 Ibid., 7


77 Ibid., 8.


81 Ibid., 51.

82 Ibid., 42. See also Alice M. Hoffman and Howard, S. Hoffman “Memory Theory,” 288.

83 Thompson, *Voice*, 139.


88 Ibid., 259.


91 Hoffman and Hoffman, “Memory Theory,” 121.


Wiles and Daffurn’s *There’s a Bird in my hand and a Bear by the Bed-I Must be in ICU. The Pivotal Years of Australian Critical Care Nursing.* (NSW: ACCN, 2002): ix. They found that most nurses and doctors believe there has always been an ICU to send their most sickest patients to get well.

Fairman and Lynaugh, *Critical Care Nursing*, 17.


Ibid., 145

Ibid. 160.

Ibid., 164.

Ibid., 165.

Ibid., 170.


The Vancouver General Hospital. “Inter-Departmental Communication,” To: Mr. K. Weaver, from Mary L. Richmond Re: Intensive Care Nurseries, August 26, 1968, wrote “the use of special duty nurses to supplement the staff is not satisfactory because few are prepared to function in this area, and they are frequently not available” CVA 73-F-6-50. See also Mary Richmond who wrote “students themselves are increasingly aware of the pressures on them in difficult clinical situations, and the relative lack of challenging instruction. They…are asking that something be done.” Mary Richmond, “Nursing Report for 1965 Annual Meeting of the Board of Trustees-April 20, 1966,” CVA 73-F-6-26-51, 7 as examples of nurses who believed they lacked the skills to nurse the critically ill at VGH.

Ibid., 170.

Fairman and Lynaugh, *Critical Care Nursing*, 3. See also Wilbert M. Gesler and Robin A. Kearns, *Culture/Place/Health* (London: Routledge, 2002), 5, 7, 120.


Myers, “General Hospital 20 Years Behind,” 13,

Helen King, “Annual Report 1960, Department of Nursing,” CVA, 73-F-6-25.

Myers, “General Hospital 20 Years Behind,” 12.


Agnew et al, Present and Long Range Program. See also MacAlpine “VGH Given Green Light,” 1, 561-E-4-7.

Ibid., 60.

Ibid., 61.

Ibid., 61. See also Garth, F. Tagge, Gordon Salness, Judith Thams, Gerald H. Whipple and William C. Shoemaker, “Experience With A Multidisciplinary Critical Care Center In A Community Hospital,” Critical Care Medicine 3(6) (1975), 231.

Agnew et al., Present and Long Range Program, 84,85.

Ibid., 122.

Ibid., 122.

City of Vancouver Board of Administration. “Hospital Construction Grants,” February 9, 1966, CVA 561-D-5 file Z.

The Vancouver General Hospital. “Proposed Construction Projects,” June 9, 1964, CVA 561-D-5 file Z.

Myers, “General Hospital 20 Years Behind,” 1966, 12.


Meyers, “No Hospital Can Provide the Best of Everything” Vancouver Sun, Tuesday March 1, 1966, 13, CVA 561-E-4-File 7.

Ibid., 13.

Interview with Daphne Frances by author, oral history tape recording, Vancouver: February 4, 2008, 289-293. (Hereafter cited as Interview with Frances).


109 Myers, “General Hospital 20 Years Behind,” 13,

110 Helen King, “Annual Report 1960, Department of Nursing,” CVA, 73-F-6-25.

111 Myers, “General Hospital 20 Years Behind,” 12.


113 Agnew et al, Present and Long Range Program. See also MacAlpine “VGH Given Green Light,” 1, 561-E-4-7.

114 Ibid., 60.

115 Ibid., 61.


117 Agnew et al., Present and Long Range Program, 84,85.

118 Ibid., 122.

119 Ibid., 122.

120 City of Vancouver Board of Administration. “Hospital Construction Grants,” February 9, 1966, CVA 561-D-5 file Z.

121 The Vancouver General Hospital. “Proposed Construction Projects,” June 9, 1964, CVA 561-D-5 file Z.

122 Myers, “General Hospital 20 Years Behind,” 1966, 12.


124 Meyers, “No Hospital Can Provide the Best of Everything” Vancouver Sun, Tuesday March 1, 1966, 13, CVA 561-E-4-File 7.

125 Ibid., 13.

126 Interview with Daphne Frances by author, oral history tape recording, Vancouver: February 4, 2008, 289-293. (Hereafter cited as Interview with Frances).
Helen King, “Nursing Report For The Annual Meeting of the Board of Trustees,” April 30, 1962, VCA 73-F-6 File 50.

