

An Analysis of the Perceived Values to Northcentral Wisconsin Phlebotomists of
Phlebotomy Certification

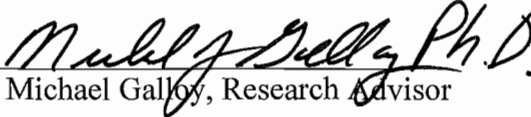
by

Laura Ahonen

A Research Paper
Submitted in Partial Fulfillment of the
Requirements for the
Master of Science Degree
in

Career and Technical Education

Approved: 2 Semester Credits


Dr. Michael Galloy, Research Advisor

The Graduate School

University of Wisconsin-Stout

October, 2009

**The Graduate School
University of Wisconsin-Stout
Menomonie, WI**

Author: Ahonen, Laura A.

Title: *An Analysis of the Perceived Values to Northcentral Wisconsin
Phlebotomists of Phlebotomy Certification*

Graduate Degree/ Major: MS Career and Technical Education

Research Adviser: Dr. Michael Galloy

Month/Year: October, 2009

Number of Pages: 48

Style Manual Used: American Psychological Association, 5th edition

ABSTRACT

Although external certification agencies claim that certification translates to an advantage in the workplace via increased job opportunities, higher wages, and greater promotional opportunities, the majority of Northcentral Technical College phlebotomy graduates do not take a phlebotomy certification exam. The small number of certification pass/failure rates makes it difficult for NTC to evaluate the effectiveness of the program and to demonstrate compliance with the NCCLS standard for program evaluation. The purpose of the study was to identify the benefits and barriers to phlebotomists in becoming certified. Questionnaires were sent to 19 clinic and hospital laboratories located within an approximate 100 mile radius of the city of Wausau. Both phlebotomists and lab managers were asked to identify values of phlebotomy certification and barriers to certification. Data was collected in August 2009 and the results were used to make findings, recommendations, and conclusions regarding phlebotomy certification. Results of the

study were similar to other studies done for nurse specialty certifications. Results showed that respondents perceived value to phlebotomy certification, but that lack of external recognition is a barrier to certification.

The Graduate School
University of Wisconsin Stout
Menomonie, WI
Acknowledgments

I would like to thank Dr. Michael Galloy for his support as my research project advisor. I am grateful for his time spent in reviewing and offering suggestions for improvement. I would like to thank Dr. Howard Lee and Dr. Kenneth Welty for their instruction in Research Theory. I appreciate having enrolled in their courses over the summer, as they both proved to be invaluable as I wrote this paper. I would like to thank my lab colleagues who supported this research by completing the surveys. I know how busy laboratory professionals are, and I appreciate everyone who took the time to complete a questionnaire. Lastly, I would like to thank my husband, Tom, and my children, Kayla, Tyler, and Brittany, for supporting me through this entire project and for allowing me the time I needed to complete this work.

TABLE OF CONTENTS

	Page
.....	
ABSTRACT.....	ii
List of Tables	vii
Chapter I: Introduction.....	1
<i>Background of the Problem</i>	1
<i>Statement of the Problem</i>	4
<i>Purpose of the Study</i>	4
<i>Research Questions</i>	4
<i>Importance of the Study</i>	5
<i>Limitations of the Study</i>	6
<i>Definition of Terms</i>	6
Chapter II: Literature Review	9
<i>The Phlebotomy Profession</i>	9
<i>Northcentral Technical College Phlebotomy Program</i>	11
<i>Law and Policy Regarding Healthcare Credentials</i>	12
<i>Role of Certification in Healthcare</i>	14
<i>Employee and Employer Views on Certification</i>	15
Chapter III: Methodology	18
<i>Research Design</i>	18
<i>Subject Selection and Description</i>	19
<i>Instrumentation</i>	19
<i>Data Collection Procedures</i>	20
<i>Data Analysis</i>	21

<i>Limitations</i>	21
<i>Summary</i>	22
Chapter IV: Results of Study	23
<i>Description of the Sample</i>	23
<i>Research Question One</i>	24
<i>Research Question Two</i>	26
<i>Research Question Three</i>	29
<i>Research Question Four</i>	30
<i>Research Question Five</i>	31
<i>Summary</i>	33
Chapter V: Summary	35
<i>Summary</i>	35
<i>Findings</i>	37
<i>Conclusions</i>	37
<i>Recommendations</i>	38
References	40
Appendix A: Survey for Employed Phlebotomists	45
Appendix B: Survey for Employers	48

List of Tables

Table 1: Phlebotomy Demographics.....	24
Table 2: Percentage of Agreement with Perceived Value Statements by both Certified and Noncertified Phlebotomists.....	25
Table 3: Percentage of Agreement with Perceived Value Statements by both Certified and Noncertified Phlebotomists.....	27
Table 4: Employer Reimbursement Divided by Certified and Noncertified Phlebotomists.....	29
Table 5: Barriers to Certification Cited by Noncertified Phlebotomists.....	29
Table 6: Salary Increase or Other Employment Benefits due to Certification.....	31
Table 7: Employer Responses to Phlebotomy Certification.....	32
Table 8: Employer Agreement with Perceived Values of Certification.....	33

Chapter I: Introduction

Background of the Problem

Phlebotomists play a critical role in healthcare. They are the link between the patient and the clinical laboratory. Phlebotomists are specialized healthcare workers whose primary role is to collect blood specimens for lab testing (Association for Career and Technical Education, 2007). The primary method for collecting blood specimens is by venipuncture, however, capillary and arterial blood collections are also performed.

In addition to blood collections, phlebotomists perform a variety of other duties. Phlebotomists may collect non-blood specimens for lab testing, such as throat swabs and urine and stool samples (Phlebotomist's Duties, 2008). They also process, or prepare, specimens for lab testing by using centrifuges, scales, pipettes, and other lab equipment.

Phlebotomists perform a variety of other laboratory assistant functions requiring additional skills. Computer skills are essential because the phlebotomist may create lab appointments, enter lab test requisitions, print specimen collection labels, and receive specimens in the lab computer system (Lichtman, 2006). Oral communication skills are equally as important, as the phlebotomist must calm nervous patients, explain procedures, give collection instructions, and communicate sample information to physicians and lab personnel.

Individuals can become phlebotomists either through on the job training, or through formal education programs provided by a community or technical college. Generally, phlebotomists are trained in all aspects of capillary and venous blood collections. Because phlebotomists are members of the clinical laboratory team, they are often also trained in specimen processing, lab information systems, patient test

preparation, biohazard safety work practices, and emergency protocols (Professionals in Phlebotomy, 2003). Because of the consequences that result from phlebotomy procedures, most employers prefer to hire phlebotomists who have gone through a formal phlebotomy education program (Phlebotomy Pages for Phlebotomists, 2008a).

Northcentral Technical College (NTC) in Wausau, Wisconsin, offers a phlebotomy certificate through its formal phlebotomy education program (Northcentral Technical College, 2009b). The NTC phlebotomy program is approved by the National Accrediting Agency of Clinical Laboratory Science (NAACLS). NAACLS is the international accrediting and approval agency for clinical laboratory science education programs (National Accrediting Agency for Clinical Laboratory Sciences, 2006). The purpose of NAACLS approval is to ensure that graduates of the program meet the entry level competencies. These competencies ensure that a graduate has the minimum knowledge and skills to function as a phlebotomist.

