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Exploring and Understanding the Factors that May Influence the Outlook of Registered Nurses Regarding Potential Criminal Evidence Identification, Collection and Preservation on Patients Presented to Them

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BY

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Submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in Health Sciences
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Acknowledgements

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Dedication

I would like to dedicate this work to my wife and family. I would also like to take this opportunity to say a special thank you to them for allowing me to dedicate the past several years completing this doctoral journey.

My family and I have been through a lot during this journey; raising our children, losing a father and encountering other day to day obstacles simply called "life".

I can honestly say that this has been a journey indeed and my wife and family have been with me throughout the entire way and I cannot thank them enough. They are my love and my life.

So, thank you to my wife and family for being who they are and thank you to them for making me who I am today.

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ABSTRACT

Exploring and Understanding the Factors that May Influence the
Outlook of Registered Nurses Regarding Potential Criminal Evidence
Identification, Collection and Preservation on Patients Presented to
Them

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Seton Hall University, 2016

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Registered nurses are one of the many medical personnel who are located within a healthcare setting. Their presence in a healthcare setting provides them the high probability of encountering a victim or suspect of a crime who arrives for treatment as a result of the actions experienced during the commission of that crime. As a part of the medical personnel team within that healthcare setting treating that victim or suspect, the registered nurse will have the potential opportunity to encounter both physical evidence that may be present on that patient, or verbal evidence that may be disclosed by that patient during the course of their treatment.

This dissertation study, which focuses on using a newly created and validated tool, is non-experimental, descriptive, cross-sectional and correlational in design. This dissertation study utilized newly created survey tool which was validated through a Delphi technique. The survey tool measured four key domains conceived by the PI who took into account both the literature and personal experiences. The results of the survey tool were analyzed utilizing descriptive statistics and non-parametric statistical analyses.

The results revealed that the outlook of the registered nurse is positive; the domain scores showed an association with the outlook scores; the domain scores have no association on the registered

nurses' current assignment within the healthcare setting and specific domains demonstrated a positive relationship between each other.

In conclusion, the survey provided a basis and merit for how the registered nurse performs their duties and how they interact with victims and suspects of criminal activity being treating for their injuries.

Chapter I

INTRODUCTION

The potential for criminal evidence to exist in the healthcare setting is a reality that must be accepted and understood. The act of depositing evidence involves the process of the evidence source coming in to contact with the recipient. Regarding criminal activity, human subjects and the topic of physical evidence, the source of evidence material and the recipient of that evidence material play significant roles in the outcome of prosecutorial actions. The act of depositing evidence during the course of criminal activity may involve human-to-human contact or human-to-surface contact both at the actual location of where the crime has occurred or elsewhere. If physical evidence is deposited on the victim and/or suspect of a crime, it is important to maintain the wherewithal to identify this evidence upon encountering the recipient. This is extremely important if the recipient is being removed from the scene of a crime to a healthcare facility for treatment of injuries related to the criminal activity he/she has just endured. The actual transport of a patient to a

healthcare facility for treatment involves the risk of losing potential physical evidence which may have existed on their person.

The topic of physical evidence as it relates to the healthcare system is complex. The literature on this topic is scarce with regard to this very specific topic as it relates to registered nurses and this has added to the complexity of this study; however, the desire to proceed with this study has outweighed the minimal temptation to retreat. What has aided in completing this research are the several years of investigative law enforcement experience that Principal Investigator (PI) has. This experience has concentrated heavily on forensics and has included experience and training in crime scene investigation, evidence identification, collection, analysis and preservation, post-mortem investigation and major crime investigations which include (but are not limited to) homicide, sexual assault, physical assault and assaults involving the use of a weapon (i.e. firearm, blunt objects and sharps). This experience has provided the needed aid to complete this research study and the confidence which has ultimately convinced the PI that this topic will have an impact in the scientific community. This research has provided the merit and basis to begin the exploration and understanding of the outlook of the registered nurse as it relates to the topic of criminal evidence and their encounters with it.

Significance

The significance of this study is anchored by the key points described in the literature and theories related to this study. Knowledge of forensics increases the effectiveness of evidence identification and preservation. The protocols for collecting evidence and maintaining a proper chain of custody often are not clearly established in a healthcare facility. This issue is troublesome and provides cause for concern. The actual act of proper forensic evidence collection is tedious and requires patience and "know-how". Important forensic evidence such as hairs, fibers, or blood can be present on the clothing or person of a patient in a healthcare facility. With that stated, this research was designed to highlight the perceptions and actions of the registered nurse (RN) and pinpoint potential concerns for the registered nurses regarding when a patient with evidence on them is presented to a healthcare setting.

The PI has had the opportunity to work with several healthcare professionals who are familiar with the topic of this research. In addition, the PI has also had the opportunity to work with those who are limited in the knowledge of criminal evidence and are not familiar with the relevance this topic has with their profession. This is a major limitation in the healthcare field and one of the primary reasons this

study has evolved. On a side note; this research study is premised on the understanding and belief that the treatment of a patient is, and should be, the main priority for the healthcare professional. Let it be clear that the focus of this entire study is to highlight the actions taken by the registered nurse specifically upon stabilizing a patient in their care.

As is witnessed in today's society, healthcare and law enforcement personnel have had the opportunity to collaborate. These actions are such common knowledge that they are depicted in popular television shows and movies. The literature has also provided evidence to suggest that these two separate entities (law enforcement and healthcare) in actuality do cooperate when the need exists. Individuals involved in violent criminal activity, whether as a victim or a suspect, have the potential to pass through a healthcare setting during the unfortunate outcomes of their behavior. It is important to keep in mind that the results of criminal activity may consist of an individual sustaining serious and sometimes life threatening injuries. The subsequent effects of those injuries may result in the transport of that victim, or suspect, to any number of healthcare facilities for the treatment of their injuries. The problem here lies with the receiving facility. The receiving facility may be a trauma center or a

general/community based hospital; the decision may be based upon factors such as the complexity or severity of the injury, the location of the facility and the condition of the patient. If and when this occurs, it is important for the front-line medical personnel to understand that the patient may often be in a condition that may prohibit them to physically respond to communication attempts. It is at this point in time that the frontline medical personnel (for purposes of this research study: the registered nurse) must understand and determine what proper procedures to employ to preserve potential evidence; whether that evidence is physical, verbal or even both.

Problem Statement

The registered nurse interacts with both victims and perpetrators of violence; although their goal is to save the patient, they also play a role in the legal outcome of that violence (Wick, 2000). Based upon the nature and job descriptions of the registered nurse, the likelihood of them caring for patients with injuries resulting from criminal activity is high (Johnson, 1997). Registered nurses employed in healthcare settings such as hospitals or medical centers are considered to be medical personnel. According to Johnson (1997), medical personnel must be aware of both civil and criminal proceedings that may arise in the provision of emergency care. With respect to the registered nurses

in the state of New Jersey, there are gaps in the literature that specifically reference the abilities of them handling criminal evidence. These gaps are observed when analyzing the literature which tends to focus heavily on statements relating only to the forensic nurse and the training which they possess. This not only holds true for the state of New Jersey, but is also true for literature that references areas outside the state.

For purposes of understanding the difference between the two, forensic nurses are a specialized group of nurses who possess the knowledge of how to manage forensic evidence. Forensic nurses most often take additional courses in the field of forensic sciences which may focus on topics such as evidence, specific injury identification and law enforcement investigation (Yost and Burke, 2006). Examples of how forensic nurses may be utilized may consist of the documentation and collection of evidence and introducing these items in the courtroom during testimony (Yost and Burke, 2006). Forensic nurses can be utilized as sexual assault nurse examiners (SANE), forensic correctional nurses, forensic geriatric nurses, legal consultants, forensic nurse investigators, forensic pediatric nurses and forensic psychiatric nurses (Yost and Burke, 2006).

Forensic nurses are not always "on duty" at hospitals. For example, in the state of New Jersey, it is most common to see forensic nurses employed by a hospital or a county prosecutor's office as a sexual assault nurse examiner (SANE) or as part of a sexual assault response team (SART). Some act as "on-call" personnel and are often asked to respond to a hospital when the need exists. Here lies the concern for the evidence located on a patient.

When a person is injured, such as a victim or suspect of a crime, based upon the severity of their injury(s) sustained, they may be transported to a designated trauma center for their treatment. These designated locations are most suited to treat serious injuries due to the fact that they guarantee the immediate availability of specialized personnel and equipment twenty-four (24) hours a day, each and every day of the week (Trauma Centers, 2008). However, there are often times that the severity of an injury of a patient may result in the transport to a local hospital not equipped for trauma level treatment. This is due to the fact that trauma centers are regionally located throughout each state, based on their level of care, and may take some time to get to depending on the location of the crime. Trauma centers are spread unevenly throughout the states in number (Trunkey, 2003; Branas, et. al., 2005). Revelations such as these may be a

concern for the healthcare field with regard to treatment, but it is also a major concern for the law enforcement field as well for collection of evidence. Why is this important or relevant to this study? The simple answer to that question is that trauma centers and their medical personnel may be more familiar with handling patients who have been involved in criminal activity. They are the ones that will see the most when it comes to serious injuries sometimes related to criminal activity. This familiarity, although not formal education, could provide for some insight and knowledge as to how to handle those patients. Although not always appropriate (especially with regard to criminal evidence recognition and handling), knowledge is sometimes gained through experience.

Referring back to collaboration, professionals in healthcare are being summoned to assist the police and criminal justice officials in the prosecution of cases (McCracken, 1999). The medical personnel have a responsibility to identify, treat and refer victims of crime to the appropriate authorities and, while doing so, make certain that evidence is not compromised during that process (Evans and Stanger, 2003). The questions posed to that statement are: Are the registered nurses ready for this responsibility? Do all registered nurses (not just those assigned to an emergency room/department) know what to

look for or how to identify and preserve physical evidence on patients in their care? Also, what happens when a patient who has been involved in a criminal activity is presented with the expectations of immediate care at a receiving hospital or medical center?

Conceptual Framework

When speaking of the conceptual framework for this study, the most important thing to understand is that, by definition, the framework is a model of what presently exists, a model of what is out there and it is an exploratory theory of the occurrence which is being investigated (Conceptual Framework, nd.) The literature suggests that the need for education in the field of criminal evidence preservation exists for healthcare professionals. There is also evidence in the literature to suggest that the potential for law enforcement and healthcare professionals to collaborate due to the fact that physical evidence may be present at both the scene of a crime and on a patient presented to a healthcare facility for treatment. However, keep in mind the complexity of this topic especially with regard to the healthcare setting. What is the one common thing in the healthcare setting that you would think would be a nightmare for a crime scene investigator? What would you expect to see in a hospital? Answers to those questions are easy: blood, skin, tissue, biological specimens, hair,

and clothing, among other things. A healthcare setting such as a hospital or medical center is a perfect setting for physical evidence contamination. A healthcare setting is also the perfect setting for verbal evidence contamination. Who is usually with a patient at a hospital? The answer to that question is also easy: family members and/or friends.

Rationale

As mentioned earlier, victims and/or suspects of violent crime have the potential to pass through a healthcare setting resulting from the unfortunate outcomes of criminal behavior. If and when this occurs, it is important for the frontline medical personnel to understand that the patient may often be in a condition that prohibits him/her to physically or verbally respond to communication attempts by both medical and law enforcement personnel. This is when those who come into contact with these incapacitated individuals need to be aware of what to look for with regard to forensic evidence.

The very nature of the nursing practice will inevitably place any nurse in the position of dealing with the victims of physical injury and/or violence, therefore, all registered nurses should be enlightened with respect to this topic. Literature suggests that in certain areas of the world, emergency departments are providing care for an increasing

number of patients who present injuries as a result of criminal or interpersonal violence. McGillivary (2005) discusses how, in the state of Victoria, Australia, the duties of emergency nurses with respect to the recognition, collection and preservation of forensic evidence is increasing. McGillivray (2005) suggests that paucity in the literature, regarding the role and responsibilities of emergency nurses (with respect to evidence collection and preservation), has resulted in the lack of department and organizational policy. This need for more specific educational preparation of registered nurses is also witnesses across the globe within the United States of America. The present day literature lacks specifics about the roles and responsibilities of the registered nurse (not forensic nurses) with regard to the topic of criminal evidence and interaction with victims and suspects of crime within the healthcare setting.

Identifying the Purpose of the Study and Research Questions Involved

The purpose of this study is two-fold; first, the PI wanted to create and validate a unique tool to address the gaps in the literature and second, the PI wanted to use the validated and reliable survey tool in the population of registered nurses to help identify and understand their outlook with regard to criminal evidence identification, collection and preservation on patients presented to them. Further details with

regard to the purpose of this research are provided in Chapter III of this document.

The overarching research question that was developed as a result of the literature review and professional experiences was: *What is the outlook of the registered nurse (RN) employed in a non-trauma designated hospital regarding criminal evidence identification, collection and preservation on patients presented to them?* To answer this question, the PI developed subsequent research questions defined as the following:

RQ #1: Is there a difference between the knowledge, attitude, practices and beliefs of the registered nurse and their *overall outlook* regarding criminal evidence identification, collection and preservation on patients presented to them?

RQ #1a: Is there a difference between the knowledge, attitude, practices and beliefs of the registered nurse regarding criminal evidence identification, collection and preservation on patients presented to them and their *primary assignment* within the healthcare setting?"

RQ #2: Is there a relationship between the knowledge of the registered nurse and their beliefs regarding criminal evidence identification, collection and preservation on patients presented to them?

RQ #3: Is there a relationship between the attitudes of the registered nurse and their practices regarding criminal evidence identification, collection and preservation on patients presented to them?

Corresponding alternative hypotheses to these research questions, developed by the PI are:

H_1: There is a difference between the knowledge, attitude, practices and beliefs of the registered nurse and their overall outlook regarding criminal evidence identification, collection and preservation on patients presented to them?

H_{1a}: There is a difference between the knowledge, attitude, practices and beliefs of the registered nurse regarding criminal evidence identification, collection and preservation on patients presented to them and their primary assignment within the healthcare setting?

H_2:   There is a relationship between the knowledge of the

registered nurse and their beliefs regarding criminal

evidence identification, collection and preservation on

patients presented to them?

H_3:   There is a relationship between the attitudes of the

registered nurse and their practices regarding criminal

evidence identification, collection and preservation on

patients presented to them?

Chapter II

LITERATURE REVIEW

According to the literature reviewed during this research, it was strongly suggested that the healthcare professional and the law enforcement community collaborate more often than not. As mentioned previously, McCracken (1999) discussed that the healthcare professionals have received that call for assistance by law enforcement and the criminal justice system in the prosecution of criminal cases. The implementation of forensic nursing is a prime example of this collaboration. These specialized registered nurses have been exposed to training related to the field of forensic sciences and which cover topics involving evidence and wound recognition and law enforcement investigation (Yost and Burke, 2006). Research has shown that, with respect to education and training in forensics, this specialized education and training increases the efficacy of evidence collection by nurses (Eldredge, 2010).

The term forensics is widely used in the field of evidence and law enforcement. According to Merriam-Webster (2015), forensic is defined

as, "relating to the use of scientific knowledge or methods in solving crimes"; "relating to, used in, or suitable to a court of law". Morris (1998) explains that evidence is proof, something corroborating or beneficial, that is used to persuade the jury or court. With that stated, in order for evidence to be admissible in court or matters related to the judicial system, it must be relevant (Smith, 2010).

The validity of information derived from the examination of the physical evidence depends entirely upon the care of the evidence and the matters and actions with which the evidence has been protected from contamination. This is of greater importance in the event that a forensic nurse is not on duty. Items of evidence should be collected, handled, and stored in a way that will ensure their integrity. Evidence can be presented in four basic forms: demonstrative, documentary, real and testimonial (Evidence, 2012). If any evidence is going to be admissible in a judicial proceeding, "...it must be relevant, material, and competent" (Evidence, 2012). "To be considered relevant, it must have some reasonable tendency to help prove or disprove some fact" (Evidence, 2012). Of the four basic forms of evidence, the PI is interested in all with respect to this research.

Evidence can be used to corroborate a statements developed during investigations. Those stories are tidbits of information gathered

during the course of sometimes lengthy interviews of suspects, victims and witnesses of crime. How evidence is used to corroborate statements can sometimes be difficult to explain, but specific pieces of physical evidence are sometimes more valuable than an actual statement in an investigation. For example, investigators can potentially link a suspect and a victim to a mutual location through the examination of trace evidence (Trace evidence, 2011). According to the National Institute of Justice (2011), evidence such as fibers, hair soil and wood are considered to be trace evidence and can be transferred between the victim and suspect during the commission of a crime. Impression and pattern evidence are other forms of evidence that can aid in this corroboration. Impression evidence, "...is created when two objects come in contact with enough force to cause an 'impression'" (Impression evidence, 2011). Impression evidence can be, "...either two-dimensional - such as a fingerprint - or three-dimensional - such as the marks on a bullet caused by the barrel of a firearm" (Impression evidence, 2011). Pattern evidence, in simple terminology, involves the discovery of additional identifiable information found within an impression such as a shoe print (Pattern evidence, 2011).