Interview with Turner, 166-170.

Interview with Turner, 705-713.

Interview with Turner, 722-723. See also The Vancouver General Hospital General Information on its Development, October, 1954, CVA 561-D-8, 9.

The local businessman was Mr. P.A. Woodward. Telephone communication, Dr. Ibbort with author, Mr. and Mrs. P.A. Woodward’s Foundation, Vancouver, BC. April, 15, 2008.

Myers, “No Hospital,” 13.

Interview with Turner, 720-723.

Interview with Clara Lim, oral history tape interview, 14 July 1987, Richmond, BC: Registered Nurses’ Association of British Columbia. Mrs. Lim died in 2001.


Interview with Clara Lim.

Interview with Clara Lim.


Tagge et al, Critical Care Medicine,” 231-237. This study revealed the difficulties of setting up an ICU in an American community hospital in the 1960s. Researchers found staff doctors initially resisted the idea of an ICU because they did not appreciate their patients being treated in their absence by other doctors; Moreover, in the 1960s, it was politically difficult for the bedside nurses who knew the patient’s condition but did not have formal training or the legal authority to implement care without an order from any physician.

Interview with Turner, 105-124.


145 “Report of the Intensive Care Committee To The Medical Board,” July 5, 1968, CVA 73-F-6-50. See also Interview with Turner, 119-120.


147 Interview with Susan Dearlove by author, oral history telephone tape recording, Vancouver: February, 12, 2008, 489-499. (Hereafter cited as Interview with Dearlove). See also, Interview with Darcy Carnegie by author, oral history tape recording, Vancouver: April 1, 2008 712-718. (Hereafter cited as Interview with Carnegie).


149 Interview with Dearlove, 257-266.


151 Interview with Dearlove, 323-325, 272-274.

152 Interview with Turner, 252-255. See also Interview with Liz Akeroyd by author, oral history tape recording, Vancouver: February, 22, 2008, 682-686, 682-741. (Hereafter cited as Interview with Akeroyd). In this situation, Akeroyd told a Cardiac surgeon there was no nurse to care for a patient he intended to send to the ICU, and after speaking to her Supervisor, patient’s operations were cancelled and the main OR shut down until the beds in the ICU were freed up.

153 Interview with Dearlove, 471-472.

154 Interview with Dearlove, 473-477.

155 Written correspondence from C.M. to author, January 8, 2008.

156 Interview with Turner, 434.

157 Interview with Carnegie, 452-453.

158 Interview with Turner, 431-439.

159 Interview with Pat Hare by author, oral history tape recording, Vancouver: January 8, 2008, 451-455. (Hereafter cited as Interview with Hare).

160 Interview with Hare, 592-623.
161 Interview with Varcoe, 43-53. See also Personal Memory.

162 Interview with Turner, 466-468.

163 Interview with Turner, 464-491.

164 Interview with Hare, 1317-1319.

165 Interview with Akeroyd 67-70, 113.

166 Interview with Bonnie Leal by author, oral history tape recording, Vancouver: March 20, 2008, 254-258. (Hereafter cited as Interview with Leal)

167 Interview with Turner, 336. Also, 2002 statistics provided by Ms. Harriet Tholin, RN Nurse Manager Vancouver General Hospital. Telephone communication with author, March 16, 2005.


169 Written correspondence from “C.M.” to Deborah Hamilton, January 8, 2008.

170 Interview with Hare, 40-41. “We fought …we fought to get rid of the caps because of all the equipment. We were always catching our hats in that equipment.”

171 Interview with Akeroyd, 435-442.

172 Interview with Zettel, 618-631, 650-665.

173 Interview with Carnegie, 353-357.

174 Interview with Leal, 301-305.

175 Interview with Glen Manning by author, oral history tape interview, Vancouver: March 20, 2008, 41-420. (Hereafter cited as Interview with Manning).

176 Interview with Suzie Logie by author, oral history tape interview, Vancouver: April 23, 2008, 179-180. (Hereafter cited as Interview with Logie).

177 Interview with Dearlove, 184-194.

178 Interview with Akeroyd, 124-129.

179 Interview with Francis, 86-98.

180 Interview with Dearlove, 484-499.

181 Interview with Akeroyd, 124-127.
Written correspondence with C.M. January 8, 2008.

Interview with Zettel, 72-74.

Interview with Vera Gibault, by author, oral history tape interview, Vancouver: April 28, 2008, 430. (Hereafter cited as Interview with Gibault).

Interview with Turner, 248-250.

Interview with Manning, 142-144.