NAACLS approval is voluntary, as there are no legal requirements for phlebotomy programs to possess this approval. However, there are advantages for colleges to obtain NAACLS approval, such as identifying the approved program as one that meets certain educational standards (National Accrediting Agency for Clinical Laboratory Sciences, 2006). In addition, a NAACLS approved phlebotomy program assures students and employers that the program adequately prepares students for entry level competency into the profession. Another advantage to having a NAACLS approved program is that graduates are then immediately eligible to apply for national certification examinations. NAACLS even recommends that approved educational programs submit

documentation of graduates' performance on external certifying exams in order to meet the program evaluation standard.

Certification as a phlebotomist is a voluntary act. No state, except California, has regulations regarding phlebotomy training or certification (Ernst, 2008). California began requiring certification in 2003 after a Palo Alto phlebotomist was caught rinsing and reusing needles. However, since then, no other state has enacted similar legislation regarding regulating phlebotomy staff. The rationale often used for not requiring certified phlebotomists is that phlebotomy is a technical act, does not require medical judgement, and does not put the patient at risk (Mishori, 2004).

If a phlebotomist does choose to become certified, there are six organizations that offer nationally recognized phlebotomy certificates (Directory of Phlebotomy Certification Agencies, 2008). The following organizations that offer phlebotomy certification exams are:

- American Certification Agency (ACA)
- American Medical Technologists (AMT)
- American Society for Clinical Pathology (ASCP)
- National Center for Competency Testing (NCCT)
- National Credentialing Agency (NCA)
- National Healthcareer Association (NHA)

All of the above organizations certify those who pass the phlebotomy exam as “phlebotomy technicians.”

Statement of the Problem

Although external certification agencies claim that certification translates to an advantage in the workplace via increased job opportunities, higher wages, and greater promotional opportunities, the majority of NTC phlebotomy graduates do not take a phlebotomy certification exam. The small number of certification pass/failure rates makes it difficult for NTC to evaluate the effectiveness of the program. This lack of data also makes it difficult to demonstrate compliance with the NCCLS standard for program evaluation.

Purpose of the Study

The purpose of the study was to identify the benefits and barriers to phlebotomists in becoming certified. The results provided can be used as valuable tools to assist future graduates in their own certification decisions. More students taking a certification test would result in a greater opportunity to evaluate the effectiveness of the NTC phlebotomy program. Results of the certification exams could also be submitted to NCCLS to meet requirements for continued program approval.

Research Questions

There are five research questions this study will attempt to answer. These are:

1. What is the perceived value of phlebotomy certification to both certified and noncertified phlebotomists?
2. Are there differences in perceived value between certified and noncertified phlebotomists?
3. What are the barriers to certification for noncertified phlebotomists?
4. What are some occupational outcomes due to certification?

5. What is the perceived value of phlebotomy certification to employers?

Importance of the Study

The following information outlines the importance of this study. They are:

1. The study provided significant data showing the relative percentage of certified phlebotomists in Wausau, Wisconsin and the surrounding area. This data is important to the educators at NTC because it is not currently known whether certified phlebotomists have an advantage in the job market over non-certified phlebotomists. The results of this study can be shared with phlebotomy students and will influence those students regarding their own certification.
2. The study of phlebotomy certification may be important to laboratory professional societies in Wisconsin. These organizations could use the information to promote certification to its members. Members of these organizations could lobby their employers for additional benefits for certified phlebotomists, such as higher wages and increased job responsibilities.
3. This study raises awareness of the lack of regulations surrounding the phlebotomy profession. The results of this study could cause laboratorians to become involved in the professional organizations currently lobbying for personnel licensure laws for clinical laboratory occupations. The minimum requirements for licensure would include passage of a certification exam. Certification exams would ensure that phlebotomists have been adequately educated and are competent to perform phlebotomy.

Limitations of the Study

The limitations that were identified in this study are:

1. A low return rate of surveys, combined with a small population sample, affect the validity of the study. A small sample size may be problematic and affect the validity of results.
2. Sample identification could affect validity of the study. Identifying which healthcare facilities to survey could influence the results. There may be employers who were not surveyed who, if surveyed, might have provided answers that could have changed the data collected.
3. The study was limited to phlebotomists currently employed. The study did not survey phlebotomists who are not working, thus, the data collected is biased. If unemployed phlebotomists had been surveyed, their answers could have changed the data collected.
4. The study was limited to healthcare facilities and phlebotomists within the Northcentral region of Wisconsin. The data cannot be assumed to be applicable to areas outside of the surveyed region.
5. Time could have been a limiting factor. The survey asked for respondents to reply within one month's time. If more or less time was used, it could have changed the data collected.

Definition of Terms

The following terms are defined for the purpose of this study:

Accreditation: "A process of external peer review in which an agency grants public recognition to a program of study or an institution that meets established

qualifications and educational standards” (National Accrediting Agency for Clinical Laboratory Science, 2008, p. 12).

Arterial blood collection: A blood sample collected by puncturing an artery.

Bloodborne pathogen: Disease causing organisms, such as Hepatitis B, Hepatitis C, and HIV, that may be transmitted through exposure to blood or body fluids (Berry, 2002).

Capillary blood collection: A blood sample collected by pricking the skin and puncturing the tiny blood vessels near the skin’s surface (Merriam-Webster's Online Dictionary, 2009).

Centrifuge: A machine that spins at high speeds for the purpose of separating substances of different densities (Merriam-Webster's Online Dictionary, 2009).

Certification: “The one-time awarding of a certificate after an individual satisfies all eligibility requirements including the certification exam” (American Registry of Radiographic Technicians, 2009, paragraph 2).

Clinical laboratory: A laboratory that analyzes patient samples. The results of this analysis directly affect the care of the patient (Mosby's Medical Dictionary, 2008).

Competencies: “The minimum requirements in knowledge and skills to function effectively in the occupation” (National Accrediting Agency for Clinical Laboratory Sciences, 2006, p. 12).

Licensure: State laws that grant individuals the authority to practice certain occupations (American Registry of Radiographic Technicians, 2009).

Needlestick injury: An accidental puncture of the skin with a used or unsterilized needle (Merriam-Webster’s Online Dictionary, 2009).

Occupational outcomes: Employment opportunities, wages, or promotional advancement

Pipette: A narrow tube into which the fluid is drawn by suction (Merriam-Webster's Online Dictionary, 2009).

Preamalytical: The phase of clinical lab testing from receipt of the physician order until examination of the specimen (Ernst & Ballance, 2006).

Quality assurance: "Overall process to aid in improving the reliability, efficiency, and quality of laboratory testing in general" (Garrels & Oatis, 2006, p. 285).

Quality control: "Process in which known samples are routinely tested to establish the reliability, accuracy, and precision of a specific test system" (Garrels & Oatis, 2006, p. 285).

Requisitions: An authorized written request for laboratory tests (Merriam-Webster's Online Dictionary, 2009).

Specimen Processing: Preparing blood or other lab specimens for analysis. This is done by simply mixing a specimen prior to analysis, or by centrifuging a specimen and separating or removing the top portion after centrifugation (Garza & Becan-McBride, 2010).

Venipuncture: The puncture of a vein for the purpose of blood withdrawal (Merriam-Webster's Online Dictionary, 2009)

Chapter II: Literature Review

The purpose of the study was to identify the benefits and barriers to phlebotomists in becoming certified. The following narrative will begin with a discussion of the phlebotomy profession. The chapter will then review the phlebotomy program at Northcentral Technical College (NTC), including the program outcomes. A discussion of law and policy and the role of certification in healthcare will follow. The chapter will conclude with a summary of related research on employee and employer views on certification in other healthcare professions.