The handling of fragile evidentiary material is fundamental in the legal process (Green, 1993). In addition to the validity and reliability

behind it, evidence is being critiqued throughout its travels and uses in an investigation in the criminal justice system. Items of evidence should be collected, handled, and stored in a way that will ensure the integrity, analysis and proper handling. For example, if evidence is moved inadvertently from one location to another location, this may result in the misrepresentation that there may be more than one crime scene, when in reality; it is the result of cross-contamination. Another example is if trace evidence is inadvertently placed on an item or individual due to improper sterilization. This lack of care of trace evidence could potentially involve someone or something that may truly not be involved.

More specifically and with regard to the healthcare setting, evidence handling in a hospital is a sensitive process that requires the utmost attention to detail. According to an article published by the International Association of Forensic Nurses (IAFN), the author of that article, Piet Machielse, suggests that it is an important duty for an emergency nurse to recognize that evidence may exist on a patient (Machielse, 2008). Within this article, titled "*Forensic Emergency Nursing - Role Integration*", it is mentioned that an emergency room nurse is one of the first members in the healthcare institution to encounter a patient, the first to talk to family members of a patient and even the

first to handle potential evidence (Machielse, 2008). This statement is accurate; however, the goal of the PI, behind the creation of this research, is to take this a step further and focus on the registered nurse profession as a whole and just to focus on those nurses assigned to an emergency department. In addition, that focus was to be on the registered nurse outlook with regard to that topic. The reasoning behind this decision is based upon the premise that the probability of the registered nurse to encounter patients with injuries from criminal activity is high (Johnson, 1997).

It was mentioned earlier that research suggests, "...specialized education and training in forensics increases the efficacy of evidence collection by nurses" (Eldredge, 2010). So, what exactly is forensics? The term forensic is widely used in the field of law enforcement, and is defined as, "relating to the use of scientific knowledge or methods in solving crimes"; "relating to, used in, or suitable to a court of law". The American Academy of Forensic Sciences (2010), suggests that forensic science is the use of science to the aid in the determination of lawful issues. One of the most important issues with regard to forensic science is the preservation of forensic evidence. Lack of knowledge with regard to actions related to the task of the collection and preservation of evidence could result in valuable information becoming lost.

It is important to realize that that the very nature of the nursing practice will inevitably place *any* registered nurse (not just forensic nurses) in the position where they are encountering a victim or a suspect of a crime who has suffered injuries resulting from criminal activities; therefore, this is why the PI has attempted to highlight *all* registered nurses (with the specific exception of forensic nurses) with respect to this research study. Why the exception? The PI wanted to explore the outlook (or perception) of the registered nurse, who has not been exposed to the formal training experienced by the forensic nurse, with regard to criminal evidence encounters during the course of their professional duties. The hopes are that this research may aid the scientific community with providing valuable information regarding education and practical training to better assist the registered nurse in becoming more comfortable and confident in their potential encounters with patients presenting evidence on their person.

Sexual Assault Related Treatment

The crime of sexual assault is nothing short of personal and invasive in nature. Unfortunately, the tasks of recognizing, identifying and collecting physical evidence off a victim of a sexual assault is just as invasive. The emergency department is a key source of care for victims of sexual assault; it may be an initial point of entry for treatment

(Plichta, et al, 2006). Therefore, it is a safe assumption that any individual within this department may play a critical role in the identification and subsequent preservation of evidence on a patient seeking treatment. The perceptions of the nurses involved in the treatment of patients presenting injuries related to sexual assaults are vital in the successful documentation and preservation of evidence.

The literature suggests an uncertainty with regard to the proper protocols in place with respect to the actions to be taken by the healthcare staff once a patient appears presenting injuries related to a sexual assault. A study conducted within York Hospital (a Level II trauma facility), located in Pennsylvania, by Kelli Eldredge (2007) pointed out that over half of trauma nurses located in that facility were aware of forensic protocols existing while the remainder of the nurses were "unsure". With regard to knowing if a "Forensic Specialist" was present, half of the nurses were also "unsure" (Eldredge, 2007). In Virginia, a study was conducted which involved the survey research of eighty-two (82) emergency departments within the borders (Plichta, et al., 2006). According to that study, it was discovered that most of the emergency departments do not provide regular training to their medical staff about sexual violence (Plichta, et al., 2006). In addition more than half of the staff felt that it was important for them to have

training in collecting evidence, working with the police, testifying in court, talking with victims/families and working with rape crisis centers (Plichta, et al., 2006). Campbell and Diegel (2011) discuss two separate studies of rape kits that revealed (with the comparison between kits conducted by SANE nurses compared to kits conducted by non-SANE nurses) the SANE-collected kits were more thorough and had fewer errors than the non-SANE-collected kits, in addition to, finding support for better evidence collection by SANE nurses. The significance behind this is focused on the fact that these studies point out the uncertainty that exists with the frontline personnel in the healthcare setting. The lack of education potentially influences the actions taken by these frontline personnel with regard to evidence identification and preservation. It is with this regard that concerns in the law enforcement field exist with respect to the beliefs of the healthcare personnel (regarding criminal evidence) and how that may influence the attitudes and practices portrayed by them when encountered with a scenario which calls for caring for a victim or suspect of a crime. Does this lack of preparation on the part of healthcare administrators promote the sometimes complacent response by their medical personnel with respect to criminal evidence being present in their

institutions? The promotion of education and basic knowledge of criminal evidence may alter these views.

Firearm Related Treatment

Injuries related to the discharge of a firearm are those which could exhibit pattern evidence that could be useful in determining various forensic details. It is safe to assume that there is the potential to have victims, or suspects, who have sustained gunshot injuries transported to healthcare facilities and interact with registered nurses. When this occurs, it is important to realize that the clothing worn by the patient may be a key piece of forensic evidence. Firearm related evidence may provide corroboration for the point of entry and exit of a bullet on an object (whether on clothing or on skin). This evidence may also contain gunshot residue (GSR) evidence, in addition to the potential for other trace contact evidence (as discussed earlier) which may be transferred from the suspect to the victim (Koehler, 2009).

The clothing on a patient could provide evidence of perforations, or defects, and also blood pattern evidence. For example, the physical evidence at the disclosed or discovered entrance site of a gunshot wound could be used to determine how close a shooter was in relation to the victim suffering the injury (Koehler, 2009). In the scenario where a crime scene investigator, or a trained

law enforcement officer, is not present at the healthcare facility at the time of arrival or treatment (of a patient) to document this specific evidence, the registered nurse may be the only person(s) available or responsible for this type of documentation before any medical procedures are completed which may destroy these forensic characteristics present on the body.

Verbal Evidence

Keep in mind that we do not have just physical evidence concerns for the registered nurses in the healthcare setting to worry about. What about the communication that may occur during the treatment? This verbal evidence may be just as important for a law enforcement investigation when compared to physical evidence. For example, according to Frascogna (2002), patients may name the person who committed a criminal act against them, or may themselves confess to a crime in the nurse's presence. Frascogna (2002) also points out the important, and sometimes unknown fact, that both state and federal rules of evidence exclude testimony regarding what a nurse may have been told secondhand (otherwise known as hearsay); however, under certain circumstances, exceptions to the hearsay rule can be allowed, and hearsay can be admissible.

There may be the possibility of the law enforcement and nurse interaction(s) potentially resulting in the subsequent securing of a statement. This statement may include questions pertaining to comments witnessed or inadvertently heard by a registered nurse providing care to a patient during the course of their duties. These statements (provided by the registered nurse to the law enforcement) may be admissible to the courts under certain exceptions to the hearsay rule which can be categorized as the "dying declaration", "residual hearsay" and "excited utterance" (Frascogna, 2002).

When cooperating with law enforcement there may be the accompanying anxiety of becoming involved in a criminal investigation. Some of this anxiety may be chalked up to the fears of subsequent consequences with cooperation with the police, fears of testifying in court and the overall fear of just becoming involved unwillingly in a matter unrelated to you. However, these fears must be combated with the belief that the cooperation will outweigh any potential negative impact the come as a result simply by understanding that the act of cooperating may aid in the removal of those who commit crimes off of the streets and potentially deter further criminal actions. In addition, the act of cooperation is essentially saving future victims.

Theoretical Framework

During the course of this research, the PI identified three (3) specific theories that can relate to the topic of criminal evidence in the healthcare setting (Figure 1). This theoretical framework was the foundation for the parameters of this study. The three (3) theories: *Experiential Learning Theory* (Kolb, 1984), *Unified Theory of Scientific Evidence* (Black, 1998) and *Locard's Exchange Principle* (Chisum, et al., 2000) has allowed for the exploration of the many factors influencing education and evidence.

The first theory, *The Unified Theory of Scientific Evidence* (Black, 1998), suggests that, "...solving the problems surrounding the use and interpretation of scientific evidence requires a unified, coherent approach to deciding admissibility that covers all areas of science and all kinds of cases" (Black, 1998). There are two key words which are mentioned with respect to admissibility when reading this theory: "unified" and "coherent". Those words are key with respect to anything related to the training received by registered nurses with regard to criminal evidence. Black proposes a theoretical framework that is centered on two aspects of relevancy: "...(1) the *validity* of the reasoning leading to a conclusion, and (2) the *reliability* of that conclusion" (Black, 1998). According to Black (1984), distinguishing

"...between validity and reliability is important because it permits the separation of scientific questions from legal questions". Similar to what is suggested in this theory; validity and reliability are two key factors in the admissibility of evidence, as it applies to the scientific community. Those same two key factors hold true to criminal investigations and criminal evidence; for evidence to be admissible, it must be relevant.

Locard's Exchange Principle is primarily known throughout the crime scene investigation community as the theory which discusses that with contact between two items there will be an exchange. The PI was educated about this principle early in his crime scene investigation and law enforcement career. This principle has been and still is regarded as a cornerstone for crime scene investigation and evidence preservation education. It was suggested in the literature that with, "...recognizing, documenting, and examining the nature and extent of this evidentiary exchange, Locard observed that criminals could be associated with particular locations, items of evidence and victims (Chisum, et al., 2000)." The detection of the exchanged materials is interpreted to mean that the two objects were in contact...the cause and effect principle reversed; the effect is observed and the cause is concluded" (Chisum, et al., 2000). The cross-transfer of evidence could be completed intentionally or unintentionally. The healthcare setting is

a difficult location to control unintentional cross-transferring of evidence (or cross-contamination). This is due to the fact that these locations take in high volumes of individuals on a continuous basis. In addition, those high volumes of individuals are usually the sick and/or injured who are arriving for treatment. Great preventative measures must be taken by the registered nurses to not negatively impact the potential evidence that may be present on those coming in for treatment. Although not purposeful, the healthcare setting literally has an open door to cross-contamination issues. It is for this reason alone that the healthcare professional should have the basic knowledge behind preserving evidence on patients.

The final theory, the *Experiential Learning Theory*, as discussed by educational theorist David A. Kolb, suggests that learning, "...is the process whereby knowledge is created through the transformation of experience" (Kolb, 1984). "Effective learning is seen when a person progresses through a cycle of four stages: (1) having a concrete experience followed by (2) observation of and reflection on that experience which leads to (3) the formation of abstract concepts (analysis) and generalizations (conclusions) which are then (4) used to test hypothesis in future situations, resulting in new experiences" (McLeod, 2013). This theory appears to support the argument that with

exposure to certain scenarios comes greater knowledge of how to

handle those scenarios. With respect to physical evidence

identification, collection and preservation off patients in the

healthcare setting, there must be a form of guidance when

knowledge is gained on this topic. Inaccurate actions towards the

collection of evidence by a registered nurse can lead to the

inadmissibility of that same evidence.
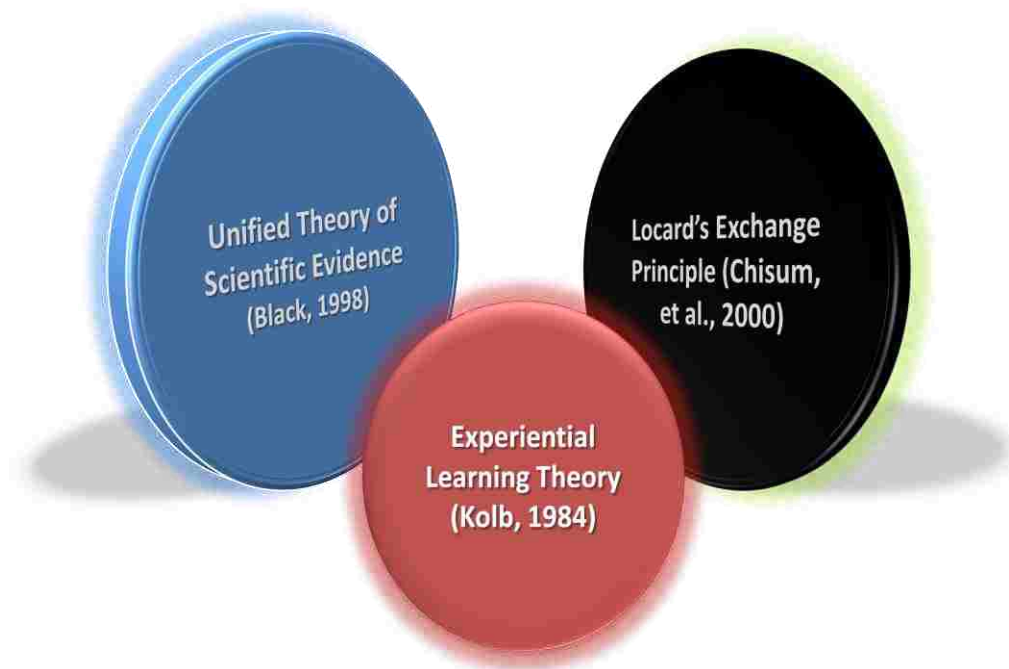
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Figure 1. **Theoretical Framework. This figure illustrates the theoretical framework used for this research, as conceived and created by the PI.**

Development of a Theory Statement

During this research study, the PI, under the guidance of the dissertation committee chair, contemplated on utilizing a theory test following the creation of a novel, self-created, theory statement that was developed by the PI during this research. That theory statement was: "*The outlook of personnel in healthcare is relevant with respect to criminal evidence identification, collection and preservation on patients presented to them*". Therefore, knowing that a uniquely created theory statement was a major consideration for this study, it was essential to know whether or not the theory statement was on the "right track" to guide and underpin the study parameters. Therefore doing a Kitcher analysis was a simple way to ensure that the derived theory statement, from three known and previously identified theories already established in the literature, was reasonable to frame this study. Kitcher's Unification Theory (Karaca, 2012) was used for this particular analysis.

Kitcher's theory focuses heavily on logic (Karaca, 2012). It does not rely on patterned events and rejects cause and effect relationships to the facts (Karaca, 2012). Kitcher allows you to choose relevant facts when testing a theory (what is it you feel is relevant to make a scientific impact in your field), articulate why those facts were chosen

(incorporate deductive reasoning) and finally develop your argument pattern (Karaca, 2012). This analysis calls for an explanation of what the argument patterns are, utilizing pieces of information (key ideas), while also explaining what makes those statements so important about an event in question.

Conducting the Kitcher analysis involved incorporating four steps: logical derivation, reject causation, developing an argument pattern and explanation (Karaca, 2012). The entire analysis was done cognitively and, in short, the self-created theory statement: "*The outlook of personnel in healthcare is relevant with respect to criminal evidence identification, collection and preservation on patients presented to them*" was considered to be on the "right track based upon this analysis. The facts utilized and provided during this analysis were without restrictions; they were developed utilizing data (literature) from more than one state, utilizing multiple examples from the literature and from diverse populations.

The outlook of personnel in healthcare is relevant with respect to criminal evidence identification, collection and preservation on patients presented to them
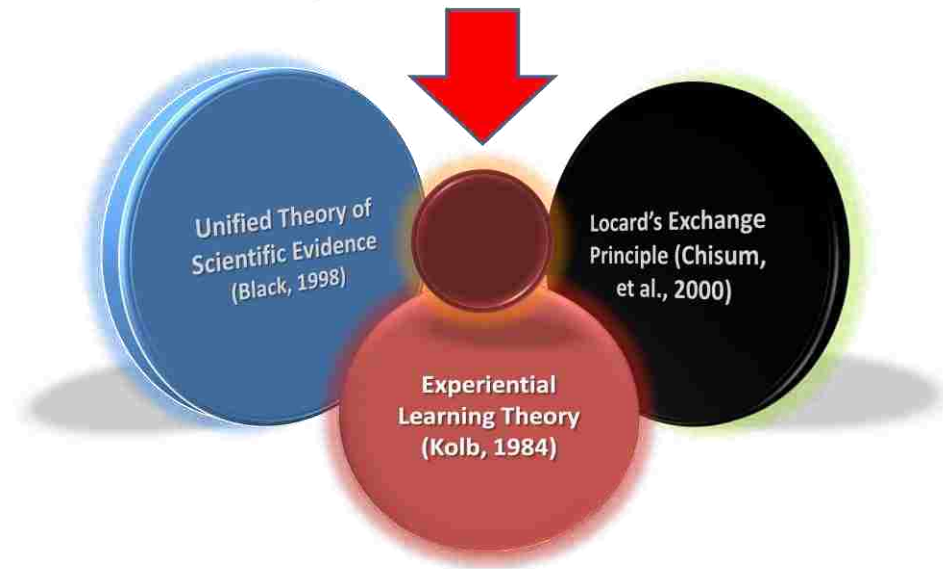
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Figure 2. **Theoretical Framework with Theory Statement. This figure illustrates the theoretical framework used for this research with a novel theory statement as created by the PI.**

Identifying What is Known in the Literature

So, what themes have been highlighted within the literature? Consider what is known. First, there is evidence in the literature which suggests that law enforcement and healthcare professionals collaborate, especially in major criminal investigations. Second, it is known by both law enforcement and healthcare professional alike that there is the potential for physical evidence to be present at both crime scenes and healthcare facilities. Finally, the need for education

in the field of evidence preservation exists for certain healthcare professionals. The trend behind the literature appears to revolve around the themes of knowledge, attitude, practices and beliefs; the key domains or a sphere of influence you will hear about in the next chapter.