Interview with Turner, 71-77.


Interview with Zettel, 816-825.

Interview with Hare, 307.

Interview with Akeroyd, 271-272.

Interview with Hare, 341-364.

Interview with Hare, 213-217.

Interview with Dearlove, 571-587.

Interview with Dearlove 586.

Interview with Akeroyd, 135-140.


Interview with Logie, 826-831. See also, Interview with Carnegie, 423 who said she did not remember very many visitors visiting with patients. There was not enough room at the bedside for visitors to stay for long periods.

Interview with Leal, 1212-1217.

Interview with Leal, 260-266.
Interview with Leal, 1212-1220.


Interview with Carnegie, 420-424.

Interview with Dearlove, 139-153, 504.

Interview with Turner, 509-523.


Ibid., 2.

Interview with Leal, 518-520.

Vancouver General Hospital. “Minutes of Meeting: Intensive Care,” Thursday November 1, 1979, SSF, 38-28, Professional and Academic Experience, Vancouver General Hospital Committees. ICU.


Ibid., 1.

Interview with Akeroyd, 507-509.

Interview with Leal, 796-797.


Interview with Zettel, 893-899.


Interview with Carnegie, 409-411.

Interview with Dearlove, 899-911.

Interview with Carnegie, 412-414.

Interview with Dearlove, 962-973.

Interview with Dearlove, 915-924, 941-944, 950-952.
Interview with Carnegie, 425-430.

Interview with Zettel, 112-130. See also Gary Archer and Leonard A. Cobb, “Long Term Pulmonary Artery Pressure Monitoring in the Management of the Critically Ill” *Annals of Surgery*, 180(5) (1974): 747-52. Swan-Ganz Catheters that were inserted directly into the pulmonary artery had the potential to wedge into the patient’s pulmonary artery. If the balloon was inflated too long, the patient suffered pulmonary hemorrhage or sepsis, creating an emergency.

Interview with Leal, 678-681, 2008.

Interview with Carnegie, 188-194.

Interview with Manning, 290-291.

Interview with Akeroyd, 50,52. See also Interview with Leal, 501.

Interview with Leal, 817-821.

Interview with Leal, 501-507.

Interview with Zettel, 907-913.

Interview with Zettel, 907-913.

Interview with Akeroyd, 592-609.

Interview with Akeroyd, 592-609.

Interview with Leal, 476-508.

Interview with Turner, 49-51.

Interview with Leal, 564-574.


Interview with Leal, 522-530.

Interview with Dearlove, 218-233.

Interview with Zettel, 1070-1096.


246 Interview with Akeroyd, 804-812.

247 Interview with Carnegie, 469.

248 Personal Memory.

249 Personal communication with Bonnie Leal, November 16, 2009.


251 Interview with Dearlove, 198-202.

252 Personal Memory. This practice was not isolated to the ICU at VGH. Joyce Thomas, “The Changing Role of the I.C.U. Nurse”, 28. “Some of the residents [in the ICU at St. Boniface General Hospital in Winnipeg] took advantage of the nurse’s role and they did not assess the patients themselves…The bedside nurse was always aware if the resident had assessed the patient or not.”


254 Interview with Logie, 730-742.

255 Interview with Carnegie, 664-670.

256 Interview with Zettel, 739-758.

257 Interview with Carnegie, 724-736.

258 Interview with Carnegie, 476-479.

259 Fairman and Lynaugh, Critical Care Nursing, 13,14.

260 Interview with Varcoe, 891-892.

261 Interview with Hare, 191-204.

Ibid., 177.

Zilm and Warbinek, *Legacy*, 162.

“The need to staff our nursing areas with less reliance on students is also acute if patients are to be safely cared for, and students taught to give safe care,” Mary Richmond, Nursing Report for 1965. Annual Meeting of the Board of Trustees, April 20, 1966, 7. CVA 73-F-6-25-51.


The Vancouver General Hospital, “Inter-Departmental Communication,” to Mr. K. R. Weaver, Executive Director, From Miss M. J. Richmond, Director of Nursing, October 2, 1968, CVA 73-F-6-25.


Ibid., 235.


Ibid., 4.


Kelly, *Quest*, 65. For an example of physician’s lecture notes to nursing staff and students, see also Sydney Segal “Lecture to Nurses on Resuscitation,” November, 1857, SSF 13-4, Professional Development and Academic Experience, UBC Teaching Lectures to Nurses, 1957-1969.

Zilm and Warbinek, *Legacy*, 124-128. See also Kelly, *Quest*, 143, 144.