The Phlebotomy Profession

A phlebotomist is a member of the clinical laboratory workforce. The group of laboratory workers is the single largest group of allied health workers in the United States (Ginzberg, 1983). Lab workers include medical technologists and technicians, cytotechnologists, histologist, phlebotomists and lab assistants.

The phlebotomist's primary role is to collect blood for lab testing (Association for Career and Technical Education, 2007). In addition, phlebotomists perform a variety of other specimen collections along with preparing the specimens for laboratory testing.

The role of a phlebotomist contains both risks to patients and risks to the phlebotomists themselves. Patient risks include physical injuries from the puncture itself and injuries resulting from incorrect labeling or incorrect specimen handling. Physical injuries to patients range from bruising, nerve damage, paralysis and amputation due to incorrectly performed punctures (Ernst D. J., 2005). Another phlebotomy related risk to patients is that of misdiagnosis or incorrect treatment. This risk exists because of the

critical role laboratory tests play in patients' healthcare. It has been estimated that laboratory tests contribute to more than 70% of diagnosis's (Clinical Laboratory Coalition, 2009). Therefore, the specimens collected and labeled by the phlebotomists must be quality specimens in order to provide accurate lab results. Laboratory errors do occur, and some studies have shown that phlebotomists contribute to the 56% of lab errors that occur in the pre-analytical phase (Ernst & Ballance, 2006). Although some of these errors may not be detected, there is the potential that an incorrect lab result could lead to death (Ernst, 2005).

The biggest risk to the phlebotomist is that of a needlestick injury, and the subsequent possibility of acquiring a bloodborne pathogen infection, such as HIV or Hepatitis. Because the primary duty of a phlebotomist is to collect blood by venipuncture, the highest risk of exposure to bloodborne pathogens is from the needles used to draw blood. Other risks of exposure are from using needles as tools, such as in transferring blood from a syringe to a tube, and from broken glass that has been in contact with blood, such as specimen tubes or slides (Jagger, Perry, & Parker, 2003).

The job outlook for phlebotomists is very good, due in part to the aging U.S. population and the need to assist physicians in detecting and diagnosing disease (Lichtman, 2006). Phlebotomy is one of the many healthcare occupations that are growing faster than other occupations (Liming & Wolf, 2006). A national study done in 2006 showed that the vacancy rate for phlebotomists was at 5.9%, with 25% of laboratories reporting difficulty in filling phlebotomy positions (Bennett, Thompson, Holladay, Bugbee, & Steward, 2009). This same study found that the national average wage for a staff phlebotomist was \$13.00 per hour.

Despite many technological advancements in healthcare, the act of obtaining a blood sample remains a manual procedure, therefore, phlebotomists continue to play a valuable role in healthcare (Ernst & Balance, 2006). Phlebotomists require knowledge that impacts patient care and treatment by influencing the accuracy of lab results, yet, according to Edwards (2005), “Phlebotomy has been called the most underestimated procedure in healthcare” (p. 24).

Northcentral Technical College Phlebotomy Program

Northcentral Technical College (NTC) in Wausau, Wisconsin, offers an NTC phlebotomy certificate through its formal phlebotomy education program (Northcentral Technical College, 2009b). The NTC phlebotomy certificate can be completed in one semester, and consists of lectures, laboratory classes, and a clinical experience in a clinic or hospital laboratory. The classroom lecture and labs are held during the first eight weeks of the semester. These classes prepare the students for their clinical experience by utilizing interactive, hands-on lessons. Beginning with safety and basic anatomy, the students progress to assembling phlebotomy collection equipment, simulate blood drawing on a fake arm, and culminate with the completion of ten successful venipunctures.

The clinical experience of the phlebotomy student begins in the second half of the semester. NTC has 12 phlebotomy clinical sites in hospitals and clinics within Wausau and around the Wausau area (Northcentral Technical College, 2009a). Each student must spend 100 hours at a clinical site, must successfully obtain 100 blood specimens, and must successfully demonstrate competencies relating to the field of phlebotomy.

Graduates of the NTC phlebotomy program will demonstrate the following program outcomes:

- Demonstrate knowledge of health care delivery system
- Demonstrate knowledge of infection control and safety
- Demonstrate basic understanding of the anatomy and physiology of the main body systems
- Demonstrate understanding of importance of specimen collection and specimen integrity
- Demonstrate knowledge of collection equipment, additives, precautions and interfering substances
- Follow standard operating procedures to collect specimens
- Demonstrate understanding of requisitioning, specimen transport and specimen processing
- Demonstrate understanding of quality assurance and quality control
- Communicate (verbally and nonverbally) effectively and appropriately in the workplace.

Law and Policy Regarding Healthcare Credentials

In the United States, it is the responsibility of each state, not the federal government, to control and regulate healthcare providers (Ginzberg, 1983). Because it is each state's duty to protect the health and safety of its people, states have created licensure requirements for many healthcare occupations, such as physicians, dentists, pharmacists, nurses, optometrists, osteopaths, podiatrists, veterinarians, dental hygienists, and emergency medical technicians (Committee to Study the Role of Allied Health

Personnel, 1989). For those occupations requiring licensure, the state prohibits nonlicensed persons from working in those roles, and the state grants permission to work in those roles only if a person has met predetermined qualifications. Essentially, licensure is a product of state law designed to protect the public by assuring that professional healthcare practitioners are competent in their professions (Ginzberg, 1983).

Several authors have defined the purpose of licensure as protecting the public by ensuring that licensed practitioners possess the general knowledge necessary for their particular occupation (Allen & Girard, 1992; Committee to Study the Role of Allied Health Personnel, 1989). Many allied health fields believe that state licensure adds value to their profession by giving recognition to their field, giving legal validation to their field, and providing a means of excluding unqualified practitioners in their field (Committee to Study the Role of Allied Health Personnel, 1989). Currently, California is the only state that has implemented legislation regulating the phlebotomy profession (Ernst D. J., 2008; Edwards, 2005).

The history of state legislation regarding phlebotomy licensure began in 1999 after a Palo Alto, California phlebotomist admitted to reusing needles five to ten times to draw blood from different patients (Porco, et al., 2001). The reuse of needles by this phlebotomist possibly exposed 3810 patients to bloodborne pathogens such as HIV, Hepatitis B and Hepatitis C. The California legislature acted quickly and by 2003 had passed legislation requiring minimum training standards and certification for all of its phlebotomists (Edwards, 2005; Ernst D. J., 2008).

Other state legislators have introduced similar bills, but thus far, none have successfully made it into law (Ernst D.J., 2008). West Virginia, Connecticut, Kentucky,

Masachusetts and Missouri all introduced bills that would require minimum training standards and mandatory certification testing of phlebotomists, but, all of these bills died in committee (Ernst D.J., 2008). Today, California is the only state that has state legislation regarding phlebotomy personnel. In all other states, there are no mandatory minimum training or certification requirements to perform phlebotomy (Ernst D. , 2002).

Role of Certification in Healthcare

Certification is different than licensure. Many authors have defined certification as a voluntary process where an individual demonstrates specific knowledge and skills to a non-governmental agency (Christoffel, 1982; Byrne, Valentine, & Carter, 2004). The agency then grants recognition to the qualified individual in the form of a certificate. For those occupations that require licensure, such as in nursing, certification demotes a more advanced and specialized level of knowledge that is above and beyond that of entry level licensed nurses (Byrne, Valentine, & Carter, 2004; Allen & Girard, 1992). For other nonlicensed occupations, certification is granted to individuals who are graduates of approved training programs, or who have worked in the field for a number of years, and have passed a certification exam that is linked to national standards (Christoffel, 1982).