Identifying Gaps in the Literature

So, what is not clear in the literature today? There is a lack of discussion in the literature with respect to the knowledge of the registered nurse with regard to basic criminal forensic evidence identification, collection and preservation. There is also a lack of discussion in the literature with respect to the outlook of the registered nurse with regard to basic criminal forensic evidence identification, collection and preservation. Finally, there are no tools that measure the registered nurse knowledge (in a non-trauma designated facility) of basic criminal evidence identification, collection and preservation.

Chapter III

METHODS

Purpose of the Study

In light of the gaps presented in the conclusion of the previous chapter, the purpose of this PhD dissertation research study was two-fold. First, the PI wanted to determine the reliability of the PI developed survey tool that was validated using a Delphi panel of experts in the fields of patient care, law and criminal evidence identification, collection and preservation. The PI developed tool, titled "Registered Nurse and Criminal Evidence Assessment" (RNCEA, © 2016), addressed four (4) domains which have been discussed in the literature and developed through professional experiences. They surround the practice of how the healthcare personnel and law enforcement are collaborating to increase the conviction rate of criminals by understanding the basic concepts of evidence. The four domains featured in the tool were: knowledge, attitude, practices and beliefs.

Within the literature, forensic nurses where mentioned as the primary aid to law enforcement in the healthcare setting for matters

involving physical evidence preservation; however, non-forensic registered nurses are considered one of the frontline personnel on a daily basis and specifically when forensic nurses are not available or en-route to a healthcare facility. Based upon what has been highlighted so far, the need for the understanding of how all registered nurses staffed within healthcare facilities, with respect towards their outlook of criminal evidence, is relevant and significant.

The overall purpose of this study was to begin the exploration of the factors that may influence the outlook of registered nurses regarding potential criminal evidence identification, collection and preservation on patients presented to them. This study was completed initially by the creation of a survey instrument that currently does not exist in the present day literature. This instrument was created with the utilization of a Delphi expert panel review. The Delphi panel was used to determine the validity of the PI created survey tool. The panel consisted of experts in the fields of patient care, law and criminal evidence identification, collection and preservation and chosen based upon their individual knowledge and experiences in those fields.

There was a professional relationship with the members of the Delphi panel and the PI. Please note that even with the existence of that professional relationship, there was no compromise to this study

because they were not participating in this study as participants taking the survey; rather their participation was strictly based as colleagues in the field; sharing their professional knowledge, education and expertise as Delphi panel experts only. The PI had access to the experts during the course of daily work related duties; the individual survey expert was identified by the PI during the course of doctoral studies at Seton Hall University. This sharing of professional knowledge, education and expertise has assisted the PI with the formulation of a valid and reliable survey tool that has allowed for evaluation and assessment of the registered nurse knowledge, attitude, practices and beliefs about potential criminal evidence which may exist on patients in the healthcare setting.

Participation in the Delphi panel required each participant to meet specific inclusion criteria. The inclusion criteria consisted of the expert to be male or female, above the age of eighteen (18), currently and/or formerly employed in a field of patient care, law or involved the handling of criminal evidence employed either full-time, part-time or per diem and/or they must hold a terminal degree (i.e. M.D., J.D., Ph.D., etc...) and/or they must hold a current licensure as a certified Paramedic, EMT, RN, Forensic Nurse and/or they must be an expert in survey research and design. Exclusion criteria consisted of the

individual being below the age of eighteen (18) or they not currently and/or were formerly employed in a field of patient care, law or involved the handling of criminal evidence employed either full-time, part-time or per diem or they did not hold a terminal degree (i.e. M.D., J.D., Ph.D., etc...) or they did not hold a current licensure as a certified Paramedic, EMT, RN, Forensic Nurse or they were not an expert in survey research and design.

The PI contacted the potential Delphi panel of experts and requested the consideration of each to participate as a member of the PIs expert Delphi panel in the form of a reviewer. Following the approval from the Seton Hall University Institutional Review Board (IRB), the selected individuals received a Letter of Solicitation, a Background Information for Instrument Development Packet and a Survey Worksheet for the Delphi Panel in an effort to initiate the Delphi technique for survey development and validation. Participation in the Delphi panel was voluntary; no monetary payment or other forms of coercion were demonstrated or allowed.

This Delphi panel process involved individual review of the survey tool by each of the experts at their location of choice, since the entire process was offered electronically. It was anticipated that the review process would consist of three rounds since the Delphi process usually

includes a minimum of three (3) of rounds of review of the survey tool in an effort to achieve at least 80% consensus with regard to the proper assessment of each of the questions within (Hasson, et. al, 2000). The review process was conducted electronically in the form of email communication(s), where the expert review of the tool will was not controlled by the PI.

Protection and confidentiality was maintained throughout the duration of the research project. All electronic data was be stored on a USB memory key with access to the file protected by use of a password only known to the Principal Investigator. The memory key will also remain in a secured filing cabinet for three years, upon which time the data will be destroyed. These rules were strictly explained in all IRB applications filed for this study.

Delphi Design

The PI incorporated a group facilitation technique with respect to this Delphi process which achieved anonymous expert consensus after consisting of a multiple round process, as per Hasson and colleagues (2000). As mentioned, the PI utilized a Delphi panel of experts consisting of five (5) individuals chosen based upon their individual knowledge and experiences in the fields of patient care, law, criminal evidence and survey research. A sample size of five

experts (individuals) is considered reasonable (Armstrong, 1985).

Hasson and colleagues (2000) suggested selecting a sample for the

purpose of applying individual knowledge to a certain problem is

considered a form of purposive sampling; the PI has completed this

form of sampling for the Delphi technique.

Delphi Methodology

The Delphi panel of five (5) individuals was advised by the PI of

the process intended to be accomplished with regard to the review of

the survey tool. Each member, based upon their agreement to

participate, provided a modified curricula vitae highlighting their

knowledge and experiences. After receiving approval from the Seton

Hall University IRB, the PI electronically (email) delivered the complete

PI created RNCEA Instructional Packet for Participation that was

included within the PI developed RNCEA Instrument Development

Packet. The PI also electronically (email) delivered the PI conceived

RNCEA Survey Worksheet, which contained detailed information

regarding the survey tool such as the specific research question(s) and

domains the PI intends to study regarding the proposed research

question(s).

According to Hasson and colleagues (2000), 80% consensus with

regard to the panel review of the survey tool is preferred for the Delphi

technique. According to the rules and procedures set forth by the PI for the panel of experts, for the initial round (Round 1) each individual was asked to review the survey tool and utilize the worksheet provided to supply responses and critiques. The expert individual was asked to complete that review process within a time frame of approximately one (1) to two (2) weeks, or sooner, and deliver the worksheet back to the PI electronically (email).

It should be noted that none of the panelists knew who else was involved in the Delphi panel or worked with each other during the rounds of review, following the recommendations of Hasson and colleagues (2000). The subsequent round (Round 2) was then initiated once the PI delivered the survey tool (which was updated based upon suggestions made by the experts in Round 1) electronically (email) back to the individuals. The same tasks that were applied to the individuals in Round 1 were also applied to the expert individuals in Round 2. For this particular survey development, 80% consensus was achieved after the completion of Round 2. Since 80% consensus was achieved before Round 3, the Delphi process concluded and a final analysis of the data obtained was completed and the creation of the PI's RNCEA survey tool, in finalized form, was achieved.

The methodology and design for the Delphi process has allowed the PI to take advantage of group facilitation, targeting specific experts to provide their knowledge and experiences towards the review of specific items within the created tool. This allowed for the creation of a strong tool in terms of the domains being measured within the RNCEA tool. This technique has also increased the validity of the tool; decisions based upon the individuals during their review enhance this validity thereby supporting the strength of the Delphi process (Hasson, et al, 2000; Goodman, 1987).

The Delphi technique is known to achieve face and content validity. After achieving face and content validity, construct validity was achieved after the approval of the full IRB application for the PIs dissertation study from Seton Hall University and once a completed study with participants from the registered nurse community was achieved. The reliability was calculated for the tool in its entirety and for each of the sub-constructs of knowledge, attitude, practices and beliefs by the calculation of a Chronbach's alpha statistical analysis (discussed later).

DELPHI PROCESS

Engaged in by the Principal Investigator
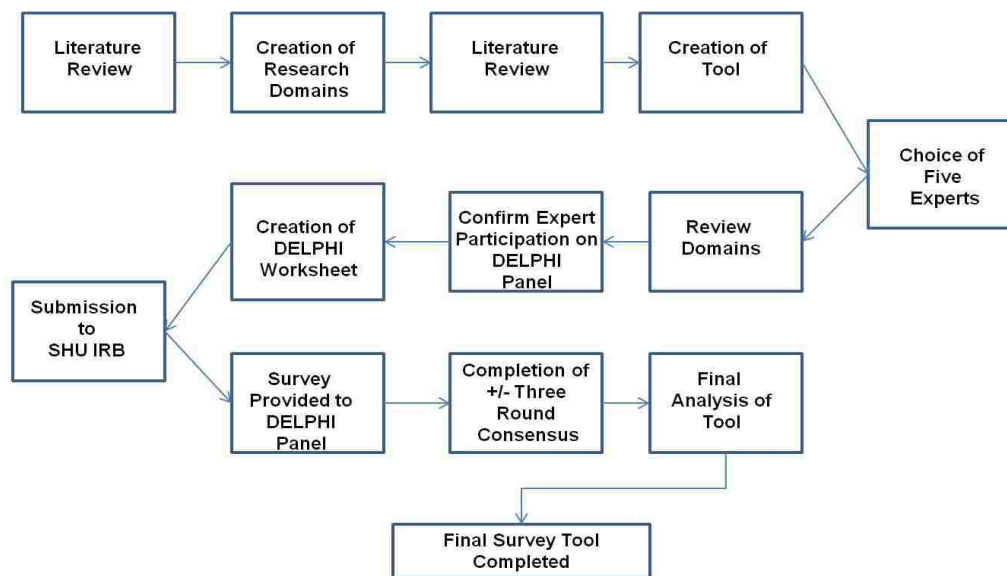
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Figure 3. Delphi Process. This figure illustrates the Delphi process which the PI used to create the PI developed RNCEA© Survey Instrument.

Registered Nurses and Criminal Evidence Assessment (RNCEA©) Survey Instrument

The second purpose of this research study was to utilize the PI's newly created, validated and reliable tool in a population consisting solely of registered nurses in order to help identify their outlook and to understand the differences, if any, that may exist between the their primary assignment within the healthcare setting that he/she is

employed within and the specific domain responses which the survey tool is capturing.

The "Registered Nurse and Criminal Evidence Assessment" (RNCEA©, 2016) tool addresses four (4) domains which the PI has identified as common variables during the review of the literature. The first domain (knowledge), with respect to this instrument, refers to the nurses' ability to understand the use of physical evidence with regard to criminal investigations. Evidence, as discussed in the previous chapters, is a tool used in trial proceedings which helps the jurors decide guilt or innocence. This domain was designed to answer: *To what degree did the participants nursing curriculum expose them to the study of potential criminal evidence and the issues pertaining to it?* The second domain (attitude), with respect to this instrument, refers to the nurses' ability to understand that healthcare professionals assist law enforcement and the criminal justice system in the prosecution of criminal cases. This domain was designed to answer: *How does the participant react when questioned about potential evidence issues in the healthcare setting?* The third domain (practices), with respect to this instrument, refers to the nurses' ability to demonstrate their understanding that the emergency room is one of the first points of entry for care for victims or suspects who have sustained injuries

resulting from a criminal act; therefore members of this department have a high probability of encountering these individuals. This domain was designed to answer: *To what degree does the participant practice identification, documentation and preservation of evidence on a patient in the healthcare setting?* Finally, the fourth domain (beliefs), with respect to this instrument, is in relation to the barriers presented to the registered nurse. Barriers refer to the attitudinal and logistical barriers that may be presented to the emergency room nurses. "An attitudinal barrier is the position that violence prevention should not be the responsibility of medical professionals because this would allow the police force to divert some of the blame of the presence of crime to the medical establishment" (Arekapudi, 2003). "Logistic barriers include the lack of facilities for patient reporting, an inability to record the circumstances of violence, poor communication with the police, and 'the often exclusively health agenda' of emergency rooms" (Arekapudi, 2003). This domain was designed to answer: *What are the potential concerns/barriers that the participant may consider when asked about criminal evidence on a patient in the healthcare setting?*

The questions utilized in the survey are based upon and created by both key points discovered when reviewing the literature and also

self-developed key ideas. In addition, the domains have been self-developed; however, in theory, the development and ideas of the domains, once again, have been developed based upon key ideas from the literature (i.e. gaps and discussions) and professional experiences. These domains have been developed in an attempt to highlight key attributes of the topic while also pinpointing specific concerns that may aid in future studies.

This survey instrument utilized a three (3) option answer method of providing a response in an effort to illicit a firm response eliminating any potential for uncertainty. The questions within this survey instrument are supported by what is known in the literature while also attempting to fill the voided gaps with regard to specifics on the registered nurses perceptions with respect to evidence issues in the healthcare setting. The questions have been purposely designed to be conveyed in a short, brief and simple manner while also conveying direct questions with respect to the four domains surrounding the outlook of the participant. Demographic questions were also included within the survey and consisted of an inquiry to the following topics for each participant: gender, age, education, assignment/duties and years of experience.

The survey questions, within their respected domains, will be coded to 2, 1 or 0 based upon the favorability of the answer to a specific question; 2 being the most favorable (*Yes/Yes*, *I Agree* or *No/No, I Disagree*) and 0 being an unsure response (*I Am Unsure*). The demographic questions will also be coded in an effort to conduct descriptive statistical analyses.

Survey Participant Population

Access to the registered nurses ranged from contacting professionals belonging to a state-wide nursing association and active employees within hospitals/healthcare systems in the state of New Jersey. In addition, the PI also employed purposive and non-purposive sampling as well as convenience sampling. Access to these participants was based upon the permission and/or IRB approvals from the participating organizational leaders mentioned above as well as from Seton Hall University. Inclusion criteria for participants included the participant being a currently registered nurse in the United States or any of its possessions or occupied territories (Guam, American Samoa, Puerto Rico, US Virgin Islands, Military bases worldwide AFO/FPO), employed within a hospital/medical center, assigned to work in any capacity or unit other than a forensic nurse or Sexual Assault Nurse Examiner (SANE), currently licensed to practice, an adult 18 years old

or older, male or female, English speaking, have the ability to read and respond in English and be able to have access to a computer with internet capabilities. The participant will be excluded from participating in the survey if he/she was not a current registered nurse in the United States or any of its possessions or occupied territories or was not employed within a healthcare facility, or was a forensic nurse or Sexual Assault Nurse Examiner (SANE), or did not have a current license to practice, or was not an adult 18 years old or older, or was not English speaking or does not have the ability to read in English, or did not have access to a computer with internet capabilities.

As mentioned, the PI also employed both purposive and non-purposive sampling as well as convenience sampling during the research study; these sampling techniques were approved by the Seton Hall University IRB. Purposive and convenience sampling techniques will be utilized while drawing from the population from the PI choice hospitals/healthcare systems and nurses associations in the State of New Jersey. Non-purposive (snowball) sampling is based upon the assumption that participants with like characteristics, behaviors and interests will form associations; it is this relationship by which a researcher will select a sample (Hek and Moule, 2006). This method of recruitment was encouraged in both the Letter of Solicitation

(Appendix E) and Recruitment Flyer (Appendix F) in an effort to increase the sample size for the study.

Following the receipt of approval from both the Seton Hall University and choice location(s) IRB offices to conduct the study, potential participants received a Letter of Solicitation/Informed Consent (Appendix E) which contained a website address leading participants to the PI created Registered Nurse and Criminal Evidence Assessment (RNCEA). The survey took place online through SurveyMonkey®. In the participant Letter of Solicitation/Informed Consent (Appendix E) participants were instructed on the parameters of the study and were asked to complete the survey from the provided website address. No further correspondence was necessary and/or needed between the participants and the PI. The PI received the tabulated responses through the SurveyMonkey® website.