Helen King wrote “It is in the School we prepare the graduate nurses of tomorrow. Here they are drilled for the part they must play…The process of teaching starts all over again and each inexperienced girl is slowly groomed to fit into the nursing organization….Our senior students in the last six months of their course help us to teach the preliminary students in the bedside care of patients…and teaching in the ward situation instead of the classroom…Their learning is meaningful and realistic when they work directly with patients and apply their theory to practice.” Vancouver General Hospital, “Nursing Report For the Annual Meeting of the Board of Trustees, April 24th, 1963, CVA 73-F-6-25, 6,7.


Kelly, *Quest*, 115.

King, Director of Nursing, “Nursing Report For The Annual Meeting of the Board of Trustees,” April 30, 1960 CVA, 73-F-6-25, 4.


Kelly, *Quest*, 152.

Ibid., 131-132.

Ibid., 142.

Helen King, Director of Nursing. “Nursing Report For The Annual Meeting of the Board of Trustees,” April 30, 1962, CVA73-F-6-25, 7.

Ibid., 95.

Ibid., 108-109

Ibid., 132. See also McPherson, *Bedside Matters*, 201.

Interview with Varcoe, 45, 46.

Kelly, *Quest*, 132.

Interview with Varcoe, 118-136.

Interview with Hare, 968-970.

Interview with Leal, 1090-1100.

Kelly, Quest, 153, 154. See also Leal, 1028-1030, 1040-1045.

Ibid., 145, 146.

Interview with Hare, 957-959.

Interview with Hare, 981-984.

Interview with Leal, 1022-1027.

Fairman and Lynaugh, Critical Care, 97.

Interview with Varcoe, 95-100.

Interview with Varcoe, 966-970.

Interview with Varcoe, 349-354.

Interview with Varcoe, 63-64. See also Zettel, 15-18.

Interview with Zettel, 15, 16.

Interview with Zettel, 18, 19.

Benner, Novice to Expert, 31, 32.


Interview with Akeroyd, 207-213. See also Interview with Leal 485, 583-588, 645-649, 654-656.

Interview with Hare, 800-801, 808-812.

Written communication with Dr. Carol Jillings, Associate Professor. UBC School of Nursing with author, March 12, 2010.

Interview with Leal, 107-108.

Interview with Varcoe, 406-409.

Interview with Akeroyd, 30-31.

Interview with Akeroyd, 98-92.

Interview with Dearlove, 190-195.

Interview with Varcoe, 883-892.

Interview with Carnegie, 96-105.

Interview with Carnegie 188-194.

Interview with Varcoe, 896-898.

Interview with Varcoe 906-909.

Interview with Varcoe 890-898, 906-908.

Interview with Dearlove, 662-682.

Interview with Dearlove, 711-717.


Hudak et al, Critical Care Nursing, 2.


Ibid., 22-24.

Benner, Novice To Expert, 3.


Interview with Varcoe, 651-658.

Interview with Varcoe, 466-469.

Interview with Varcoe, 504.
Interview with Varcoe, 652-669.

Interview with Varcoe, 535.

Interview with Varcoe, 486-551.

Interview with Varcoe, 679-684.

Interview with Varcoe, 679-701.

Interview with Varcoe, 679-701.

Fairman and Lynaugh, *Critical Care*, 101 “The American Association certified nurse practitioners in 1976…since credentialing is tied to the individual professional’s ability to practice and to receive payment for services, control of credentialing is vitally important to the safety of prospective patients as well as to the practitioner’s careers. The question of who has authority to credential the newer specialty practices has been hotly debated.”

Interview with Varcoe, 706-712.

Written correspondence from C.M. to author, January 8, 2008.

Interview with Carnegie, 196-198.

Interview with Carnegie, 246.

Interview with Carnegie, 255-258.

Interview with Varcoe, 773-774. See also interview with Carnegie, 204-205.

See Meyer and Trunkey, “Critical Care” 677. who found that “less than half of the surgery residents have a formal rotation in critical care units, and less than half of them receive didactic teaching aimed specifically at topics usually identified with critical care management, such as ventilatory support and hemodynamic monitoring.”

Interview with Manning, 188-192.

Interview with Leal, 758-772.

Interview with Leal, 1080-1085.

Interview with Logie, 151-163.

Interview with Logie, 173-184.

Fairman and Lynaugh, *Critical Care*, 51.
Fairman and Lynaugh *Critical Care*, 111.