The purpose of professional certification is to assure that an individual who practices a certain occupation is capable, competent, and qualified to perform that occupation (American Society for Clinical Pathology, Raymond, 2001, ARRT, 2009). A person can become certified in a profession after meeting certain educational or job experience requirements, and then passing a certifying examination.

According to Raymond (2001), certification is "...an indication that an individual is qualified to practice a particular occupation or profession" (p. 1). However, several

authors have identified that certification credentials reflect what a person should be able to do, but they do not reflect what the person actually does, or how the person actually performs (Redd & Alexander, 1997; Coleman, et al., 1999). These studies question whether or not certification impacts patient care or patient outcomes.

Employee and Employer Views on Certification

Although no research exists regarding employee and employer views on phlebotomy certification, much research has been done regarding the various voluntary nursing certificates that are available. Because participation in most nursing certification programs is voluntary, the decision to obtain certification is dependant on the perceived value of the certification (Sechrist, Valentine, & Berlin, 2006). This section will review the findings concerning certified nurses', noncertified nurses', and employers' attitudes toward certification.

Certification views from certified nurses. Multiple authors have examined the reasons that nurses choose to take certification exams, and have produced similar findings. Reasons for obtaining certification is primarily to fulfil a personal achievement goal, for professional growth, and to be recognized as a specialist in their field (Allen & Girard, 1992; Redd & Alexander, 1997; Coleman, et al., 1999).

Several research studies of certified nurses have identified their perceived benefits of certification as personal satisfaction, personal achievement, professional credibility, validation of specialized knowledge and professional challenge (Sechrist, Valentine, & Berlin, 2006; Byrne, Valentine, & Carter, 2004; Niebuhr & Biel, 2007). However, these same studies have also shown that the majority of respondents did not agree that certification increases salary.

When comparing perceptions of empowerment between certified and noncertified nurses, it was found that certified nurses have a higher sense of empowerment (Piazza, Donahue, & Dykes, 2006). Within this realm of empowerment, certified nurses believe they have greater access to information than noncertified nurses.

Certification views from noncertified nurses. Although many reasons have been identified as to why noncertified nurses do not seek certification, the common cause found in multiple research reports is the lack of financial incentives (Bekemeier, 2009; Sechrist, Valentine, & Berlin, 2006; Redd & Alexander, 1997; Coleman, et al., 1999). The lack of financial incentives included both the cost of the exam and salary. Other reasons for not taking a certification exam included a lack of time, lack of experience, and lack of necessity (Redd & Alexander, 1997; Coleman, et al., 1999).

Noncertified nurses perceive the same benefits to certification as certified nurses, but to a slightly lesser degree (Sechrist, Valentine, & Berlin, 2006; Byrne, Valentine, & Carter, 2004). The perceived value of certification held by noncertificants include personal accomplishment, personal satisfaction, the validation of specialized knowledge, professional growth and credibility, and professional challenge.

Certification views from employers. Employers of nurses perceive the same positive benefits to certification, as personal and professional growth, like certified and noncertified nurses (Byrne, Valentine, & Carter, 2004; Sechrist, Valentine, & Berlin, 2006). However, these employers have not attached financial rewards, such as examination fee reimbursement or increased salary, to certificants (Bekemeier, 2009; Byrne, Valentine, & Carter, 2004). Yet, in a study on the value of specialty nursing certification, Nieburh (2007) found that "...nurse managers expressed a preference for

hiring certified nurses because certified nurses have a proven knowledge base and documented experience in a given specialty” (pp. 176-177).

Chapter III: Methodology

The purpose of the study was to identify the benefits and barriers to phlebotomists in becoming certified. The study was designed to identify the reasons why some phlebotomists choose certification and why some do not. In this study, surveys were distributed to laboratory managers and phlebotomists in the Northcentral Wisconsin area.

This chapter will detail the methodology used, including the research design, population and sample, instrumentation, data gathering, and data analysis. The chapter will conclude with a brief discussion regarding the limitations of this study.

There are five research questions that this study was designed to answer. They are:

1. What is the perceived value of phlebotomy certification to both certified and noncertified phlebotomists?
2. Are there differences in perceived value between certified and noncertified phlebotomists?
3. What are the barriers to certification for noncertified phlebotomists?
4. What are some occupational outcomes due to certification?
5. What is the perceived value of phlebotomy certification to employers?

Research Design

The research design was based on exploratory, descriptive, nonexperimental research methodology using the survey method. The study is a descriptive look at employer's and phlebotomist's perceptions of phlebotomy certification.

The study looked at the extent to which certification is valued by employees and employers, and reasons why phlebotomists do or do not have certification. The perceived values of certification by both certified and noncertified phlebotomists were examined and compared. The study also looked at the type of facility, years of experience and age, and the position held by the phlebotomist. These variables were chosen because they may be implicated as factors associated with phlebotomy credentialing.

Subject Selection and Description

The population studied was the group of phlebotomists currently in the workforce of Northcentral Wisconsin. To study the factors influencing phlebotomist's attitudes towards phlebotomy certification, surveys were sent to lab managers and phlebotomy staff.

The sample was drawn from both hospital and clinic laboratories. The selection of surveyed facilities was based on location within the state of Wisconsin. Facilities selected were located within an approximate 100 mile radius of the city of Wausau. Phlebotomy employees and employers from a total of 15 hospitals and four clinics were surveyed. This group also represented a convenient sample that was available to the researcher and allowed the efficient completion of the project. The laboratory managers were invited to complete the employer questionnaire, and all phlebotomists in the facilities were invited to complete the employee questionnaire. A total of 11 lab managers returned employer questionnaires, and a total of 44 phlebotomists returned employee questionnaires.

Instrumentation

The questionnaires were developed after reviewing previously published studies regarding the perceived value of certification. A separate questionnaire was developed for

phlebotomy employers and phlebotomy employees. The questions on each focused on certification and addressed the reasons for deciding to take or not take a certification exam. The employer questions also focused on whether or not there is a perceived benefit to the organization if employees become certified.

The phlebotomist questionnaire was tested by a group of four phlebotomists. The panel of phlebotomists completed the questionnaire as part of a pilot study. The questionnaires were then revised based on results and comments from this preliminary test.

The final questionnaires had two parts. Part one focused on certification and included items regarding reasons for taking or not taking a certification test. There was also space left at the end of part one to allow respondents to contribute written comments. Part two of the questionnaire included a component to collect demographic data. The entire questionnaire could be completed in approximately five to ten minutes.

Data Collection Procedures

The researcher had received Institutional Review Board for the Protection of Human Subjects approval from the University of Wisconsin Stout to conduct the research needed for this study.

A cover letter describing the purpose of the study was e-mailed to the laboratory manager in each facility, along with instructions for completion of the on-line questionnaire and the web-link to the questionnaire. The cover letter was e-mailed in August 2009 and it reflected a basic appeal for the respondents' help. The cover letter requested survey participation from the lab managers, and requested that the lab manager

forward the web-link to all phlebotomy staff. The written instructions also stated that completion of the questionnaire implied consent to participate in the study.

Data was collected over a four week period from August to September 2009 after the web-link was sent out via e-mail to each laboratory in the study.