DATA COLLECTION PROCESS

Engaged in by the Principal Investigator
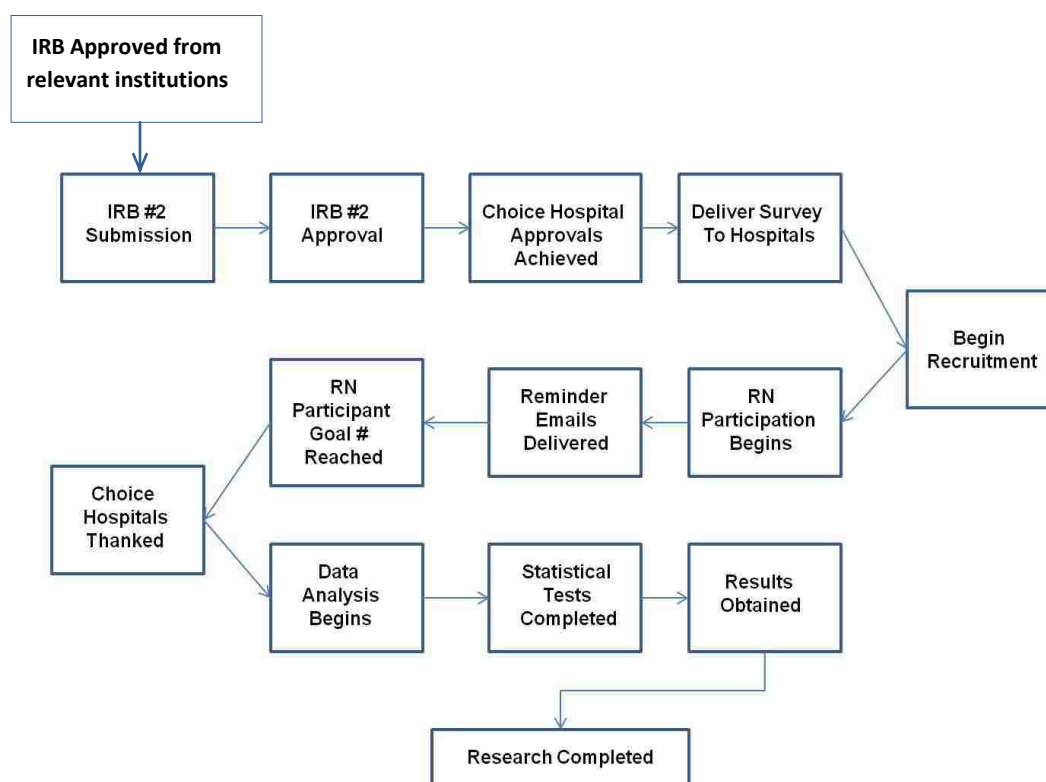
Figure 4. Data Collection Process. This figure illustrates the data collection process which was used by the PI with his RNCEA© Survey Instrument.

Hypotheses and Research Questions

The aim of the research study was to focus on exploring the factors that may influence the outlook of registered nurses regarding potential criminal evidence identification, collection and preservation on patients presented to them. It was within the PIs intention to begin the exploration of the outlook of the registered nurse with respect to potential criminal evidence identification on patients presented to them in the healthcare setting in an attempt to preemptively provide solutions to potential concerns revolving around the problem of what would occur if a forensic nurse is not on duty or is unavailable during the time when potential physical evidence in presented on a patient.

The first step for a nurse to gain familiarity of evidence is to learn how to identify what types of evidence may exist on a person; however, the act of evidence collection is not a simple task that simply involves bagging clothing, wiping blood with a swab or combing hair into an envelope. Instead the act of forensic evidence collection is tedious at times and requires patience.

The overarching research question behind this dissertation research is as follows:

What is the outlook of the registered nurse (RN) employed in a non-trauma designated hospital/medical center regarding criminal

evidence identification, collection and preservation on patients presented to them?

According to Merriam-Webster (2015), *outlook* is defined as the way that a person thinks about things; a set of conditions that will probably exist in the future, or the future of someone or something. For the purposes of this research, outlook will take those definitions into consideration and define outlook as the nurse's perception regarding criminal evidence issues in the healthcare setting.

The overarching research question above will be answered through the following subsequent questions:

RQ1. *Is there a difference between the <u>knowledge, attitude, practices and beliefs</u> of the registered nurse and <u>their overall outlook</u> regarding criminal evidence identification, collection and preservation on patients presented to them?*

The corresponding alternative hypothesis for RQ1 is:

H1:   *There is a difference between the knowledge, attitude, practices and beliefs of the registered nurse and their overall outlook regarding criminal evidence identification, collection and preservation on patients presented to them.*

Delving into this question slightly further, RQ1a was developed and stated as:

RQ1a: *Is there a difference between the <u>knowledge, attitude, practices and beliefs</u> of the registered nurse regarding criminal evidence identification, collection and preservation on patients presented to them*

and their primary assignment within the healthcare setting?

The corresponding alternative hypothesis for RQ1a is:

H1a: *There is a difference between the knowledge, attitude, practices and beliefs of the registered nurse regarding criminal evidence identification, collection and preservation on patients presented to them and their primary assignment within the healthcare setting.*

Research question 2 was designed to look for a relationship between

the knowledge and beliefs domains:

RQ2. *Is there a relationship between the knowledge of the registered nurse and their beliefs regarding criminal evidence identification, collection and preservation on patients presented to them?*

The corresponding alternative hypothesis for RQ2 is:

H2: *There is a relationship between the knowledge of the registered nurse and their beliefs regarding criminal evidence identification, collection and preservation on patients presented to them?*

Research question 3 was designed to look for a relationship between

the attitude and practices domain:

RQ3. *Is there a relationship between the attitudes of the registered nurse and their practices regarding criminal evidence identification, collection and preservation on patients presented to them?*

The corresponding alternative hypothesis for RQ3 is:

H3:   *There is a relationship between the <u>attitudes</u> of the registered nurse and their <u>practices</u> regarding criminal evidence identification, collection and preservation on patients presented to them?*

These questions above will be answered utilizing inferential statistical analyses discussed in detail within the next chapter.

Study Design

This dissertation study, which focuses on using a newly created and validated tool, was non-experimental in nature because it was survey-based. This dissertation study was descriptive, cross-sectional and correlational. Demographic characteristics of the sample were organized and summarized through a descriptive design. A cross-sectional design involves the collection of data at one point in time, which this survey abided by. Finally, a correlational design was used to explore if a relationship exists between specific domains.

Chapter IV

RESULTS AND DISCUSSION

Reliability Assessment

The data analysis for this research study first consisted of a

reliability assessment utilizing a Chronbach's Alpha. In addition,

subsequent descriptive statistics were conducted for the

demographics of the participants and inferential statistics were

conducted for the research questions (RQ1, RQ1a, RQ2 and RQ3)

which concentrated on non-parametric tests. All statistical analyses

were performed utilizing SPSS Version 21.

A Chronbach's Alpha analysis was conducted on the PI created

RNCEA survey tool. The PI conducted two (2) separate analyses; first

on the tool with 188 participants, the second on the tool eliminating

responses from trauma center participants (remember, the

overarching research question detailed inquiring the outlook of

registered nurses from non-trauma designated hospitals/medical

centers) which lowered the total to 176 participants. For the first

reliability analysis (188 respondents); the tool revealed a "good"

reliability statistic, according to George and Mallory (2003), of a score

of *r=.865* (as observed in Table 1).

Table 1

Total Survey Tool Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.866	.877	50

For the second analysis (176 respondents), the tool also revealed a

"good" reliability statistic, according to George and Mallory (2003), of

a score of *r=.872* (as observed in Table 2).

Table 2

Total Survey Tool (Without Trauma Center Responses) Reliability Statistics

Cronbach's Alpha	N of Items
.872	50

Total Number of Participants

In search for a total sample size, the PI utilized G*Power 3.1.7 (Faul, et al, 2013). In using this tool, a total sample size of 179 was calculated, for a power (1-β err prob) equaling .80 (the probability of detecting a true relationship or group difference), a medium effect size (.25) and using an alpha of 0.05 (the level of significance and the probability of detecting a Type I error, otherwise known as a false positive). This analysis was conducted under the assumption of the possibility of conducting a Kruskal-Wallis test (non-parametric version of an ANOVA). Increasing the effect size from .25 to .30, changed the needed sample size from 179 to 126 for the same power (.80).

As you will see in the outputs, in actuality, the PI decided to conduct both Chi-Square Tests for Independence and Spearman Rho (Rank-Order) tests to answer the research questions once the data was collected. Power analysis for the Chi-Square test revealed the need for a population size of 122 for a power (1-β err prob) equaling .80; Spearman Rho (Rank-Order) population sizes were far less for the same power (.80). Data collection continued past these numbers to account for attrition and under the assumption that the larger the sample, the more representative it is of the population and the smaller the sampling error is. In the end, the PI received a total sample of 188

participants upon data analysis. When filtering through the responses,

the PI discovered that 12 of the participants were from trauma centers.

Out of curiosity, the PI decided to conduct two versions of each

statistical analysis to look for variations between the results.

Data Coding

During the data input phase, a series of two coding sessions

were completed. The first session included simple answer coding.

Answers to the survey responses included coded responses of 2, 1 or 0

(depending on the question). The answers to the questions were: Yes;

Yes, I Agree, No; No, I Disagree or I Am Unsure. The domain sections,

when tallied, included: 0-20 points or 0-30 points, once again

depending on the domain. The total survey responses tallied included:

0 – 100 points. The second version of coding included more in depth

coding. Answers were also coded: 1 (High) or 2 (Low). The domain

sections (Knowledge, Attitude, Practice or Belief) were coded as: 0-9

points or 0-14 points, which would equal "Low" (Coded as 2), 10-20

points or 15-30 points, which would equal "High" (Coded as 1), total

survey responses (per individual survey) were coded as: 0-49 points,

which would equal "Low Outlook" (Coded as 2) and 50-100 points,

which would equal "High Outlook" (Coded as 1).

The final coding variables are titled as: Knowledge total –

KNOWTOTAL, Attitude total – ATTTOTAL, Practice total – PRACTOTAL

and Belief total – BELTOTAL; these are all actual scores. The domain

totals include: Knowledge domain total – KNOWDOMAINTOTAL,

Attitude domain total – ATTDOMAINTOTAL, Practice domain total –

PRACDOMAINTOTAL and Belief domain total – BELDOMAINTOTAL;

these are ranked either as High (1) or Low (2), based on actual scores.

Normality Tests

First, the PI wanted to determine if the primary data being used

for statistical analysis was normally distributed.

Table 3

Tests of Normality (All Domains)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
KNOWDOMAINTOTAL	.525	188	.000	.374	188	.000
ATTDOMAINTOTAL	.540	188	.000	.167	188	.000
PRACDOMAINTOTAL	.521	188	.000	.392	188	.000
BELDOMAINTOTAL	.473	188	.000	.529	188	.000

a. Lilliefors Significance Correction

As observed in Table 3, For the knowledge domain total variable

(KNOWDOMAINTOTAL), attitude domain total variable

(ATTDOMAINTOTAL) practices domain total variable

(PRACDOMAINTOTAL)and beliefs domain total variable

(BELDOMAINTOTAL), a *significant* value (*p<.05*) was observed for both

the Shapiro-Wilk and Kolmogolov-Smirnov test statistics; all indicative of

not having normally distributed data.

The PI then conducted a test for normality for the data excluding

the trauma center responses. As observed in Table 4, this test too

resulted in a *significant* value (*p<.05*) for each of the domains.

Table 4

Tests of Normality (All Domains) Without Trauma Center Responses

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
KNOWDOMAINTOTAL	.522	176	.000	.387	176	.000
ATTDOMAINTOTAL	.539	176	.000	.154	176	.000
PRACDOMAINTOTAL	.524	176	.000	.378	176	.000
BELDOMAINTOTAL	.473	176	.000	.528	176	.000

a. Lilliefors Significance Correction

Based on the results of these normality tests, in addition to the fact that

the data are being measured primarily on the ORDINAL scale, the PI

chose utilize non-parametric tests.

Demographics

The demographic data was collected through a series of five (5)

basic questions that appeared at the end of the PI created RNCEA©

survey and were PI created and reviewed as part of the Delphi process

as stated previously. The demographic inquiries consisted of the

following questions: age of the registered nurse participant, education

of the registered nurse participant, gender of the registered nurse

participant, years as a registered nurse (overall) and finally, years as a

registered nurse in their current assignment. The bar graphs depicted in

Figures 5-9 depict the responses tallied from all 188 participants.

AGE
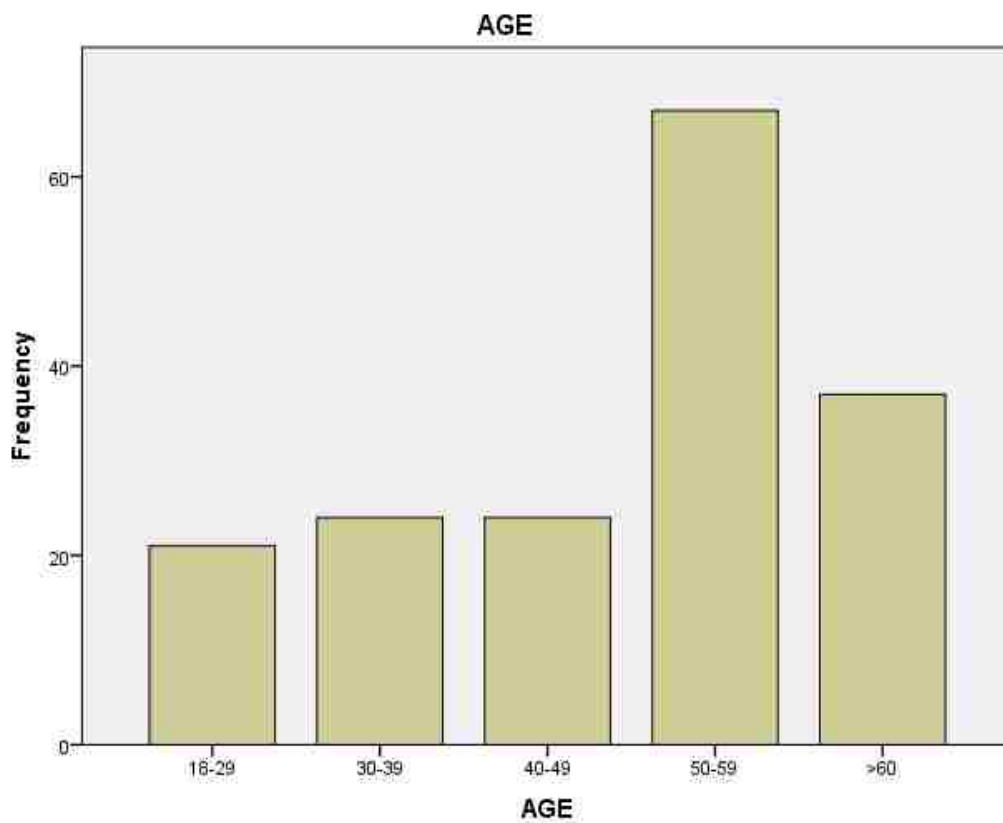
Figure 5. **Bar Chart (Age). This figure illustrates the age of the RN participants.**

With regard to the age of the registered nurse participant; those in the range of 50-59 years old led the group, followed by those of 60 years old. Those aged 30-39 and 40-49 came in third on the ranking with those aged 18-29 coming in last.
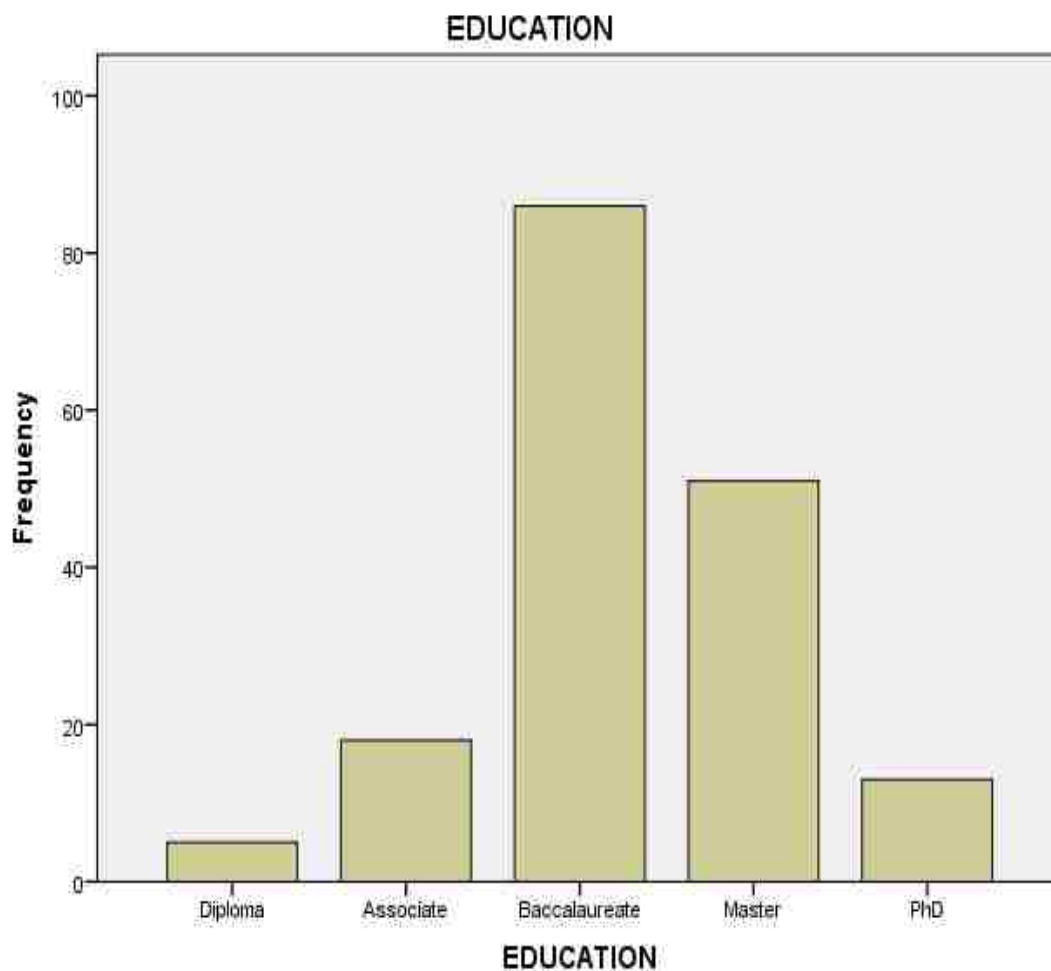
Figure 6. Bar Chart (Education). This figure illustrates the education of the RN participants.