As an example of the belief in the success of new technologies, Vancouver General Hospital printed “Coronary artery disease is the most frequent single cause of death in Canada. Possibly 25-30 percent of these deaths can be prevented by prompt treatment of lethal disorders of the heart rhythm. These arrhythmias are detected by monitors, and the nurse’s role is of paramount importance. The nurse is first on the scene. Time is of the essence; interruption of the circulation can be tolerated…for about three minutes only.” Vancouver General Hospital, “Cardiac Monitoring Opening,” 1970, 1975, CVA 569-G5-F6.


“Featuring the Heart Station: In VGH’s Cardiology Department, Staff Members Conduct Tests and Provide an Answer to “How is your Heart?”” *News in General*. October, 1953, CVA, 320-535-E-3-3, 4.


“About the Cardiac Monitoring Training Unit”. CVA, 569-G5-F6.

Toman, “Blood Work,” 61. Toman’s description of the Blood Team and their instructions to student nurses managing the drips after they started the blood transfusion is an example of the kind of hierarchy between more skilled and less skilled nurses that developed with the introduction and use of new technologies into nursing practice.

Howell, *Technology in the Hospital*, 230, 231.

Interview with Leal, 587, 588, 373, 560-563. See also Fairman and Lynaugh, *Critical Care*, 112.

Interview with Leal, 560-563. See also Fairman and Lynaugh, *Critical Care*, 112.

Fairman and Lynaugh, *Critical Care*, 16.


Interview with Leal 315-321, 358, 359, 480-482. See also, Interview with Turner, 509-513. See also, Fairman and Lynaugh, *Critical Care*, 17.


Interview with Manning 221-223. See also Leal 444-446.

Written correspondence from C.M. to author, January 5, 2008.


Written correspondence from C.M. to author, January 5, 2008.

Written correspondence from C.M. to author, January 5, 2008.

Wiles and Daffurn, *A Bird in My Hand*, 246. See also Written correspondence from C.M. to author January 5, 2008. See also Interview with Manning 80-88, 93-98.

Written correspondence from C.M. to author, January 5, 2008.

Written correspondence from C.M. to author, January 5, 2008.


Interview with Varcoe, 441-447.

Interview with Manning, 85-101.

Letter to Mr. Lancombe, Re: Biomedical Engineering Department, October 15, 1974. CVA, 73-F-6-50.

Ibid., 749.

Ibid., 749.

Interview with Manning, 107-110.

Interview with Manning, 106-110. Also, conversation with Suzie Logie and author, March 7, 2008. VGH doctor’s believed the Swan Ganz catheter was too dangerous for nurses to use which was the reason why nurses were not allowed to perform cardiac outputs and float the balloon.

Fairman, “Watchful Vigilence,” 57. See also Howell, Technology in the Hospital, 228.


Visalli and Evans “Swan Ganz,” 42.

Interview with Logie, 207.

Interview with Zettel 74-75.

Interview with Zettel 88-89.

Interview with Logie 193-199.

Interview with Logie 193-199.

Interview with Zettel, 143.

See McPherson, Bedside Matters, 86 for a detailed description of the aseptic technique used by nurses in the early 20th century. Nurses in the ICU used the same degree of precision to ensure the equipment they used remained sterile, which was a very time-consuming process for the nurse.

Interview with Zettel, 106-108, 139-143.

Visalli and Evans, “The Swan-Ganz,” 47.

Interview with Turner, 509-511.

Interview with Logie 218-226.
Interview with Varcoe 138.

Interview with Varcoe, 111-112. See also, Cooper, “The intersection of technology and care in the ICU,” 29.

Interview with Logie, 220. See also Visalli and Evans, “Swan-Ganz” 45, 47.


Interview with Varcoe 219-222.

Kerr, “Narcissistic Fit,” 304.

Interview with Zettel, 67-70.

Interview with Zettel 76-80.

Interview with Zettel 57-59.

Personal memory.

Interview with Zettel 72-75.

Interview with Logie 180.

Interview with Akeroyd, 42,43. See also Interview with Logie, 179-82, and Interview with Carnegie, 432-440.


Cooper, “The intersection of technology,” 29.


Interview with Leal 1292-1293.

Interview with Leal 1282-1284.

Interview with Dearlove, 814

Interview with Dearlove, 812-813, 818-821.
436 Interview with Varcoe, 1099-1121.

437 Interview with Leal, 1259-1260.

438 Interview with Leal, 930-933.

Archival Sources

Dr. Sydney Segal Fonds, Vancouver General Hospital Archives. British Columbia Medical Association Archives. (Hereafter cited as SSF). Listed in Chronological Order.