One of the laboratory managers requested that his phlebotomy staff receive paper copies of the survey, as the phlebotomists did not have ready access to the internet. Paper copies of the phlebotomy survey were mailed to this lab, along with the cover letter of instructions. The paper surveys were completed, mailed back to the researcher, and entered into the on-line survey tool.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) software was used for data analysis. All 11 employer questionnaires were included in the analysis, and 44 phlebotomy employee questionnaires were included in the data analysis. Descriptive statistics, frequencies, and percentages were used to evaluate the employers' questionnaires. Frequencies, descriptive statistics, and chi-square test were used to evaluate the phlebotomists' perceived values of certification. Cross tabulation was used to assess the frequency of responses based on two different categories (certified versus noncertified). Differences also were explored among subsets of the sample (certified phlebotomists versus noncertified phlebotomists) using frequencies, descriptive statistics, and independent samples t-test. The independent sample t-test was used to compare the average response of the two groups for each variable.

Limitations

There were several limitations to this study. The e-mailed web-link may not have reached every phlebotomist in each facility. Subjects may not have identified with the importance of the study and decided not to participate in the study. Time may have been a limitation in the study, as the timing may have been during heavy staff vacation, or high patient demands, thus not allowing all phlebotomists to participate. In addition, access to the internet may have limited some staff from participating.

Summary

Chapter three has described the population and the subjects of this study. Also described were how the subjects of the survey were selected and how the questionnaire used in the survey was developed. Finally, the chapter discussed the method used to collect the data, the data analysis and the limitations of the study.

Chapter IV: Results of Study

This study was designed to identify the benefits and barriers to phlebotomists in becoming certified. Both phlebotomists and employers of phlebotomists were surveyed. Questions centered on the value of certification, reasons why some do or do not choose certification, and whether certification leads to greater job opportunities, increased pay or advancement. The benefits, barriers, and other opinions regarding certification were identified from the data that was collected in August 2009. This study gave information that could be useful to Northcentral Technical College (NTC) for phlebotomy graduates and phlebotomy program approval.

The survey was conducted using a web-based questionnaire. Invitations to complete the questionnaires were sent to 19 laboratories, and all phlebotomists in each facility were asked to participate. A total of 11 lab managers returned employer questionnaires, and a total of 44 phlebotomists returned phlebotomist questionnaires. Tables were created showing the frequencies and percentages of the responses for the survey questions.

In this chapter, the research questions sought through this study will be analyzed. The data acquired through the questionnaires will be presented, and results will be discussed through the use of narrative and tables.

Description of the Sample

Participants in the study were from 19 hospital and clinic laboratories within a 100 mile radius of Wausau, Wisconsin. The questionnaires found in Appendices A and B were used. A total of 44 phlebotomists responded to the employee questionnaires.

The respondents were split in terms of certification, with 48% being certified and 52% being uncertified. In terms of job category, the largest group, 66% of respondents, described their professional role as that of staff phlebotomist. The second largest group, 20%, listed their job category as “other” and cited a variety of job titles such as phlebotomist technician, phlebotomist 2, phlebotomist 3 or lab assistant. Few respondents, 12%, cited their job title as “lead phlebotomist” and 2% cited their job title as “specimen processor.”

Among phlebotomy participants, 38% were in the age range of 26 – 35 and 35% were ages 36-50. Of the remaining participants, 25% were over the age of 51 and 2% were in the 18 – 25 age range. Additional demographic data from the phlebotomist respondents is presented in Table 1.

Table 1

Phlebotomist Demographics

Type of laboratory			Years of experience			Employment status	
Clinic	Hospital	Both	0-3	4-10	11+	Full-time	Part-time
36%	27%	4%	20%	47.5%	32.5%	67.5%	40%

Research Question One

The study sought to evaluate the perceived value of phlebotomy certification to both certified and noncertified phlebotomists. The study’s goal was to determine the extent to which phlebotomists in Northcentral Wisconsin value certification. To address that question, all phlebotomists were given a set of perceived value statements utilizing a four point Likert scale (labeled strongly agree, agree, disagree, and strongly disagree).

The study participant responses of “Agree” and “Strongly Agree” to the value statements were grouped together for the purpose of simplifying and describing results. The perceived value statements were then divided into intrinsic or extrinsic factors. Intrinsic values included those with personal implications such as personal satisfaction, growth, challenge, and feelings of accomplishment and commitment. Extrinsic values included those that are more outwardly related, such as salary increase, employer recognition, and consumer confidence (Bekemeier, 2007). Table 2 displays both groups of intrinsic and extrinsic values along with the results.

Table 2

Percentage of Agreement with Perceived Value Statements by both Certified and Noncertified Phlebotomists

Perceived value statement	Total percent of phlebotomists who strongly agree or agree with value statement
Intrinsic Factors	
Enhances feeling of personal achievement	91%
Gives personal satisfaction	91%
Validates my knowledge of phlebotomy	82%
Indicates professional growth	85%
Provided a professional challenge	82%
Enhanced my credibility and status as a professional	73%
Proves my commitment to phlebotomy	79%
Demonstrates that I am knowledgeable of best practices in my field	85%

Enhances my personal confidence of my clinical knowledge	79%
Indicates to others my level of clinical competence	76%
Extrinsic Factors	
Salary increase	48%
Promotes special recognition from peers	76%
Promotes special recognition from other healthcare professionals	76%
Increases my marketability	79%
Enhances patient confidence in my skills	67%
Required by my employer	33%
Recommended by my employer	79%
Recommended by my peers	67%

The majority of respondents either strongly agrees or agrees with all ten intrinsically valuable items in the perceived value list. This indicates a consensus within phlebotomists that certification is intrinsically valuable to the employee. Overall, the percentages of agreement in the extrinsic value statements are less than those in the intrinsic list. Although the majority of respondents agree with six out of the eight extrinsic values, a minority agrees with that of “required by my employer” and respondents are split in terms of “salary increase.”

Research Question Two

The research was designed to investigate if there are differences in perceived value of certification between certified and noncertified phlebotomists. To address that

question, the phlebotomist questionnaire asked whether or not the phlebotomist was certified. A total of 21 (48%) were certified, and a total of 23 (52%) were not certified. Both groups, certified and noncertified, were then given a series of perceived value statements utilizing a four point Likert scale (labeled strongly agree, agree, disagree, and strongly disagree). The findings associated with this question are found in Table 3.

Table 3

Percentage of Agreement with Perceived Value Statements Divided by Certified Phlebotomists and Noncertified Phlebotomists

Perceived value statement	Percent of certified phlebotomists who strongly agree or agree with value statement	Percent of noncertified phlebotomists who strongly agree or agree with value statement
Intrinsic Factors		
Enhances feeling of personal achievement	100%	77%
Gives personal satisfaction	100%	79%
Validates my knowledge of phlebotomy	100%	57%
Indicates professional growth	95%	64%
Provided a professional challenge	95%	64%
Enhanced my credibility and status as a professional	84%	57%
Proves my commitment to phlebotomy	95%	57%
Demonstrates that I am knowledgeable of best practices in my field	100%	64%

Perceived value statement	Percent of certified phlebotomists who strongly agree or agree with value statement	Percent of noncertified phlebotomists who strongly agree or agree with value statement
Indicates to others my level of clinical competence	100%	43%
Extrinsic Factors		
Salary increase	53%	43%
Promotes special recognition from peers	74%	79%
Promotes special recognition from other healthcare professionals	74%	79%
Enhances patient confidence in my skills	84%	46%
Required by my employer	47%	14%
Recommended by my employer	84%	71%
Recommended by my peers	58%	79%

The results from each group were then analyzed by comparing the average response to each component using an independent samples t-test. Sixteen of the 18 value statements showed statistically significant differences between the certified versus noncertified phlebotomists. The certified phlebotomists agreed or strongly agreed with those 16 values more often than their noncertified counterparts. The two value statements that showed no statistical difference between the two groups were “salary increase” and “recommended by my employer.”