With regard to the education of the registered nurse participant; those with a Baccalaureate degree led with 86, 51 participants had a Master degree, followed by 18 with an Associate, 13 with a Ph. D. and 5 with a Diploma.
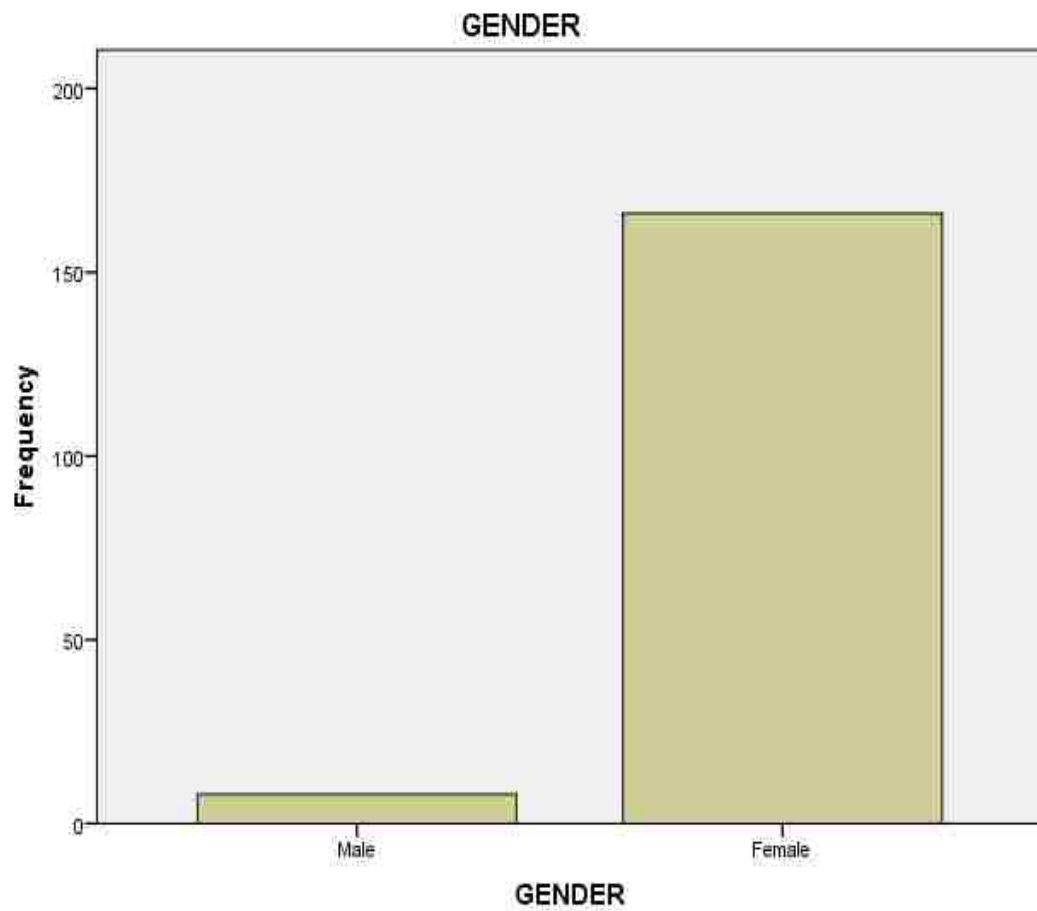
Figure 7. **Bar Chart (Gender). This figure illustrates the gender of RN participants.**

As you can see with regard to gender of the registered nurse, female

participants (166) overwhelming participated more than male

participants (8).
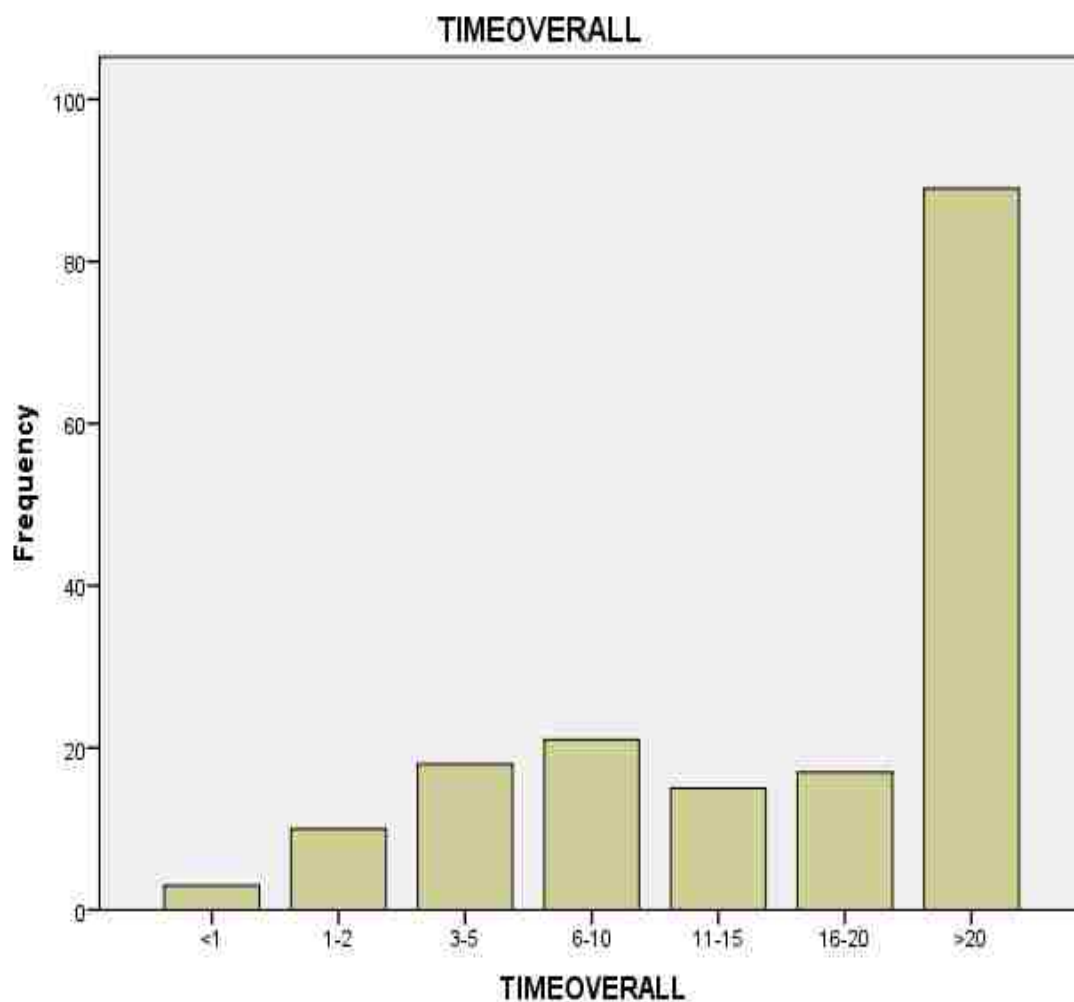
Figure 8. **Bar Chart (Years as a RN). This figure illustrates the years as a RN of participants.**

Participants with over 20 years as a registered nurse led the participant pack (89) followed by those with 6-10 years (21). Participants with 3-5 years (18), 16-20 years (17), 11-15 years (15), 1-2 years (10) and less than 1 year (3) followed behind.
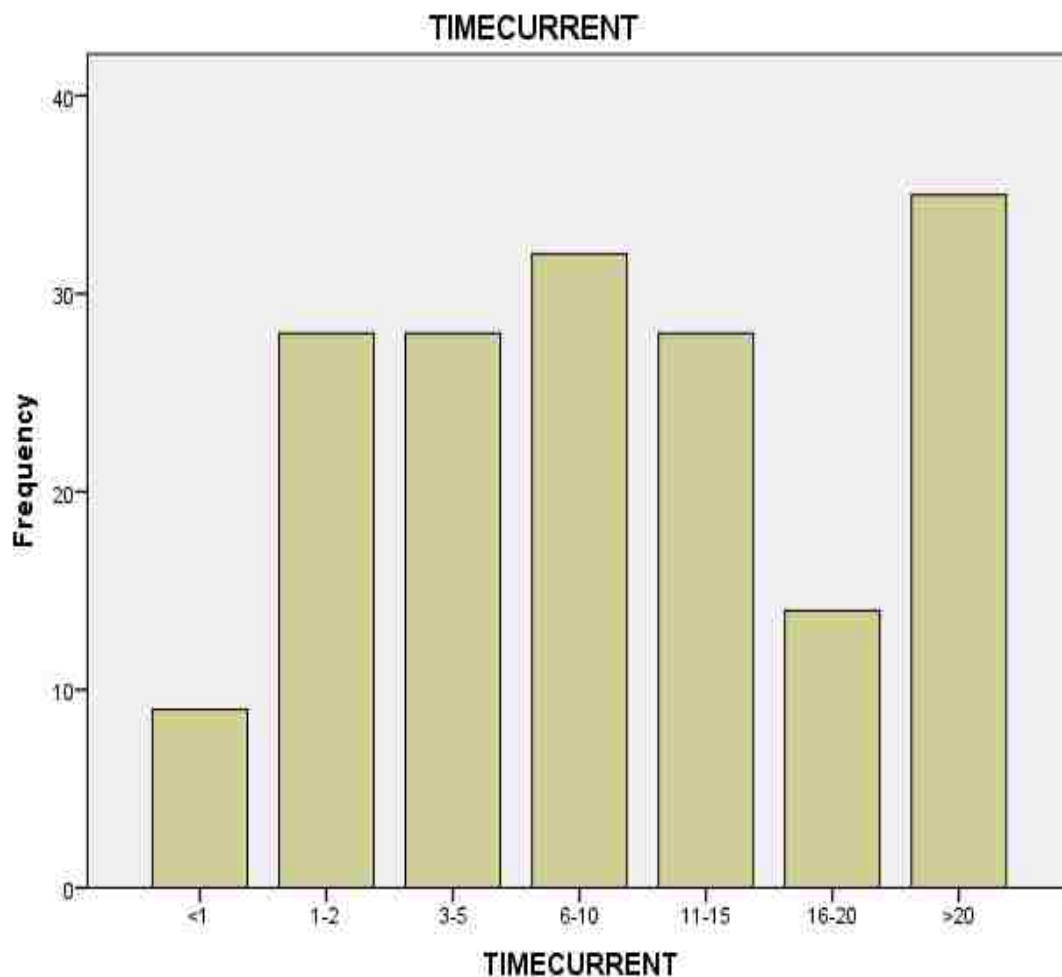
Figure 9. Bar Chart (Years as a RN in the Current Assignment). This figure illustrates the years as a RN in their current assignment of participants.

Finally, with regard to years as a registered nurse in their current assignment; those with over 20 years (35) led the participants followed by those with 6-10 years (32). Participants with 1-2, 3-5 and 11-15 years (28) came in third on the ranking followed by participants with 16-20 years (14) and less than 1 year (9).

Non-Parametric Analyses

Non-parametric statistical analyses were conducted to obtain answers to RQ1, RQ1a, RQ2 and RQ3.

For RQ1, the PI used the coded (high/low) scores of the domains (knowledge, attitude, practice and belief) and the coded high/low score of overall outlook. The PI chose to conduct separate Chi-Square Tests for Independence in an effort to discover if there is a relationship between two categorical variables. As you will see in Tables 5-8, for all four domains (knowledge, attitude, practices and beliefs) there was a statistically *significant* association between the domains and the overall outlook; that is, both high/low outlook are associated with high/low domains. The reasoning behind choosing this test was to know whether the domains are associated with the outlook of the registered nurse. The primary goal was to see if there was difference between the domains at the conclusion of the separate Chi-Square tests. The first sets of outputs were conducted on all 188 participants of the survey.

Table 5

Knowledge Domain Total & Ranked Outlook Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	13.511[a]	1	.000		
Continuity Correction[b]	11.085	1	.001		
Likelihood Ratio	10.146	1	.001		
Fisher's Exact Test				.002	.002
Linear-by-Linear Association	13.439	1	.000		
N of Valid Cases	188				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.69.
b. Computed only for a 2x2 table

For the knowledge domain total scores (high/low) and outlook ranked scores (high/low), as depicted above, the result was x^2 $(1) =$ *13.511, p<.05*; there was a *statistically significant association*. The knowledge domain scores are associated to the outlook ranked scores; they are not independent events.

Table 6

Attitude Domain Total & Ranked Outlook Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	17.103[a]	1	.000		
Continuity Correction[b]	12.267	1	.000		
Likelihood Ratio	10.262	1	.001		
Fisher's Exact Test				.002	.002
Linear-by-Linear Association	17.012	1	.000		
N of Valid Cases	188				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is .73.
b. Computed only for a 2x2 table

For the attitude domain total scores (high/low) and outlook ranked scores (high/low), as depicted above, the result was x^2 *(1) = 17.103, p<.05*; there was a *statistically significant association*. The attitude domain scores are also associated to the outlook ranked scores; they too are not independent events.

Table 7

Practices Domain Total & Ranked Outlook Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	45.054a	1	.000		
Continuity Correctionb	40.688	1	.000		
Likelihood Ratio	31.280	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	44.814	1	.000		
N of Valid Cases	188				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.94.
b. Computed only for a 2x2 table

For the practices domain total scores (high/low) and outlook ranked scores (high/low), as depicted above, the result was x^2 *(1) = 45.054, p<.05*; there was a *statistically significant association*. The practices domain scores are associated to the outlook ranked scores; they are not independent events.

Table 8

Beliefs Domain Total & Ranked Outlook Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	83.277[a]	1	.000		
Continuity Correction[b]	78.585	1	.000		
Likelihood Ratio	77.346	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	82.834	1	.000		
N of Valid Cases	188				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.51.
b. Computed only for a 2x2 table

Finally, for the beliefs domain total scores (high/low) and outlook ranked scores (high/low), as depicted above, the result was x^2 *(1) = 83.277, p<.05*; there was also *statistically significant association*. The beliefs domain scores are also associated to the outlook ranked scores; they are not independent events.

Next, the PI conducted an additional round of Chi-Square tests; however, this time the PI excluded the 12 trauma center responses (leaving the participant number at 176) as observed in Tables 9-12.

Table 9

Knowledge Domain Total & Ranked Outlook Chi-Square Test (Without Trauma Center Responses)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	14.282[a]	1	.000		
Continuity Correction[b]	11.749	1	.001		
Likelihood Ratio	10.695	1	.001		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	14.201	1	.000		
N of Valid Cases	176				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.63.
b. Computed only for a 2x2 table

For the knowledge domain total scores (high/low) and outlook ranked scores (high/low), as depicted above, the result was x^2 *(1) = 14.282, p<.05*; there was a *statistically significant association*. The knowledge domain scores are associated to the outlook ranked scores; they are not independent events.

Table 10

Attitude Domain Total & Ranked Outlook Chi-Square Test
(Without Trauma Center Responses)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.316[a]	1	.001		
Continuity Correction[b]	7.097	1	.008		
Likelihood Ratio	6.867	1	.009		
Fisher's Exact Test				.013	.013
Linear-by-Linear Association	11.251	1	.001		
N of Valid Cases	176				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .60.
b. Computed only for a 2x2 table

For the attitude domain total scores (high/low) and outlook ranked scores (high/low), as depicted above, the result was x^2 *(1) = 11.316, p<.05*; there was a *statistically significant association*. The attitude domain scores are also associated to the outlook ranked scores; they too are not independent events.

Table 11

Practices Domain Total & Ranked Outlook Chi-Square Test
(Without Trauma Center Responses)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	37.127[a]	1	.000		
Continuity Correction[b]	32.885	1	.000		
Likelihood Ratio	25.457	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	36.916	1	.000		
N of Valid Cases	176				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.51.
b. Computed only for a 2x2 table

For the practices domain total scores (high/low) and outlook ranked scores (high/low), as depicted above, the result was x^2 *(1) = 37.127,* *p<.05*; there was a *statistically significant association*. The practices domain scores are associated to the outlook ranked scores; they are not independent events.

Table 12

Beliefs Domain Total & Ranked Outlook Chi-Square Test
(Without Trauma Center Responses)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	76.077ᵃ	1	.000		
Continuity Correctionᵇ	71.394	1	.000		
Likelihood Ratio	70.454	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	75.645	1	.000		
N of Valid Cases	176				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.01.
b. Computed only for a 2x2 table

Finally, for the beliefs domain total scores (high/low) and outlook

ranked scores (high/low), as depicted above, the result was x^2 *(1) =*

76.077, p<.05; there was also *statistically significant association*. The

beliefs domain scores are also associated to the outlook ranked scores;

they are not independent events.

Upon the conclusion of the tests, when comparing the results

together, it was discovered that there was no difference between the

domains on the overall outlook; they all showed an association with

the registered nurse outlook ranked scores. With these Chi-Square tests

the PI can determine that the high/low domains and high/low outlook

scores are not independent events. The coded responses of the

high/low domains appear to have a *significant effect* and may tell us

something about the outlook responses.