City of Vancouver Archives (Hereafter cited as CVA). Listed in Chronological Order


“Featuring the Heart Station: In VGH’s Cardiology Department, Staff Members Conduct Tests and Provide an Answer to “How is your Heart”?!” News in General. October, 1953, CVA 320-535-E-3-3.

“The Vancouver General Hospital General Information on its Development,”
October, 1954, CVA 561-D-8, 9.


King, Helen, “Nursing Report for The Annual Meeting of the Board of Trustees, April 30, 1962.” Department of Nursing, CVA 73-F-6-50.

Vancouver General Hospital. “Nursing Report For the Annual Meeting of the Board of Trustees, April 24th, 1963, CVA 73-F-6-25.

King, Helen, ”Nursing Report for 1963. Annual Meeting of the Board of Trustees, April 29, 1964, CVA 73-F-6-50.

City of Vancouver. The Vancouver General Hospital “Proposed Construction Projects,” June 9,
1964, CVA 561-D-2.

The Vancouver General Hospital. “Proposed Construction Projects,” June 9, 1964, CVA 561-D-5 file Z.


Myers, Arnie, “General Hospital 20 Years Behind.” The Vancouver Sun, Tuesday March 1, 1966 12, 13, CVA 561-E-4-File 7.

Myers, Arnie, “No Hospital Can Provide the Best of Everything.” The Vancouver Sun, Tuesday March 1, 1966, 13, CVA 561-E-4-7.


The Vancouver General Hospital. “Inter-Departmental Communication.” To: Mr. K. Weaver, from Mary L. Richmond Re: Intensive Care Nurseries, August 26, 1968, CVA 73-F-6-50

Vancouver General Hospital. “Inter-Departmental Communications.” To Mr. K. R. Weaver, Executive Director, From Miss M. J. Richmond, Director of Nursing. October 2, 1968, CVA 73-F-6-25.


“About the Cardiac Monitoring Training Unit,” CVA 569-G5-F6


Letter to Mr. Lancombe, Re: Biomedical Engineering Department, October 15, 1974, CVA, 73- F-6-50.

Vancouver General Hospital ICU Medical Staff Meeting Minutes Binder, VGH ICU classroom. (Hereafter cited as ICUSSM). Listed in Chronological Order


Vancouver General Hospital Documents

“Vancouver General Hospital Annual Report, 1982-83.”


Oral History Interviews Conducted by the Registered Nurses’ Association of British Columbia. History Of Nursing Group


Lim, Clara. Oral History Tape Interview, 14 July 1987, Richmond, Registered Nurses’ Association of British Columbia.


Oral History Interviews Conducted by Deborah Hamilton, Author


Hare, Pat. Oral History Tape Recording, Vancouver: January 8, 2008.


**Primary Sources**


Secondary Sources


Bingham, D.L.C. “Intensive Care Unit At the Kingston General Hospital.” *Canadian Hospital* 40 (1963): 44-50, 68.


Cavers, Anne S. *Our School of Nursing, 1899-1949: Vancouver General Hospital.* Vancouver, 1949.


Willes, Valda, and Kathy Daffurn. *There’s a Bird in my hand and a Bear by the Bed-I Must be in ICU. The Pivotal Years of Australian Critical Care Nursing.* NSW: ACCN, 2002.


Appendix A

Interview Script

The broad interview questions are:
1. How did your nursing career start?
2. How did you become interested in intensive care nursing?
3. How was the Intensive Care Unit at VGH organized?
4. Did you have any special education or training?
5. What was your role?
6. What kind of patients did you care for?
7. Did you notice any changes in your practice over time?
Appendix B

Advertisement

Invitation to Participate in an oral history interview about the history of the VGH Intensive Care Unit: Former VGH intensive care nurses or health professionals who worked in the Adult General ICU at Vancouver General Hospital between 1960 and 1985 and would like to share their story about their involvement with the unit are invited to participate in an oral history research study. This research is part of a completion of a graduate master’s thesis at the University of British Columbia School of Nursing. Interviews will be tape-recorded. The purpose of this project is to develop a history of the evolution of intensive care nursing from the perspective of nurses and other health professionals who have experienced the evolution of the unit. If you would like to participate, or know someone who might like to be interviewed for 1 to 1.5 hours, please contact Deborah Hamilton.
Appendix C

Invitation to Participate in Research Study

The University of British Columbia
School of Nursing
T201 2211 Wesbrook Mall
Vancouver BC Canada V6T 2B5

Invitation to Participate in Research Study:
The Historical Development of Intensive Care Nursing at Vancouver General Hospital, 1960-1985

[Name
Address
of potential participant]
[date]

Dear [name],

I am writing to invite you to participate in a research study. The study is being conducted as part of the completion of a graduate thesis at the University of British Columbia School of Nursing.