Research Question Three

The study attempted to identify the barriers to certification. To begin to address this question, all respondents were asked whether or not their employer reimbursed for the cost of the exam. Table 4 presents those findings.

Table 4

Employer Reimbursement Divided by Certified and Noncertified Phlebotomists

	Certified phlebs	Noncertified phlebs
Yes, employer reimburses	95%	47%
No, employer does not reimburse	5%	53%

The cross tabulation data from Table 4 was analyzed using a chi-square analysis and the results were found to be statistically significant. The data shows that there is a relationship between employer reimbursement and certification. The certified phlebotomists have a much higher percentage (95%) of employers who pay for the exam when compared to noncertified phlebotomists.

In addition to that question, noncertified phlebotomists were asked to choose or cite the barriers that prevented them from becoming certified. The frequencies of responses to that question are presented in Table 5.

Table 5

Barriers to Certification Cited by Noncertified Phlebotomists

Barrier	Percentage of noncertified phlebs selecting this as a barrier
Too expensive	13%

No recognition	16%
Not relevant	5%
No time	3%
No financial reward	13%
Not challenging	0%
Fear of not passing the test	5%
Location of the test center is too far	8%
I do not plan to remain in this occupation	11%
Other	13%

For those phlebotomists who are not certified, the most frequent barriers cited were the expense of the exam, no financial reward, or no recognition. Other reasons cited that were not on the above list are working too few hours to qualify or not working in the field long enough to qualify.

Research Question Four

The research aimed at identifying some occupational outcomes due to certification. All phlebotomists were asked whether or not their salary increased or would increase after certification. In addition, certified phlebotomists were also asked if they experienced job advancement or promotion due to obtaining certification. The results of these questions are presented in Table 6.

Table 6

Salary Increase or Other Employment Benefits due to Certification

	Certified phlebs	Noncertified phlebs
Yes, certification increases salary	52%	22%
No, certification does not increase salary	48%	78%
Yes, I experienced job advancement or promotion	38%	N/A
No, I did not experience any job advancement or promotion	62%	N/A

The cross tabulation data from Table 6 was analyzed using a chi-square analysis and there was no statistically significant difference in the relationship between salary increase and certification for those that are certified. However, for those that are not certified, the majority believe that certification will not offer them any salary increase. In addition, the majority of certified phlebotomists did not experience any employment benefits due to certification.

Certified respondents were asked to list any other outcomes experienced from certification. Respondents indicated that certification shows a dedication to their profession and is a source of pride. A common theme from respondents is self satisfaction, with one certified phlebotomist stating that certification "...made me feel better about myself and this makes me a better phleb."

Research Question Five

Another goal of this research was to identify the perceived value of phlebotomy certification to employers. This was done by asking employers whether or not they

reimbursed for the cost of the exam, gave a salary increase to certified phlebotomists, and hired or gave promotions to certified phlebotomists.

The findings associated with these actual values given to certified phlebotomists are found in Table 7.

Table 7

Employer Responses to Phlebotomy Certification

Employer question	Yes	No
Do you reimburse for cost of exam?	45%	55%
Do you increase phlebotomist's salary if certified?	9%	91%
Are you more likely to hire certified over noncertified phlebotomist?	73%	27%
Do certified phlebotomists have a greater chance of job advancement?	36%	64%

The results of this table show that respondents were split when it came to reimbursing for the cost of the exam, and only a minority increased pay after certification. However, the majority of employers would be more likely to hire a certified phlebotomist, yet, once hired, certification does not play a large role in job advancement for the majority of employers.

In addition, employers were given a list of perceived value statements regarding the value of certified phlebotomists to organizations. The employers were then asked to answer "yes" or "no" to a set of questions regarding benefits to the organization in having certified phlebotomists. The findings associated with the perceived value of phlebotomy certification to employers are presented in Table 8.

Table 8

Employer Agreement with Perceived Value of Certification

Does phlebotomy certification...	Yes	No
...indicate level of clinical competence?	91%	9%
...indicate knowledge of practice standards?	91%	9%
...enhance professional credibility?	73%	27%
...increase consumer confidence?	55%	45%

This data confirms that the majority of employers do perceive value to having their staff certified. Comparing Table 8 with Table 2 shows that both employers and employees do find value in certification. However, combining the data from Table 7 with Table 8 illustrates that, even though employers perceive value, they do not currently attach financial rewards to certification.

Summary

In this chapter, each research question was answered by using the data provided by the completed questionnaires. The data showed that phlebotomists attach intrinsic value to certification, and that certified phlebotomists had a higher percentage of agreement with perceived value statements than noncertified phlebotomists. The data also indicated that certified phlebotomists had a much higher percentage of employer reimbursement than noncertified phlebotomists. In addition, the study data illustrated that noncertified phlebotomists identified barriers to certification as the cost of the exam, lack of financial reward, or lack of recognition as primary reasons for not obtaining certification. In regards to employers' views on certification, the data showed that employers perceive value to certification, yet they do not attach financial rewards.

Chapter five will analyze these results, make conclusions, and offer recommendations based on these findings.

Chapter V: Summary

This chapter will begin with a brief summary of the research project. Research questions will be reviewed and the findings and conclusions derived from the research will be stated. Finally, recommendations related to this study and recommendations for further study will be made.

Summary

Although external certification agencies claim that certification translates to an advantage in the workplace via increased job opportunities, higher wages, and greater promotional opportunities, the majority of NTC phlebotomy graduates do not take a phlebotomy certification exam. The small number of certification pass/failure rates makes it difficult for NTC to evaluate the effectiveness of the program. This lack of data also makes it difficult to demonstrate compliance with the NCCLS standard for program evaluation.

The purpose of the study was to identify the benefits and barriers to phlebotomists in becoming certified. The following research questions were addressed in this study:

1. What is the perceived value of phlebotomy certification to both certified and noncertified phlebotomists?
2. Are there differences in perceived value between certified and noncertified phlebotomists?
3. What are the barriers to certification for noncertified phlebotomists?
4. What are some occupational outcomes due to certification?
5. What is the perceived value of phlebotomy certification to employers?

The research design was based on exploratory, descriptive, nonexperimental research methodology using the survey method. The study looked at the extent to which certification is valued by employees and employers, and reasons why phlebotomists do or do not have certification. The perceived values of certification by both certified and noncertified phlebotomists were examined and compared.

The population studied was the group of phlebotomists currently in the workforce of Northcentral Wisconsin. The sample was drawn from 19 clinic and hospital laboratories located within an approximate 100 mile radius of the city of Wausau. Forty-four phlebotomists and 11 lab managers from these facilities participated in this survey.

The questionnaires (Appendices A and B) were developed after reviewing previously published studies regarding the perceived value of certification. The questions focused on certification and addressed the reasons for deciding to take or not take a certification exam. Both intrinsic and extrinsic values of certification were examined.

In this study, an e-mail cover letter was sent to the laboratory managers with a request that it be forwarded to the facility's phlebotomy staff. The cover letter contained a general appeal for help, along with a web-link to the questionnaires. The lab managers forwarded the cover letter and web-link to the phlebotomist group, and the phlebotomists were asked to complete the on-line survey tool.