In conclusion, *all of the tests showed significance* which has

allowed the PI to successfully answer the first research question; there

are no differences between the knowledge, attitude, practices and

beliefs of the registered nurse and their overall outlook regarding

criminal evidence identification, collection and preservation on

patients presented to them.

A post-hoc power analysis was conducted and showed to have

a power (1-β err prob) equaling .98 for the all of the previous Chi-

Square tests (Figure 10).
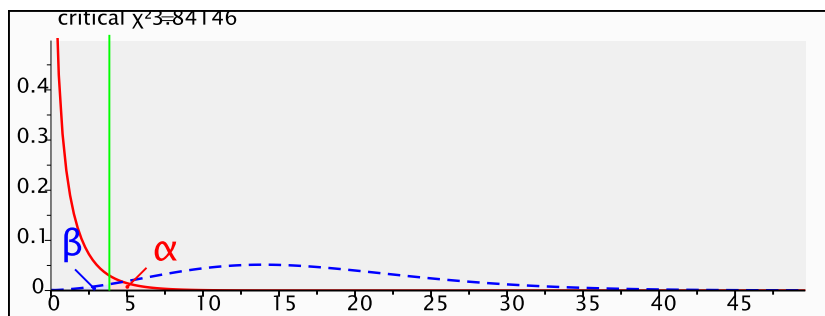
X² tests - Goodness -of-fit tests: Contingency tables
Analysis: Post-hoc: Compute achieved power
Input: Effect size w = 0.3
                       err prob = 0.05
                       Total sample size - 178
                       DF = 1
Output: Noncentrality parameter λ = 16.02
                       Critical X² = 3.8414588
                       Power (1-β err prob) = 0.9794508

Figure 10. **G*Power Analysis (Post-Hoc). This figure illustrates the post-hoc G*Power analysis for chi-square test for Research Question #1.**

When tallying the survey responses, the PI ranked the top four

assignments that were listed on the open-ended assignment question

within the survey. According to the survey responses, the top four (4)

assignments of the registered nurses taking the survey were ICU (22),

Medical Surgical (14), RN pool (14) and ER (13). The PI took this

information and created a sub-question to RQ1; this time looking to see

if there is a difference between the domains and the top four nursing

assignments. This question is labeled as RQ1a and titled: "*Is there a*

difference between the knowledge, attitude, practices and beliefs of

the registered nurse regarding criminal evidence identification,

collection and preservation on patients presented to them and their

primary assignment within the healthcare setting?". When broken into

groups, both groups display greater "high" scores for all the domains as

opposed to the "low" scores. The PI conducted separate Chi-Square

Tests for Independence to discover if there is a relationship between

two variables (Domains and Ranked Assignments). This time the goal is

to discover whether the domains (knowledge, attitude, practice or

belief) are associated with the ranked assignments of the registered

nurse.

In order to conduct this test, the PI conducted a third round of

coding and used the coded (high/low) scores of the domains

(knowledge, attitude, practice and belief) and the newly coded

assignments. The PI split the assignments into groups of two and

created the newly created variables: Medical Surgical and ICU

variable (MEDSURGICU) and the Pool and ER variable (POOLER).

As you will see in the outputs (Tables 13-20) on the next several

pages, the results of the tests showed that there was no difference

between the domains on the ranked assignments. In addition, for all

four domains (knowledge, attitude, practices and beliefs) there was

statistically no significant association between the domains and the

registered nurse assignment; the high/low domains (knowledge,

attitude, practice and belief) are not associated with each of the

assignments and can be considered independent events.

Table 13

Knowledge & Assignment Medical Surgical & ICU

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.011[a]	1	.917		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.011	1	.916		
Fisher's Exact Test				1.000	.709
Linear-by-Linear Association	.011	1	.918		
N of Valid Cases	36				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.08.
b. Computed only for a 2x2 table

Table 14

Knowledge & Assignment Pool & ER

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.008a	1	.315		
Continuity Correctionb	.213	1	.644		
Likelihood Ratio	1.053	1	.305		
Fisher's Exact Test				.596	.327
Linear-by-Linear Association	.970	1	.325		
N of Valid Cases	27				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.93.
b. Computed only for a 2x2 table

Table 15

Attitude & Assignment Medical Surgical & ICU

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.177ᵃ	1	.674		
Continuity Correctionᵇ	.000	1	1.000		
Likelihood Ratio	.170	1	.680		
Fisher's Exact Test				1.000	.598
Linear-by-Linear Association	.172	1	.678		
N of Valid Cases	36				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .72.
b. Computed only for a 2x2 table

Table 16

Attitude & Ranked Assignment Pool & ER

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.964[a]	1	.326		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	1.349	1	.245		
Fisher's Exact Test				1.000	.519
Linear-by-Linear Association	.929	1	.335		
N of Valid Cases	27				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .48.
b. Computed only for a 2x2 table

Table 17

Practices & Assignment Medical Surgical & ICU

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.436[a]	1	.231		
Continuity Correction[b]	.485	1	.486		
Likelihood Ratio	1.376	1	.241		
Fisher's Exact Test				.328	.239
Linear-by-Linear Association	1.396	1	.237		
N of Valid Cases	36				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.81.
b. Computed only for a 2x2 table

Table 18

Practices & Assignment Pool & ER

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.011[a]	1	.918		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.011	1	.918		
Fisher's Exact Test				1.000	.638
Linear-by-Linear Association	.010	1	.920		
N of Valid Cases	27				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.89.

b. Computed only for a 2x2 table

Table 19

Beliefs & Assignment Medical Surgical & ICU

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.224ᵃ	1	.636		
Continuity Correctionᵇ	.007	1	.931		
Likelihood Ratio	.228	1	.633		
Fisher's Exact Test				.716	.473
Linear-by-Linear Association	.218	1	.641		
N of Valid Cases	36				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.61.
b. Computed only for a 2x2 table

Table 20

Beliefs & Assignment Pool & ER

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.074[a]	1	.785		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.074	1	.785		
Fisher's Exact Test				1.000	.555
Linear-by-Linear Association	.071	1	.789		
N of Valid Cases	27				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 4.33.
b. Computed only for a 2x2 table

So, similar to the results in RQ1 (with respect to overall

consistency) all of the tests, this time, showed no significance and

therefore no difference with regard to the domains on the assignment. This could be interpreted as there is no difference between the knowledge, attitude, practices and beliefs of the registered nurse regarding criminal evidence identification, collection and preservation on patients presented to them and their primary assignment; no association was shown for any domain when tested against the overall outlook ranked score. The results of those previous tests (outputs displayed in Tables 13-20) were as follows: for knowledge; X^2 (1) = .011, p>.05 (Med/Surg. & ICU) and X^2 (1) = 1.008, p>.05 (Pool & ER); for attitude; X^2 (1) = .177, p>.05 (Med/Surg. & ICU) and X^2 (1) = .964, p>.05 (Pool & ER); for practices; X^2 (1) = 1.436, p>.05 (Med/Surg. & ICU) and X^2 (1) = .011, p>.05 (Pool & ER) and finally, for beliefs; X^2 (1) = .224, p>.05 (Med/Surg. & ICU) and X^2 (1) = .074, p>.05 (Pool & ER). These Chi-Square tests have allowed me to successfully answer RQ1a.

For RQ2, the PI conducted a Spearman Rho (Rank-Order) correlation test which determines if a relationship exists and the strength of relationship between 2 ranked variables. RQ2 asked: "*Is there a relationship between the knowledge of the registered nurse and their beliefs regarding criminal evidence identification, collection and preservation on patients presented to them?*". When completing the test, a positive correlation was found indicating a *significant*

relationship between the two variables. This test shows that there is less than a 1% chance that the strength of the relationship happened by chance. This significant correlation is weak; however, it does indicate a relationship *(r_s(186) = .222, p< .05)*. The results of this test allow me to provide an answer to RQ2; there is a relationship between the knowledge of the RN and their beliefs (see Table 21).

For RQ3, the PI also conducted a Spearman Rho (Rank-Order) correlation test. RQ3 asked: "*Is there a relationship between the attitude of the registered nurse and their practices regarding criminal evidence identification, collection and preservation on patients presented to them?*". When completing this test, a positive correlation was also found indicating a *significant relationship between the two variables* and also showing that there is less than a 1% chance that the strength of the relationship happened by chance. This significant correlation is also weak; however, it does indicate a relationship *(r_s(186) = .293, p< .05)*. The results of this test allow me to provide an answer to RQ3; there is a relationship between the attitude of the RN and their practice (see Table 22).

The PI then conducted separate Spearman Rho (Rank-Order) analyses for those responses which excluded the trauma center participants. For the first, the knowledge and beliefs variables were

utilized (similar to the original test) and the results showed a positive correlation was found and a *significant relationship between the two variables*. In the next test (utilizing the attitude and practices variables), a positive correlation was also found along with a *significant relationship between the two variables*. Similar to the original tests, both these tests show that there is less than a 1% chance that the strength of the relationship happened by chance. This significant correlation was weak in both tests; *(r_s(174) = .232, p< .05)* and *(r_s(174) = .254, p< .05)*; however, it does indicate a relationship (see Table 23 and Table 24).

Table 21

Knowledge and Beliefs Correlations

			KNOWDOMAIN TOTAL	BELDOMAIN TOTAL
Spearman's rho	KNOWDOMAIN TOTAL	Correlation Coefficient	1.000	
		Sig. (2-tailed)	.	
		N	188	
	BELDOMAINTOTAL	Correlation Coefficient	.222**	
		Sig. (2-tailed)	.002	
		N	188	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 22

Attitude and Practices Correlations

			ATTDOMAINTOTAL	PRACDOMAINTOTAL
Spearman's rho	ATTDOMAINTOTAL	Correlation Coefficient	1.000	.293**
		Sig. (2-tailed)	.	.000
		N	188	188
	PRACDOMAINTOTAL	Correlation Coefficient	.293**	1.000
		Sig. (2-tailed)	.000	.
		N	188	188

**. Correlation is significant at the 0.01 level (2-tailed).

Table 23

Knowledge and Beliefs (Without Trauma Responses) Correlations

			KNOWDOM AINTOTAL	BELDOMAINT OTAL
Spearm an's rho	KNOWDOMAINT OTAL	Correlation Coefficient	1.000	.232**
		Sig. (2-tailed)	.	.002
		N	176	176
	BELDOMAINTOT AL	Correlation Coefficient	.232**	1.000
		Sig. (2-tailed)	.002	.
		N	176	176

**. Correlation is significant at the 0.01 level (2-tailed).

Table 24

Attitude and Practices (Without Trauma Responses) Correlations

			ATTDOM AINTOTAL	PRACDOMAINT OTAL
Spearma n's rho	ATTDOMAINTOT AL	Correlation Coefficient	1.000	.254**
		Sig. (2-tailed)	.	.001
		N	176	176
	PRACDOMAINT OTAL	Correlation Coefficient	.254**	1.000
		Sig. (2-tailed)	.001	.
		N	176	176

**. Correlation is significant at the 0.01 level (2-tailed).

For both RQ 2 and RQ 3, post-hoc power analyses were

conducted and showed a power (1-β err prob) equaling .98 for the

Spearman Rho (Rank-Order) tests (Figure 11).
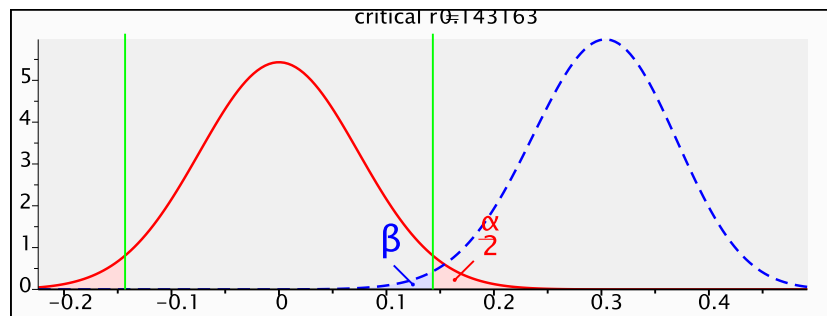
Exact - Correlation: Bivariate normal model
Options: exact distribution
Analysis: Post-hoc: Compute achieved power
Input: Tail(s) = 2
                      Correlation ρ H1 = 0.3
                      err prob = 0.05
                      Total sample size - 188
                      Correlation ρ H1 = 0
                      DF = 1
Output: Lower critical r = -0.1431627
                      Upper critical r = 0.1431627
                      Power (1-β err prob) = 0.9880390

Figure 11. **G*Power Analysis (Post-Hoc). This figure illustrates the post-hoc G*Power analysis for spearman-rho tests for Research Question #2 and #3.**

Chapter V

SUMMARY AND CONCLUSIONS

Summary of Findings

In summary, the total survey tool showed good reliability results based upon the recommendations of George and Mallory (2003) at a .866 when conducting a Cronbach's Alpha and all of the research questions (RQs) were answered.

For RQ1, it was determined that that there is no difference between the knowledge, attitude, practices and beliefs of the registered nurse and their overall outlook regarding criminal evidence identification, collection and preservation on patients presented to them. Chi-Square statistical analyses revealed *significance* was shown for each of the ranked domains when tested with the ranked outlook. The domains and outlook appear appeared to be associated across the board; once again this applied to all the domains, leading to the determination that there is no difference between the domains. The tests do suggest that something could be said about the outlook of the registered nurse based upon their domain rankings. For this test the PI

fails to reject the null hypothesis; there are no differences between the domains and overall outlook.

For RQ1a, both demographic and statistical analyses also support that there is no difference between the knowledge, attitude, practices and beliefs of the registered nurse regarding criminal evidence identification, collection and preservation on patients presented to them and their primary assignment within the healthcare setting. Additional Chi-Square statistical analyses revealed no significance for all of the ranked domains when tested with the top four (4) assignments. The domains and registered nurse assignment do not appear to be associated; this applies to all the domains, leading to the determination that there is no difference between the domains. The tests do suggest that the registered nurses coded responses of the high/low domains are not associated with their current assignment. For this test the PI, once again, fails to reject the null hypothesis; there are no differences between the domains and the registered nurse primary assignment.

For RQ2 and RQ3, the PI discovered that a relationship between the knowledge of the registered nurse and their beliefs regarding criminal evidence identification, collection and preservation on patients presented to them does exist. Also, a relationship between the

attitudes of the registered nurse and their practices regarding criminal evidence identification, collection and preservation on patients presented to them also does exist. For RQ 2 and RQ 3, the PI will reject the null hypothesis and accept the alternative hypothesis; there is a relationship between the knowledge and beliefs domains and the attitude and practices domains.

Conclusion

With the revelation of the information provided in the data analyses portion, it is only appropriate to revisit the overarching RQ: *What is the outlook of the registered nurse (RN) employed in a non-trauma designated hospital regarding criminal evidence identification, collection and preservation on patients presented to them?*

Based on the statistical analyses conducted in this research, the answer to that overarching RQ is that the outlook is positive. So, in general, what does this all mean? The assignment of the registered nurse is not statistically relevant to the particular domains highlighted in this study. It is the opinion of the PI that the domains introduced in this study are relevant regardless of the assignment the registered nurse holds. We must be cognizant and appreciate key facts that are described and expressed in the literature such as how evidence can

link individuals potentially to a crime scene and potentially to each other. How powerful is that?

This research has pointed out that registered nurses caring for a patient who have undergone or instituted horrific acts of violence having suffered an act of violence are responsible for the documentation of evidence and may also be asked to testify as a witness in a subsequent criminal or civil trial as a result of their actions. In addition, the registered nurse, during this collaboration with law enforcement must remain unbiased in their actions realize that all patients have rights, whether they are victims or suspect of a crime and, with that mind, collect evidence competently because an individual who is truly guilty of a crime should not go free because evidence was mishandled (McCraken, 1999; Evans and Stanger, 2003).