The purpose of this study is to develop a history of the evolution and development of intensive care nursing from the perspective of the nurses (and or student nurses) or other health professionals who planned and/or worked in the first ICU at Vancouver General Hospital from 1960-1985. I am interested in knowing how nurses cared for critically ill patients. I am also interested in learning how nurses worked with medical technology and the effect technology had on patient care, and ICU nursing knowledge. I will interview 5 to 10 nurses and other health professionals who worked at Vancouver General Hospital and ask them to recall their experiences of working in ICU.

If you are a current or retired ICU nurse, or health professional who was involved in the development and practice of intensive care nursing at Vancouver General Hospital between 1960 and 1985 and are willing and able to share your perspectives and experiences, you are invited to participate.

Your participation in this study will contribute to a better understanding of the social, economic and historical influences that have shaped intensive care nursing in Western Canada. The knowledge gained from this study contributes to a better understanding of the evolution of this area of nursing practice.

The researcher will conduct one interview with you. A second interview may be necessary to clarify previous collected data. The interviews will be face-to-face, and last about one hour each, but no longer than 1.5 hours. The interview will be audiotape recorded. Your personal
information (address, phone number) will be kept private and will be only available to the researcher and her academic supervisor. You may refuse to participate in the study. You may withdraw from the study at any time. You are free to refuse to answer any question. The results of the study will be included in a thesis and may be published.

You will be acknowledged for any information that is published in the study. You may choose not to have your name identified. In the case that you choose not to be identified by your name, every effort will be made to keep your personal, identifiable information confidential. However, there is a slight chance that readers may still recognize you through the information that you may share, for example about a specific role you had in a specific public event or position. Therefore, anonymity cannot be entirely guaranteed. Information you share will be stored in a secure, locked location for five years upon completion of the study. Because the information you provide is of historical value, you can agree in the consent form that after the completion of the study, information you provided will be deposited in a public archive, such as the BC Provincial Archives, or the archive of the British Columbia History of Nursing Group. Future researchers may use the information in accordance with established archival guidelines. If you do not agree to have the information deposited into an archive, the tapes and manuscripts will be destroyed after five years.

The study has no direct benefit to you. However, you will contribute to valuable historical knowledge and you may enjoy sharing your experience. There is a small risk that you may become uncomfortable or fatigued when sharing personal memories. If you become especially uncomfortable, the interview will be stopped. If necessary, the researcher will suggest a person or agency that you can contact for help, normally your regular health care provider. There are no other expected risks or discomfort. You will not be paid for participating in the study.

If you have any questions or concerns please contact Dr. Geertje Boschma at 604-822-7457. Dr. Boschma is an Associate Professor at UBC School of Nursing and the principal investigator of this study.

If you are interested to contribute your story and would like to participate, please return the enclosed consent form within two weeks of receiving it. If you do not wish to participate, please indicate this on the consent form.

Please keep one copy of the consent form for your records and send one signed copy to me. Thank you for your interest in this research.

Sincerely,

Co-investigator: Deborah Hamilton, MSN student, UBC School of Nursing

Principal investigator: Dr. Geertje Boschma, PhD, RN, Associate Professor, UBC School of Nursing, 604-822-7457
Appendix D

Consent Form

The University of British Columbia
School of Nursing
T201 2211 Wesbrook Mall
Vancouver BC Canada V6T 2B5

Consent Form

Principal investigator: Dr. Geertje Boschma, UBC School of Nursing 604-822-7457
Co-investigator: Deborah Hamilton, MSN student, UBC School of Nursing.

This study is being conducted for a Master’s thesis.

Purpose:
The purpose of this study is to develop a history of the evolution and development of intensive care nursing from the perspective of nurses (and or student nurses) or other health professionals who planned and/or worked in the first ICU at Vancouver General Hospital from 1960-1985. I am interested in knowing how nurses cared for critically ill patients. I am also interested in learning how nurses worked with medical technology and the effect technology had on patient care, and ICU nursing knowledge.

Study Procedures:
The researcher will conduct one interview with you for about one hour each but no longer than 1.5 hours. A second interview may be necessary to clarify previous collected data. The interview can be conducted at a location of you choice. The researcher will audiotape record the interview. The information from the tapes will be transcribed. The information you share with the researcher may be used in this research study. The information may be published.