Forty-four phlebotomists and 11 managers responded, and all responses were used in the calculations in this study. Frequencies and percentages were used to obtain a description of each variable and associations among variables. Differences also were explored among subsets of the sample (certified phlebotomists versus noncertified

phlebotomists) using an independent samples t-test, crosstabs and chi-square test where appropriate.

Findings

Based on the data collected, the following findings were identified:

- All phlebotomists in this study valued certification. The majority of both certified and noncertified phlebotomists agreed with intrinsic value statements regarding certification, but the certified phlebotomists agreed to a statistically significant higher degree. This is consistent with nursing certification research that indicated noncertified nurses perceive the same benefits to certification as certified nurses, but to a lesser degree (Sechrist, Valentine, & Berlin, 2006; Byrne, Valentine, & Carter, 2004).
- The certified phlebotomists have a much higher percentage of employers who pay for the exam when compared to noncertified phlebotomists.
- The reasons cited most often as a barrier to certification is the lack of recognition and financial reward. This finding is consistent with nursing certification research which found that noncertified nurses do not seek certification due to lack of financial incentives (Bekemeier, 2009; Sechrist, Valentine, & Berlin, 2006; Redd & Alexander, 1997; Coleman, et al., 1999).
- Employers perceive value in phlebotomy certification, yet they do not attach financial rewards to certification.

Conclusions

Based on the findings of this study, the following conclusions were drawn:

- Both certified and noncertified phlebotomists identify intrinsic value to certification, but, the majority does not attach extrinsic value to certification. Without extrinsic value, noncertified phlebotomists are not motivated to become certified.
- When employers attach extrinsic rewards, such as reimbursement for the cost of the exam, phlebotomy staff is more likely to take the certification exam.

Recommendations

Recommendations that resulted from this study are:

- Influence laboratory managers and directors to attach extrinsic value (higher pay) to certified phlebotomists. This can be done by bringing forward evidence of phlebotomy related lawsuits that exist due to undertrained phlebotomists.
- Employers should be encouraged to seek certified phlebotomists when hiring. Employers should support certification by encouraging the display of certification credentials on name badges. This avenue would not increase costs to the organization, but it would allow the phlebotomist to experience some formal recognition of certification.
- Certified phlebotomists should clearly support certification by offering other phlebotomists encouragement and support to become certified. Certified phlebotomists should publicly display and introduce their credentials, and work with their health care employers to advocate for extrinsic rewards to certification.

- This study shows the need for more research on whether certified phlebotomists make a difference in their workplace relative to noncertified phlebotomists. A recommendation is to perform a research study in California that examines the quality of lab specimens pre-legislation and post-legislation (before and after the 2003 mandatory phlebotomy training and certification requirements). This study could potentially identify whether or not certification leads to higher quality lab specimens and decreased numbers of patient care incidents due to incorrect phlebotomy techniques.

References

- Allen, D. E., & Girard, N. J. (1992). Attitudes Toward Certification. *Association of Operating Room Nurses* , 55 (3), 817-829.
- American Registry of Radiographic Technicians. (2009). *Certification*. Retrieved June 4, 2009, from <http://www.arrt.org/index.html?content=certification/certwhat.htm>
- American Society for Clinical Laboratory Science. (2006, July). *Laboratory Personnel Licensure*. Retrieved June 4, 2009, from ASCLS:
<http://www.ascls.org/position/LabPersonnelLicensure.asp>
- American Society for Clinical Pathology. (n. d.). *The Phlebotomy Technician and Donor Phlebotomy Technician*. Chicago: ASCP.
- Association for Career and Technical Education. (2007, January). Phlebotomist. *Techniques* , p. 47.
- Bekemeier, B. (2007). Credetialing for Public Health Nurses: Personally Valued but Not Well Recognized. *Public Health Nursing*, 24 (5), 439-448.
- Bekemeier, B. (2009). Nurses' Utilization and Perception of the Community/Public Health Nursing Credential. *American Journal of Public Health* , 99 (5), 944-949.
- Bennett, A., Thompson, N. N., Holladay, B., Bugbee, A., & Steward, C. A. (2009). ASCP Wage and Vacancy Survey of U.S. Medical Laboratories. *Lab Medicine* , 40 (3), 133-141.
- Berry, C. (2002). *A Guide to Bloodborne Pathogens in the Workplace*. Raleigh: N.C. Department of Labor.

- Byrne, M., Valentine, W., & Carter, S. (2004). The Value of Certification. *Association of Operating Room Nurses* , 79 (4), 825-835.
- Christoffel, T. (1982). Licensure, Certification, and Accreditation. In T. Christoffel, *Health and the Law* (pp. 77-104). New York: The Free Press.
- Clinical Laboratory Coalition. (2009). *2009 Health Care Reform Principles*.
- Coleman, E. A., Frank-Stromborg, M., Hughes, L. C., Gtson-Grindel, C., Ward, S., Berry, D., et al. (1999). A national survey of certified, recertified, and noncertified oncology nurses: comparisons and contrasts. *Oncology Nursing Forum* , 26 (5), 839-849.
- Committee to Study the Role of Allied Health Personnel. (1989). Licensure and Other Mechanisms for Regulating Allied Health Personnel. In I. o. Medicine, *Allied Health Services; Avoiding Crises* (pp. 235-259). Washington, D.C.: National Academy Press.
- Directory of Phlebotomy Certification Agencies*. (2008). Retrieved June 4, 2009, from Center for Phlebotomy Education:
<http://www.phlebotomy.com/CertAgencies.html>
- Edwards, M. (2005, October). Coalition strives for phlebotomy personnel standards. *Medical Laboratory Observer* , pp. 24-28.
- Ernst, D. J. (2005). *Applied Phlebotomy*. New York: Lippincott Williams and Wilkins.
- Ernst, D.J. (2002, April). On the bleeding edge. *Medical Laboratory Observer* , pp. 10-15.
- Ernst, D. J. (2008, July). States fail to follow California's lead in certifying phlebotomists. *Medical Laboratory Observer* , pp. 40-42.

- Ernst, D. J., & Ballance, L. O. (2006, September). Quality Collection: the phlebotomist's role in pre-analytical errors. *Medical Laboratory Observer* , pp. 30-38.
- Garrels, M., & Oatis, C. S. (2006). *Laboratory testing for ambulatory settings*. St. Louis: Saunders.
- Garza, D., & Becan-McBride, K. (2010). *Phlebotomy Handbook* (8th ed.). Upper Saddle River: Pearson.
- Ginzberg, E. (1983). Allied Health Resources. In D. Mechanic, *Handbook of Health, Health Care, and the Health Professions* (pp. 479-494). New York: The Free Press.
- Jagger, J., Perry, J., & Parker, G. (2003). Lab workers: Small group, big risk. *Nursing* , 33 (1), 72.
- Lichtman, N. (2006, November/December). When Tech Meets Health. *Career World* , p. 20.
- Liming, D., & Wolf, M. (2006). Job outlook by education, 2006-2016. *Occupational Outlook Quarterly* , 2-29.
- Merriam-Webster. (2009). Retrieved June 8, 2009, from Merriam-Webster's Online Dictionary: <http://www.merriam-webster.com/dictionary>
- Mishori, R. (2004, June 1). Drawing without a license. *The Washington Post* , p. HE01.
- Mosby's Medical Dictionary*. (2008). Elsevier.
- National Accrediting Agency for Clinical Laboratory Sciences. (2006, April). *Programs Approval Guide for Phlebotomy Programs*. Chicago, Illinois.
- National Accrediting Agency for Clinical Laboratory Science. (2008). *Guide to Accreditation*. Chicago: NAACLS.