At this point it is important to revisit the triangulated theoretical framework mentioned earlier and now include the domains (knowledge, attitude, practices and beliefs) used in this survey research. This is important to incorporate based on what has been discussed and highlighted through statistical findings, re-examining that framework and exploring how those domains (knowledge, attitudes, practices and beliefs) may have an effect on the outlook (otherwise

known as perception) of the registered nurse with regard to criminal

evidence in the healthcare setting. As it was determined, perception is

not associated with their current assignment, but interestingly enough,

the knowledge and beliefs have a relationship and the attitudes and

practices also have a relationship.
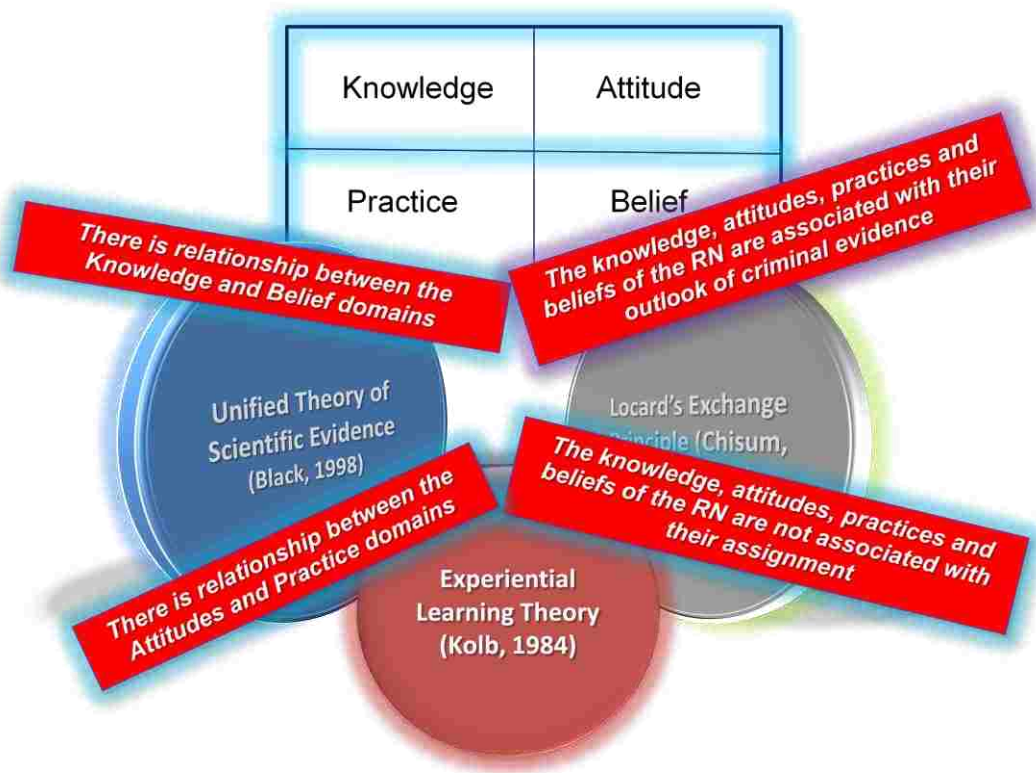
© J. Cordoma, 2016

Figure 12. **Theoretical Framework with Research Findings. This figure illustrates the PI conceived theoretical framework with research findings overlaying the theories and research domains.**

In this discussion, we need to remember that there is paucity of the literature as is related to the topic of "outlook" and the registered nurse. What is important about the findings in this study is that knowledge is about what the registered nurse is supposed to be doing, attitude is about the perceptions of the registered nurse, practices speak to the registered nurse remaining unbiased despite who they encounter while also remaining vigilant for evidence and victimization and finally beliefs is about what the registered nurse believes they should be doing. This all relates to how the registered nurse performs their duties. This all relates to how they interact with all individuals potentially involved in criminal activity.

We need to make sense of the relationship of knowledge and belief; specifically the relationship highlighted in research question number two. Statistical analysis in this research has showed a relationship; a weak one, but still a relationship between the two domains (knowledge and beliefs). What does this mean? Simply, it means that the knowledge and belief, when speaking of outlook, may predict the actions of the registered nurse.

The relationship between the two; however weak, speaks volumes because the tool to measure those domains is novel; there is nothing in the current literature to provide this type of measurement.

So, what has been discovered is that when exploring those two domains, developing an understanding of the relationship between the two is vital when exploring registered nurse perception as it related to criminal evidence. It is also extremely vital because making sense of the two domains could help understand the actions of the registered nurse when encountered with forensic evidence issues.

The existence of the weak relationship could also be because of the novelty of this particular and specific research. The nurses surveyed have never been questioned in a manner as such to explore these domains which pertain to their perceptions of criminal evidence. We could assume that some of these nurses have never been in a scenario which allowed for them to test their knowledge or beliefs about a certain action. However, with that said, gaining a basic knowledge and understanding of the evidence topic could factor in beliefs that may be different to those who have not had that same basic understanding. Think of it this way; before you learned how to ride a bicycle you may have thought that it was a silly hobby. Once you learned how to ride a bicycle, your beliefs of it being a silly hobby have now changed. This same concept could be applied to this discussion. Before gaining the knowledge of criminal forensics in the healthcare setting, the beliefs of taking actions to identify and preserve evidence

were lacking; however, once acquiring a basic knowledge of the topic may change those beliefs into something more positive with regard to the actions of the registered nurse when encounter in a situation that requires actions to be taken related to criminal evidence identification and preservation.

The healthcare facility could be chaotic when a trauma patient arrives. We have learned through this research that the emergency department is most often the initial location where a victim or suspect presenting injuries related to criminal activity may encounter the care of a registered nurse. It is important to realize the responsibilities of the registered nurse with regard to the collection and preservation of forensic evidence while also keeping in mind that an individual who is guilty of a crime should not be allowed to walk free because evidence was mishandled (Eisert, et al., 2010; Evans and Stanger, 2003).

The majority of the victims of violence are being seen in emergency rooms and critical care areas and this compels the registered nurse to be educated in the matters related to forensic evidence (Pasqualone and Michel, 2015). The most difficult hurdle to overcome is defining what exactly evidence is (Mund, 1996). This is a crucial statement, especially when hospitals and their personnel, "...assume considerable liability...for detecting, collecting, and

preserving evidence, as well as for reporting and referring the cases to appropriate law enforcement or judicial authorities" (Hoyt, 2006).

Taking into account these discussions and the information derived from the literature and professional experiences, it is the belief of the PI that the registered nurse has the desire to become more educated in all matters related to criminal evidence. This was also supported in the analysis of the survey data gathered from this study.

We also need to make sense of the relationship of attitudes and practices; specifically the relationship highlighted in research question number three. Analysis here also showed a relationship; a weak one, but still a relationship between attitudes and practices. What does this mean? It could mean that the attitude and practices, when speaking of outlook, may too also predict the actions of the registered nurse. The relationship between the two speaks volumes because the tool to measure those domains is novel. When exploring the attitude and practices of the registered nurse, it has been discovered that this relationship helps us understand the actions and perceptions of the registered nurse pertaining to their decision-making when confronted with issues related to criminal evidence.

The weak relationship between the two domains could be because of the subjective nature of the registered nurse attitude and

practices. Certain scenarios may lead to certain decisions being made. It is difficult to pinpoint an exact attitude and practice to abide by each time. For example; if a police officer is involved in a use of force decision, does he/she draw their weapon immediately or do they try to de-escalate the situation through other means? This depends on specific scenario at-hand. As for a registered nurse, does he/she act in a manner as to focus primarily on identifying evidence at all times when encountered with a victim or suspect of a crime? The answer to that question is no. Certain scenarios may lead the registered nurse to concentrate more on stabilizing or treating a patient rather than worrying about evidence. It all depends on the situation at-hand at the time.

Registered nurses tackle a great deal of uncertainty with regard to criminal evidence. They also must tackle with the resulting issues of their practices in the healthcare setting when encountering victims or suspects of crime. Do they want to become involved in a criminal investigation? Uncertainty of the registered nurse regarding criminal evidence could have an effect on both their attitude and practices. The registered nurse could diminish their uncertainties through the basic education of criminal evidence and forensics. A basic foundation and understanding of matters related to criminal evidence

could assist in times when law enforcement may interact with the healthcare professional. Police interactions with the registered nurse may involve the gathering of statements involving the actions taken by them with respect to identifying and preserving criminal evidence. The registered nurse must keep in mind that all patients have rights, whether they are victims or suspect of criminal activity, and with doing so, still collect forensic evidence competently (McCraken, 1999). This frame of thought allows for the nurse, just like a crime scene investigator, to remain unbiased throughout the process of evidence collection, maintaining the integrity, relevance and credibility at the same time.

Taking into account the information the discussion above and the subsequent data analysis conducted based on the survey results for this research, there is evidence which supports that the registered nurse is eager to become more educated in all matters related to criminal evidence and also in interactions with law enforcement. In addition, this furtherance of education for the nurse may allow for the uncertainty to diminish and for the comfort level to rise when interacting with law enforcement officials.

Practical Implications

Practical implications to this study tie to three main concerns highlighted by the PI. When revisiting the main problem; forensic nurses are not always on duty when a patient enters a healthcare facility with criminal evidence on them, we need to ask ourselves, why is this a concern?

We have learned that the forensic nurse is trained in matters related to criminal evidence and law enforcement investigation; the registered nurse is typically not. We also learned through the literature that probability of the registered nurse to encounter victims or suspects of crime in a healthcare facility is high and that medical personnel have responsibilities to treat patients while ensuring evidence is not compromised in that process(Johnson, 1997; Evans and Stanger, 2003). This leads the PI to the three main concerns highlighted in this study: the loss of evidence, the contamination of evidence and the destruction of evidence; all pertaining to the healthcare setting. These three main concerns can be associated to the themes of the three theories chosen by the PI described previously.

In summary, if an registered nurse is improperly educated in evidence collection and preservation (knowledge, attitude, practices and beliefs not included) it could mean the potential loss of legal claims for the prosecution and the potential for a criminal to be set

free. The PI would like to propose to educators in the healthcare setting, who develop curriculums around the multiple disciplines, to incorporate basic evidence recognition and preservation techniques in both singular (one-on-one) atmospheres and also in group/team exercises that highlight positive and negative practices through experience and exposures to different actions/reactions by nurse colleagues in controlled environment scenarios.

Healthcare educators should also incorporate both guest speakers/lecturers and coursework which allows the registered nurse to demonstrate their knowledge on the topic of criminal evidence by interacting and communicating with experts in the field to further develop their understanding of the topic. This could also be accomplished through in class and mock settings where the nurse could actually react to situations posed to them under the experts' guidance.

Nurse curriculums, with respect to criminal evidence in the healthcare setting, should encompass information that would educate all levels of individuals having ideas about what evidence is and what to do in certain circumstances when evidence is presented to them. This would broaden the awareness of criminal evidence while touching upon all levels of understanding and exposure of the students. In other

words, a certain level of education would be presented to those who may have had a basic education in criminal evidence from earlier coursework and another would be presented to those who may have never been exposed to the topic. Once again, similar to residency requirements in the medical field with regard to education and practical experience; the same should apply to the curriculum surrounding the topic criminal evidence preservation. This could be accomplished in the form of shadowing a forensic nurse in the field, shadowing a medical examiner or coroner, or requiring a specific set of hours of testing in a mock setting where the student could be tested in certain scenarios where the student would have to identify and preserve evidence.

Finally, what about the administrators in the healthcare field? The registered nurse employee within the healthcare setting may have the desire to become educated in the field of criminal evidence; however, where do they go to get that education? The administrators within the healthcare field need to acquire the basic know-how as to developing and incorporating this level of training within their institutions. Healthcare administrators need to develop a sense of understanding as to the need to develop this type education in their institution; the RNCEA© survey tool may be that tool to help begin that

exploration within their institution. As touched upon in the upcoming

Future Studies section, this tool may be expanded to explore the

different levels of the healthcare individuals present in an institution.

Variations of this tool (to address the specific levels of the healthcare

individual) may provide better results for the healthcare administrator

to enhance their level of response with regard to education

development for their employees.

Limitations

The limitations of this particular study consist of first, the general

results of study. The study inferred a general principle and trend from

the data. The statistical analysis following the collection of the data

allowed me to then form a general conclusion. Second, the study

employed convenience sampling by "snowball". This type of sampling

procedure must assume that the population being studied is the

correct population as intended. Finally, non-trauma designated

facilities were surveyed. In reality, severely injured patients tend go to

trauma facilities first, then lesser facilities. This may be an argument

posed by some with regard to some of the results obtained; however,

this was done purposely and to highlight the fact that non-trauma

centers are just as important as trauma facilities with regard to having

the ability to identify and preserve evidence. Victims or suspects of a crime could go to either type of facility to seek treatment.

Future Studies

For future research, the PI would like to see the survey expand geographically in an effort to gather a more significant and detailed study. The PI would also like to see the survey expand to include more qualitative (open-ended) questions in an effort to obtain a wider range of answers and comments regarding the domains. Those responses received will aid in the potential future variations of the tool to gather potentially better results to expand the exploration of the outlook of the participant regarding criminal evidence in the healthcare setting.

The PI would like to focus on pediatric and geriatric locations. These locations house the most vulnerable populations and arguably the most fragile. Children's hospitals and nursing homes, specifically the caretakers within, would be the intended locations and personnel to conduct future research. The PI is interested in analyzing the results of that research utilizing the PI developed RNCEA© survey tool to search for variations in responses received in comparison to other survey responses from general, non-specific pediatric or geriatric locations.

Future research should also focus on medical doctors (MDs) and physician assistants (PAs). These are those individuals who have the

opportunity to be presented with circumstances involved in the removal of evidence from patients in a more invasive nature. This specifically ties in to the Practical Implications section previously discussed with regard to educating different levels of the healthcare individual. The MDs and PAs educational background is of concern with regard to their experience and familiarity of criminal evidence recognition. This background and familiarity could speak to their outlook, similar to the registered nurse in this research. Similar to the pediatric and geriatric comments above, the PI is also interested in analyzing the results of a research utilizing a variation of the PI conceived RNCEA© survey tool to compare the results to other survey responses from other members of the healthcare system who may encounter victims and suspects of criminal activity seeking treatment in a healthcare setting.

The PI would also like to focus on specific locations within a healthcare setting such as emergency rooms and operating rooms. These are locations which contain personnel potentially removing criminal evidence during more invasive procedures. The results of the PI created RNCEA© survey tool responses within these locations, in comparison to the same locations in other hospitals, could provide for valuable insight to the training and experiences received in specific

regions being researched with respect to uniformity and level of training.

Finally, any study related to this topic should also focus on other first responders such as emergency medical technicians and paramedics. These are individuals who, like law enforcement officials, may be in actual crime scene removing victims or suspects from a location for purposes of transporting them to healthcare facilities for treatment. They are the first line medical personnel to actually encounter criminal evidence at the scene of a crime and will have the opportunity to actually identify and preserve such evidence in an effort as to not lose or destroy it. A variation of the PI developed RNCEA© survey tool provided to this population would gather information relevant to the first encounter of a patient with evidence and the steps taken by the survey participant with regard to preserving evidence on a patient at the scene. Comparing the results of this survey against other similarly trained participants from another region could also be used to explore uniformity in training and experience.

The PI conceived RNCEA© survey tool was provided to registered nurses only for this study. Although they can be considered one of the first line encounters; a study should consider all players in the healthcare facility. The primary gap highlighted in this research was

surrounded by the knowledge of the registered nurse. According to

the statistical results; knowledge was scored high based on individual

participant results. This could be as a result of self educating; however,

we cannot be sure. The questions posed in the PI conceived RNCEA©

survey tool were considered basic to the seasoned criminal evidence

expert, and this was done purposely to begin the exploration of

registered nurse knowledge and perception towards the topic. For

future studies of topic of criminal evidence in the healthcare setting, a

different variation of this tool could be generated which would focus

on *straight knowledge* vs. *knowledge application* leading to actions to

gain a better insight on the perceptions of the registered nurse and

help better measure the competency of the participant.

Impact on Future Studies

So what? What impact will this study have on future literature or

the understanding of the field of forensic evidence in the healthcare

system? The goal of this study was to provide some insight into the

perceptions of the registered nurse in the healthcare setting. A basic

understanding of physical evidence, by the registered nurse, could

greatly increase the capture of criminals, plain and simple. The survey

tool employed in this study supported the fact that the registered nurse

has a positive outlook with regard to the topic of criminal evidence in

the healthcare setting. The hopes are that this study will open the doors to many more studies that incorporate the healthcare system and law enforcement.

The clear-cut method of combating the concerns highlighted by the PI regarding criminal evidence in the healthcare setting and the registered nurse (loss, contamination and destruction of evidence) can be addressed positively by incorporating an educating curricula in the infancy stages of the nurse candidate in a classroom setting. This should then be followed by subsequent post-graduate employment based in-service refresher curricula that provides updates to the trends surrounding criminal evidence identification and preservation.

The survey tool administered for this research lacked open-ended responses for the participant outside of the demographic section. This was purposely done to illicit clear (non-mediocre) responses to the questions that should all have a clear-cut response. However, to further gain insight as to how the participant feels towards a specific section or question outlined in the survey, the PI could, for future research, illicit additional qualitative, open-ended responses (as highlighted in the "Future Studies"). Participant opinions towards the questions posed in this survey could prove to become beneficial towards gearing a specific curriculum to potentially address the results

of the survey for future participants. To gather participant data in a qualitative fashion may allow for the PI to highlight trends in responses which may aid in the better understanding as to why a participant answered a question the way they did or even provide the participant with the option to explain a specific action in more detail as to why they would act in a certain fashion as a certain time.

Participants outside of the registered nurse practice who may participate in this specific survey may also provide interesting and beneficial insight to the healthcare practice and the perceptions of criminal evidence within. Medical doctors and physician assistants may provide answers highly unrelated to the registered nurse participants, or they may not. It would be an interesting concept to research simply because in reality they may also encounter the same victim or suspect of a crime at a very different time but in the same overall instance. A victim or suspect may be introduced into a healthcare setting, encounter a nurse immediately (who may or may not identify criminal evidence) and then be seen by an attending physician (who may also be encountered with a scenario of identifying criminal evidence). Perceptions based upon the training and experiences of the two may affect how criminal evidence is identified and preserved.

Finally, the spread of trauma centers across various locations has an effect of not only the treatment and lifespan of a patient but also the treatment and lifespan of evidence. Those operating in trauma centers have the upper hand in familiarity of criminally influenced trauma-related injuries (i.e. gunshot wounds, physical assaults, etc...). The more they see, the more they become familiar with the actions surrounding the treatments and protocols surrounding evidence preservation. Conducting this research in trauma centers may provide insight to the level of familiarity and type of education received by these trauma center members. In addition, a lot could be learned about other locations and their protocols which may be place regarding law enforcement related issues; the key is to be on the same page (figuratively speaking) with regard to criminal evidence so as not to deviate from a successful outcome with regard to the proper handling and preservation of evidence which may play a critical role in the prosecution of a crime.