The information you share will contribute to a better understanding of the social, economic and historical influences that have shaped intensive care nursing in the Western Canadian experience. The knowledge gained from this study could be used to contribute to the evolving body of historical evidence or support current intensive care nursing, and aid in future development of intensive care nursing knowledge and practice. The study has no direct benefit to you; however, you may enjoy sharing valuable information and contributing to historical nursing knowledge.

There is a small risk that you may feel uncomfortable when sharing personal memories or become tired. You may change the topic, stop the interview or decline to answer any question at any time. If you become especially uncomfortable, the researcher will stop the interview. If you wish the researcher will suggest a person or agency that you can contact for help, normally your regular health care provider, should you experience undue emotional stress. There are no other expected risks or discomfort.

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Confidentiality:
Your personal information (address and phone number) will be kept private. It will be available only to the researchers. Confidential information will not be collected by e-mail.

You will be acknowledged for any information that is published in the study. The results of the study will be included in a graduate thesis and may be published. You may choose not to have your name identified. In the case that you choose not to be identified by your name, every effort will be made to keep your personal, identifiable information confidential. However, there is a slight chance that readers may still recognize you through the information that you may share, for example about a specific role you had in a specific public event or position. Therefore, anonymity cannot be entirely guaranteed. Information you share will be stored in a secure, locked location for five years upon completion of the study. Because the information you provide is of historical value, you can agree in the consent form that after those five years, information you provided will be deposited in a public archive, such as the BC Provincial Archives, or the archive of the British Columbia History of Nursing Group. Future researchers may use the information in accordance with established archival guidelines. If you do not agree to have the information deposited into an archive, the tapes and manuscripts will be destroyed after five years.

Remuneration/ Compensation:
You will not be paid for participating in the research. If you pay for parking or for bus fare in order to participate in the interview, these costs will be reimbursed.

Contact for information about the study:
If you have any questions or desire further information with respect to the study, you may contact Dr. Geertje Boschma at 604-822-7457 at UBC.

Contact for concerns about the rights of research subjects:
If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598.

Consent:
Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time.

1. Do you agree to have your name identified in the study?
   Yes ___   No ___

2. If you answered no, do you understand that every effort will be made to keep your information confidential but that anonymity might not be entirely guaranteed?
   Yes ____   No ___

3. Do you agree to have your tapes and transcripts deposited into an archive, such as the BC Provincial Archives or the archive of the British Columbia History of Nursing Group, after five years?
   Yes ____   No ___
Your signature below indicates that you have received a copy of this consent form for your records.
Your signature indicates that you consent to participate in this study.

<table>
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<th>Printed Name of Participant</th>
<th>Signature</th>
<th>Date</th>
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If you would like to receive a summary of the research findings upon the completion of the study, please provide your mailing address below. Mailing address:
Appendix E

UBC Research Ethics Board’s Certificate of Approval

CERTIFICATE OF APPROVAL - MINIMAL RISK

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<td>UBC/Applied Science/Nursing</td>
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INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:

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Other locations where the research will be conducted:
The oral history interviews that are part of this study will be conducted at a place of choice of the interviewee or research subject, which usually is the subject's home.

CO-INVESTIGATOR(S):
Deborah Hamilton

SPONSORING AGENCIES:
N/A

PROJECT TITLE:
The Historical Development of Intensive Care Nursing at Vancouver General Hospital, 1960-1982.

CERTIFICATE EXPIRY DATE: October 25, 2008

DOCUMENTS INCLUDED IN THIS APPROVAL:

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The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following:

Dr. M. Judith Lynam, Chair
Dr. Jim Rupert, Associate Chair
Dr. Laurie Ford, Associate Chair

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CERTIFICATE OF APPROVAL- MINIMAL RISK RENEWAL

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Other locations where the research will be conducted:
The oral history interviews that are part of this study will be conducted at a place of choice of the interviewee or research subject, which usually is the subject's home.

**CO-INVESTIGATOR(S):**
Deborah Hamilton

**SPONSORING AGENCIES:**
N/A

**PROJECT TITLE:**
The Historical Development of Intensive Care Nursing at Vancouver General Hospital, 1960-1982.

**EXPIRY DATE OF THIS APPROVAL:** November 28, 2009

**APPROVAL DATE:** November 28, 2008

The Annual Renewal for Study have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

*Approval is issued on behalf of the Behavioural Research Ethics Board*

Dr. M. Judith Lynam, Chair
Dr. Ken Craig, Chair
Dr. Jim Rupert, Associate Chair
Dr. Laurie Ford, Associate Chair
Dr. Daniel Salhani, Associate Chair
Dr. Anita Ho, Associate Chair