Niebuhr, B., & Biel, M. (2007). The value of specialty nursing certification. *Nursing Outlook*, 55 (4), 176-181.

Northcentral Technical College. (2009, April). *Phlebotomy Program Student Handbook*.

Northcentral Technical College (2009). *Phlebotomy-Certificate*. Retrieved June 3, 2009, from

https://ntc.aurora.tc/psp/ps/EMPLOYEE/HRMS/c/AU_SELF_SERVICE.AU_PROG_REQS.GBL?Page=AU_PROG_REQS&PORTALPARAM_PTCNAV=AU_PROG_REQS_GBL_1&EOPP.SCNode=EMPL&EOPP.SCPortal=EMPLOYEE&EOPP&INSTITUTION=NTC15&ACAD_PLAN=995139

Phlebotomy Pages for Phlebotomists. (2008). *On the Job Training*. Retrieved June 4, 2009 from http://www.phlebotomypages.com/on_the_job_training.htm

Phlebotomy Pages for Phlebotomists. (2008). *Phlebotomist's Duties*. Retrieved June 2, 2009, from http://www.phlebotomypages.com/job_description.htm

Piazza, I. M., Donahue, M., & Dykes, P. C. (2006). Differences in perceptions of empowerment among nationally certified and noncertified nurses. *The Journal of Nursing Administration*, 36 (5), 277-283.

Porco, T. C., Aragon, J. T., Fernyak, S. E., Cody, S. H., Vugia, D. J., Katz, M. H., et al. (2001). Risk of Infection from Needle Reuse at a Phlebotomy Center. *American Journal of Public Health*, 636-638.

Professionals in Phlebotomy. (2003). *Training in phlebotomy*. Retrieved June 3, 2009, from http://www.phlebotomycert.com/phleb_training.htm

Raymond, M. R. (2001). Job Analysis and the Specification of Content for Licensure and Certification Exams. *Applied Measurement in Education*, 14 (4), 369-415.

Redd, M. L., & Alexander, J. W. (1997). Does Certification Mean Better Performance? *Nursing Management* , 45-49.

Sechrist, K. R., Valentine, W., & Berlin, L. E. (2006). Perceived value of certification among certified, noncertified, and administrative perioperative nurses. *Journal of Professional Nursing* , 22 (4), 242-247.

Appendix A: Survey for Employed Phlebotomists

1. Do you have a Phlebotomy Technician Certificate from any of the following agencies:

- American Certification Agency (ACA)
- American Medical Technologists (AMT)
- American Society for Clinical Pathology (ASCP)
- National Center for Competency Testing (NCCT)
- National Credentialing Agency (NCA)
- National Healthcare Association (NHA)

Answer: YES or NO

If YES, select the name of the certification agency in the list above, and complete questions 2-6.

If NO, skip to question 7.

2. Below are items that relate to the perceived value of the Phlebotomy Technician Certificate. Indicate the degree to which you agree or disagree with the statements by choosing SA for strongly agree, A for agree, D for disagree, and SD for strongly disagree.

- Enhances feeling of personal achievement
- Gives personal satisfaction
- Validates my knowledge of phlebotomy
- Indicates professional growth
- Provided a professional challenge
- Enhanced my credibility and status as a professional
- Proves my commitment to phlebotomy
- Demonstrates that I am knowledgeable of best practices in my field
- Salary increase
- Enhances my personal confidence of my clinical knowledge
- Indicates to others my level of clinical competence
- Promotes special recognition from peers
- Promotes special recognition from other healthcare professionals
- Increases my marketability
- Enhances patient confidence in my skills
- Required by my employer
- Recommended by my employer
- Recommended by my peers

3. Did your employer reimburse you for the cost of the exam? YES or NO
4. Did your salary increase as a direct result of obtaining this certification?

- YES or NO
5. Did you experience job advancement or promotion due to obtaining this certification? YES or NO
6. List any other outcomes experienced as a result of obtaining this certification. (If none, indicate “none”).

For “yes” answers to question 1 stop here and go to question 12.

For “no” answers to question 1, start here:

7. Have you ever considered obtaining phlebotomy certification? YES or NO
8. Does your employer reimburse for the cost of certification exams? YES or NO
9. Would your salary increase if you were to obtain certification? YES or NO
10. Below are items that relate to the perceived value of the Phlebotomy Technician Certificate. Please indicate the degree to which you agree or disagree with the statements by choosing SA for strongly agree, A for agree, D for disagree, and SD for strongly disagree.

- Enhances feeling of personal achievement
- Gives personal satisfaction
- Validates my knowledge of phlebotomy
- Indicates professional growth
- Provided a professional challenge
- Enhanced my credibility and status as a professional
- Proves my commitment to phlebotomy
- Demonstrates that I am knowledgeable of best practices in my field
- Salary increase
- Enhances my personal confidence of my clinical knowledge
- Indicates to others my level of clinical competence
- Promotes special recognition from peers
- Promotes special recognition from other healthcare professionals
- Increases my marketability
- Enhances patient confidence in my skills
- Required by my employer
- Recommended by my employer
- Recommended by my peers

11. From the list below, select the reason(s) for not seeking phlebotomy certification (select all that apply):

- Too expensive
- No recognition
- Not relevant

- No time
- No financial reward
- Not challenging
- Fear of not passing the test
- Location of the test centers are too far
- I do not plan to remain in this occupation
- Other (please specify)

Do you have any additional comments about phlebotomy certification?

12. Your age group:

- 18-25
- 26-35
- 36-50
- 51+

13. Type of facility you work in (choose 1 answer that best represents your lab):

- Clinic lab
- Hospital lab
- Lab servicing both clinic and hospital

14. Years of experience:

- 0-3 years
- 4-10 years
- 11+ years

15. Job category:

- Staff phlebotomist
- Lead phlebotomist
- Specimen processor
- Other (describe):

16. Employment status:

- Full-time
- Part-time

Appendix B: Survey for Employers

1. How many phlebotomists do you employ?
2. Of these, how many hold a phlebotomy certificate from any of the following national organizations:
 - American Certification Agency (ACA)
 - American Medical Technologists (AMT)
 - American Society for Clinical Pathology (ASCP)
 - National Center for Competency Testing (NCCT)
 - National Credentialing Agency (NCA)
 - National Healthcare Association (NHA)

Number of phlebs with national certification:

3. Do your employees get reimbursed for the cost of certification exams? YES or NO
4. Does your employee's salary increase as a direct result of certification?
YES or NO
5. Are you more likely to hire a certified Phlebotomy Technician over a non-certified Phlebotomist?
YES or NO
6. In your lab, do certified Phlebotomy Technicians have a greater chance of job advancement or promotions than non-certified Phlebotomists?
YES or NO
7. What are the benefits to your organization in having phlebotomists become nationally certified?
 - Indicates level of clinical competence YES or NO
 - Indicates knowledge of practice standards YES or NO
 - Enhances professional credibility YES or NO
 - Increases consumer confidence YES or NO
8. Are there any other benefits not listed above?
9. Do you have any additional comments regarding phlebotomy certification?
10. Please indicate the type of laboratory you represent. (Choose 1 answer that best fits your lab.)
 - Clinic lab
 - Hospital lab
 - Lab servicing both clinic and hospital