The take home message here is that both the healthcare and law enforcement professionals work each and every day assisting those in need. We must be cognizant and understand and appreciate the fragile nature of physical evidence while also keeping in mind the concern for cross contamination. The registered nurse will encounter

patients as one of the frontline personnel who intervene to render aid. They see and speak to victims/suspects of crime, provide treatment and as highlighted in this study, potentially encounter evidence. Being the frontline personnel means the potential to encounter potential evidence that may be necessary for crime prevention through legal means. Without proper guidelines and knowledge of criminal evidence recognition, identification, collection and preservation could result in the potential destruction, damage or lose of fragile evidence needed for the proper conviction in criminal proceedings.

Members of the law enforcement and healthcare communities both encounter threats and place themselves in physical and emotional harm every time they set foot out of their own homes and into the lives of others. As learned during researching the literature and through personal experience, the potential exists for members of the healthcare system, not just those in the emergency room, to encounter a victim or suspect of a crime. Yes, forensic nurses exist and are present some of the times, but what really happens when one is not present? Would the registered nurse know what to do? Would you want your loved one to fall victim twice…first during the commission of a crime and second when potential fragile evidence is lost off their body and the individual who committed a horrible act upon them gets away?

This research study was not conducted with the intentions of

suggesting that registered nurses become evidence collection experts;

however, it would be beneficial and comforting to know that the

registered nurse feels confident enough to know what evidence looks

like and how to preserve and collect it.

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Appendices

Appendix A

(Principal Investigator Qualifications to Conduct Research)

PI Qualifications to Conduct Research

The PIs professional qualifications include being currently employed as a County Investigator/Detective for over fifteen (15) years. During the course of those years, the PI has been employed within two (2) separate county Prosecutor's Offices located in the state of New Jersey and has also interned with the United States Secret Service and the White House.

The PI has over fifteen years experience in both law enforcement and criminal evidence matters. The bulk of the law enforcement experience has concentrated on major crime investigations (i.e. crime scene/forensics, arson, death investigations, etc…). In addition, the PI has provided sworn testimony in Superior court for investigations that have involved the actions of identification, collection and preservation of criminal evidence. During the course of testimonial experiences in Superior court, the PI have been qualified as an expert in crime scene investigation, crime scene diagramming and bloodstain pattern analysis.

With regard to additional training and education, the PI currently possesses a Master of Arts (M.A.) degree in Criminal Justice, and a Bachelor of Arts (B.A.) degree in Criminal Justice. The PI also holds professional education and teaching experiences, including past

employment as an adjunct/instructor for a community college teaching arson investigation and crime scene related instruction. In addition, the PI is also a certified police academy instructor teaching crime scene investigation and evidence collection to police academy recruits and sworn investigators/officers.

Appendix B

Seton Hall University Letter from the Institutional Review Board

(September 30, 2015)

Note: The institutions have requested redacting of their locations in any

and all correspondences in any dissertation publications.

OFFICE OF INSTITUTIONAL REVIEW BOARD

SETON HALL UNIVERSITY

September 30, 2015

Joseph Cordoma

████████████

Dear Mr. Cordoma,

The Seton Hall University Institutional Review Board has reviewed your research proposal entitled "Exploring and Understanding the Factors that May Influence the Outlook of Registered Nurses Regarding Potential Criminal Evidence Identification, Collection, and Preservation on Patients Presented to Them" and has categorized it as exempt.

Only three research locations are approved:

████████████████████

Atlantic Health System is **not** approved yet. Research at that site(s) can be added *via* amendment once approval is granted by that health care system's IRB and documentation is submitted to the Seton Hall University IRB.

Conditional approval for your research at Trinitas Medical Center is granted. The condition will be removed once you submit documentation that their IRB has approved your research. Until that time, you are not to conduct research there.

Enclosed for your records is the signed Request for Approval form.

Please note that, where applicable, subjects must sign and must be given a copy of the Seton Hall University current stamped Letter of Solicitation or Consent Form before the subjects' participation. All data, as well as the investigator's copies of the signed Consent Forms, must be retained by the principal investigator for a period of at least three years following the termination of the project.

Should you wish to make changes to the IRB approved procedures, the following materials must be submitted for IRB review and be approved by the IRB prior to being instituted:

- Description of proposed revisions;
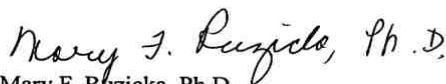
- *If applicable*, any new or revised materials, such as recruitment fliers, letters to subjects, or consent documents; and
- *If applicable*, updated letters of approval from cooperating institutions and IRBs.

At the present time, there is no need for further action on your part with the IRB.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,

Mary F. Ruzicka, Ph.D.

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Deborah DeLuca

Appendix C

Seton Hall University Letter from the Institutional Review Board

(October 19, 2015)

OFFICE OF INSTITUTIONAL REVIEW BOARD

SETON HALL UNIVERSITY

October 19, 2015

Joseph Cordoma

████████████

Dear Mr. Cordoma,

The IRB hereby approves the two requested amendments to your research protocol, "Exploring and Understanding the Factors that May Influence the Outlook of Registered Nurses Regarding Potential Criminal Evidence" to:

1. modify your Letter of Solicitation as indicated in your letter of October 8, 2015
2. modify your Recruitment Flyer as indicated in your letter of October 8, 2015.

Sincerely,

Mary F. Ruzicka, Ph.D.

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Deborah DeLuca

Please review Seton Hall University IRB's Policies and Procedures on website (http://www.provost.shu.edu/IRB) for more information. Please note the following requirements:

Adverse Reactions: If any untoward incidents or adverse reactions should develop as a result of this study, you are required to immediately notify in writing the Seton Hall University IRB Director, your sponsor and any federal regulatory institutions which may oversee this research, such as the OHRP or the FDA. If the problem is serious, approval may be withdrawn pending further review by the IRB.

Amendments: If you wish to change **any** aspect of this study, please communicate your request in writing (with revised copies of the protocol and/or informed consent where applicable and the Amendment Form) to the IRB Director. The new procedures cannot be initiated until you receive IRB approval.

Completion of Study: Please notify Seton Hall University's IRB Director in writing as soon as the research has been completed, along with any results obtained.

Non-Compliance: Any issue of non-compliance to regulations will be reported to Seton Hall University's IRB Director, your sponsor and any federal regulatory institutions which may oversee this research, such as the OHRP or the FDA. If the problem is serious, approval may be withdrawn pending further review by the IRB.

Renewal: It is the principal investigator's responsibility to maintain IRB approval. A Continuing Review Form will be mailed to you prior to your initial approval anniversary date. **Note:** No research may be conducted (except to prevent immediate hazards to subjects), no data collected, nor any subjects enrolled after the expiration date.

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Appendix D

Seton Hall University Letter from the Institutional Review Board

(January 25, 2016)

Note: The institutions have requested redacting of their locations in any

and all correspondences in any dissertation publications.

OFFICE OF INSTITUTIONAL REVIEW BOARD

SETON HALL UNIVERSITY

January 25, 2016

Joseph Cordoma

███████████████

Dear Mr. Cordoma,

The IRB hereby approves the requested amendment to your research protocol, "Exploring and Understanding the Factors that May Influence the Outlook of Registered Nurses Regarding Potential Criminal Evidence Identification, Collection, and Preservation on Patients Presented to Them" to add the following performance sites:

- ██████████████████
- ██████████████████
- ██████████████████

Sincerely,

Mary F. Ruzicka, Ph.D.

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Deborah DeLuca

Please review Seton Hall University IRB's Policies and Procedures on website (http://www.provost.shu.edu/IRB) for more information. Please note the following requirements:

Adverse Reactions: If any untoward incidents or adverse reactions should develop as a result of this study, you are required to immediately notify in writing the Seton Hall University IRB Director, your sponsor and any federal regulatory institutions which may oversee this research, such as the OHRP or the FDA. If the problem is serious, approval may be withdrawn pending further review by the IRB.

Amendments: If you wish to change **any** aspect of this study, please communicate your request in writing (with revised copies of the protocol and/or informed consent where applicable and the Amendment Form) to the IRB Director. The new procedures cannot be initiated until you receive IRB approval.

Completion of Study: Please notify Seton Hall University's IRB Director in writing as soon as the research has been completed, along with any results obtained.

Non-Compliance: Any issue of non-compliance to regulations will be reported to Seton Hall University's IRB Director, your sponsor and any federal regulatory institutions which may oversee this research, such as the OHRP or the FDA. If the problem is serious, approval may be withdrawn pending further review by the IRB.

Renewal: It is the principal investigator's responsibility to maintain IRB approval. A Continuing Review Form will be mailed to you prior to your initial approval anniversary date. **Note:** No research may be conducted (except to prevent immediate hazards to subjects), no data collected, nor any subjects enrolled after the expiration date.

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M E   F O R   T H E   M I N D .   T H E   H E A R T   A N D   T H E   S I

Appendix E

Letter of Solicitation and Informed Consent for Research Study

SETON HALL ⛪ **UNIVERSITY™**
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LETTER of SOLICITATION for NURSING EVIDENCE STUDY

Dear Registered Nurse:

My name is Joseph Cordoma. I am currently a doctoral candidate within the School of Health and Medical Sciences at Seton Hall University. I am in the process of conducting a research study as part of my doctoral dissertation.

Purpose

The purpose of the study is to explore the factors that may influence the outlook of registered nurses regarding the potential criminal evidence identification, collection and preservation on patients presented to them. Literature suggests that healthcare professionals have been called upon to assist law enforcement and the criminal justice system on various occasions. An example of how the healthcare system has aided in their response to the criminal justice system was the implementation of forensic nursing.

The likelihood of the registered nurse to encounter a victim or suspect of criminal activity during their daily course of duties is high. This survey explores questions such as: What are the nurses' feelings toward looking for or even handling potential physical evidence on that victim or suspect who is now their patient?

Procedure

You are invited to participate in this survey study. You are being asked to complete this survey ONLY if you fall within the inclusion criteria for participants. The inclusion criteria are defined below.

The participant must be:
- A currently registered nurse in the United States or any of its possessions or occupied territories (Guam, American Samoa, Puerto Rico, US Virgin Islands, Military bases worldwide AFO/FPO) and
- Employed within a hospital/medical center, and
- Assigned to work in any capacity or unit other than as a forensic nurse or Sexual Assault Nurse Examiner (SANE), and
- Currently licensed to practice, and
- A male or female adult, 18 years old or older, and
- English speaking and have the ability to read and respond in English, and
- Able to have access to a computer with internet capabilities

If you fall within the inclusion criteria you may complete the survey by going to the website address (provided below) containing the electronic survey. If you do not fit the inclusion criteria, please feel free to pass this letter and the electronic survey website address to whomever you feel may qualify to take it.

This research study will incorporate the recruitment technique known as snowball sampling which means you are encouraged to forward this email and survey website address to anyone who you think meets the inclusion criteria to complete this survey and participate in this study. This applies whether you choose to complete the survey or not. This technique allows for me to reach a larger population for my survey and provide better results. ***This attached website address is not unique to you***; instead, it may be forwarded to anyone who you feel is capable and fits the inclusion criteria to participate in this survey-based research study.

Completing this survey will take approximately ten (10) to fifteen (15) minutes. You WILL NOT be timed and will be allowed to complete this survey in sections (taking time in between) if you wish.

A HOME FOR THE MIND, THE HEART AND THE SPIRIT

Participation

Your participation in this survey is appreciated; however, there is no obligation. Your participation of this research study and choice to complete this survey is voluntary. You may decide at any time to not participate. Choosing not to participate will not impose any penalty whatsoever. If you choose not to participate you will not be penalized nor will you lose any benefits to which you are otherwise entitled.

By choosing to complete the survey you acknowledge that you are providing your consent to participate in this study.

Anonymity

Your identity will not be collected as part of this study. This means that your name, address and other specific identifiers or personal information will not be asked of you or collected in any way. All of your answers will be recorded anonymously and there will be means of contacting you afterwards. There is no method of pinpointing or linking your responses directly to you. The results of my study may be published; however, once again, there will be no way to identify you or any other individuals completing the survey.

Data

The study data will be kept confidential to protect its integrity. The data will be stored on a USB drive and will be locked in a cabinet in the office of the Principal Investigator (PI). The PI will have access to all of the data for a period of up to three (3) years after the end of the study. After three (3) years, the data will be destroyed.

Risks / Benefits

There is no foreseeable risk or any discomfort anticipated by your participation in this research study. In addition, there are also no foreseeable direct benefits by your participation as well.

Compensation

There will be no monetary or any other form of compensation for participating in this research study.

Participation

The survey will be made available on the SurveyMonkey® electronic survey website. By accessing and completing the survey, you are conveying your informed consent to participate.

The website containing the electronic survey is:

https://www.surveymonkey.com/r/BFKNX7Z

Please forward this letter containing the brief study information and survey website to anyone who you think meets the inclusion criteria to complete this survey and participate in this study. Once again, this applies whether you choose to complete the survey or not. Should you decide to participate in this study, please only take the survey once.

Additional Information

If you decide that you have an interest in learning more about this research study or about the topic itself, please feel free to contact me through the office of Deborah A. DeLuca, MS, JD, Dissertation Chair, Dept. of Interprofessional

Health Sciences and Health Administration, School of Health and Medical Sciences, Seton Hall University, at (973) 275-2842 or deborah.deluca@shu.edu.

For survey questions, please contact the Chair of the Institutional Review Board at Seton Hall University, Dr. Mary Ruzicka, at (973) 313-6314.

Thank you for consideration to participate in my research study. Your contribution to my dissertation research is appreciated.

Joseph Cordoma, M.A, Doctoral Candidate
Dept. of Interprofessional Health Sciences and Health Administration, School of Health and Medical Sciences
Seton Hall University

Appendix F

Recruitment Flyer for Research Study

SETON HALL UNIVERSITY
1 8 5 6
Recruitment Flyer

Registered Nurse and Criminal Evidence Assessment Survey (RNCEA)

EVIDENCE

(www.fameimages.com)

Exploring and Understanding the Factors that May Influence the Outlook of Registered Nurses Regarding the Potential Criminal Evidence Identification, Collection and Preservation on Patients Presented to Them.

PURPOSE of the STUDY
The RNCEA addresses four (4) domains which surround the practice of how the healthcare personnel and law enforcement are collaborating to increase the conviction rate of criminals by understanding the basic concepts of evidence. This voluntary study is intended for registered nurses in order to help identify the outlook of the registered nurse and to understand the differences, if any, that may exist between the registered nurses' primary assignment within the healthcare setting and the specific domain responses which the survey tool is capturing.

DURATION of the SURVEY
Estimated length of time to complete the electronic survey is 10-15 minutes.

PROCEDURES
Participants will be asked to complete the electronic survey via SurveyMonkey®. The survey will consist of approximately 50 questions/statements which the participant is asked to provide one (1) response (i.e. yes/no, agree/disagree). The participant will also be asked to provide answers to approximately five (5) demographic questions. **NO PERSONAL INFORMATION IS ASKED OR REQUIRED.**

TO PARTICIPATE ONE MUST BE:
- A currently registered nurse in the United States or any of its possessions or occupied territories (Guam, American Samoa, Puerto Rico, US Virgin Islands, Military bases worldwide AFO/FPO) and
- Employed within a hospital/medical center, and
- Assigned to work in any capacity or unit other than as a forensic nurse or Sexual Assault Nurse Examiner (SANE), and
- Currently licensed to practice, and
- A male or female adult, 18 years old or older, and
- English speaking and have the ability to read and respond in English, and
- Able to have access to a computer with internet capabilities

If you fall within the inclusion criteria you may complete the survey by going to the website:
https://www.surveymonkey.com/r/BFKNX7Z. If you do not fit the inclusion criteria, please feel free to pass this letter and the electronic survey website address to whomever you feel may qualify to take it.

VOLUNTARY NATURE OF THE STUDY
Participation is completely voluntary and participants can withdraw at any time with no penalty, prejudice or questions asked.

ANONYMITY and CONFIDENTIALITY
All information will be kept strictly confidential and anonymous. You will not be asked to provide any personal information. You will not be identified by name or description in any report of subsequent publications of this study.

FOR ADDITIONAL DETAILS
Please contact: Joseph Cordoma, Doctoral Candidate, School of Health and Medical Sciences - Seton Hall University (973) 275-2076 or at: joseph.cordoma@student.shu.edu

School of Health and Medical Sciences
Department of Interprofessional Health Sciences and Health Administration
Tel: 973.275.2076 • Fax: 973.275.2171
400 South Orange Avenue • South Orange, New Jersey 07079 • gradmeded.shu.edu

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Appendix G

PI created Registered Nurse and Criminal Evidence Assessment

(RNCEA©) Survey Tool

Note: Those who may have an interest in viewing this tool are asked to

contact the PI at Seton Hall University at

joseph.cordoma@student.shu.edu or through the office of Deborah A.

DeLuca, MS, JD, in the Department of Interprofessional Health Sciences

and Health Administration, School of Health and Medical Sciences,

Seton Hall University, at (973) 275-2076 or deborah.deluca@shu.edu.