



ORIGINAL ARTICLE

Caring for the forensic population: recognizing the educational needs of emergency department nurses and physicians

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Abstract

The Emergency Department (ED) is a point of contact for victims of violence after an act of criminal activity has occurred. Hence, ED clinicians are in a key position to have a significant impact on both the medical and legal outcomes of the forensic patient population. The purpose of this study was to describe and compare forensic knowledge, practice, and experiences of ED nurses and physicians. Specific aims were to (1) describe experiences of nurses and physicians related to forensic practice; (2) compare clinical forensic knowledge and experience between nurses and physicians; and (3) describe forensic learning needs. This descriptive, correlational study utilized a survey questionnaire completed by 134 ED nurses and physicians. Results of the survey revealed no significant differences in the education, knowledge, and confidence with forensic patients between ED nurses and physicians. However, just over half of the sample reported feeling confident in managing forensic patients indicating a need for increased forensic education. Practice implications indicate that forensic education is needed and desired among ED nurses and physicians within the clinical setting. Further studies must be done to gain a more in depth understanding of existing forensic practices and protocols to elevate the level of care received by forensic patients within the ED setting.

Introduction

Emergency departments (EDs) across the country are becoming inundated with an increasingly complex and acutely ill patient population. Emerging within the trend of complexity is an often unrecognized and underappreciated population known as the forensic patient. The ED is frequently the first, if not the only place of contact for victims of criminal activity (Lynch, 1995). Consequently, there is a need for adequately trained ED nurses and physicians to provide safe and proficient care to the forensic patient population while collaborating with the criminal justice system to meet the holistic needs of patients. "Nurses working in the ED are in the ideal position to identify, preserve, and collect potential physical evidence" (Hoyt, 2006, p. 259). Healthcare providers in the ED setting can significantly impact the health outcomes of victims, and perpetrators of criminal activity

and the potential judicial outcomes of cases arising out of such criminal activity (Sekula, 2005). Limited research explores the educational training and knowledge related to forensic care of ED healthcare providers. This study attempts to fill this gap by describing and comparing forensic knowledge, protocols, and practice between ED nurses and physicians.

Background and significance

According to the most recent Criminal Victimization survey, an estimated 3.8 million violent crimes (e.g., rape, assault, robbery, and sexual assault) occurred in 2010 (Truman, 2011). While there has been an overall 39% decline in the violent crime rate over the last decade, violence remains as a priority concern at the forefront of national and local campaigns. *Healthy People 2020* targets Injury and Violence Prevention as one of its priority

objectives citing a goal of an overall 10% reduction in sexual violence, intimate partner violence, and homicides as compared to 2008 statistics (USDPH, 2011).

Similarly, the World Health Organization (WHO, 2004) report on preventing violence includes recommendations focused on violence, primary prevention strategies, and increasing support services for victims. This report also specifically highlights the need for forensically trained healthcare personnel. The report states “Victims of violence have a right to redress through criminal justice channels, yet because of the numerous barriers to reporting, investigating and prosecuting an assault case, especially a sexual assault case, comparatively few cases reach a courtroom and even fewer result in conviction” (WHO, 2004, p. 62). The report suggests the implementation of minimum standards for forensic evidence collection that indicate which persons are qualified to conduct a forensic examination. The report further recognizes the need for mechanisms that ensure the proper training of health workers responsible for conducting forensic examinations, including training on report preparation and court appearances (WHO, 2004).

Forensic education

Despite the increasing presence of victims and offenders in the ED, limited attention is devoted to the care of forensic patients in many medical and nursing school curricula (Freedberg, 2008). Forensic education for nurses exists in both informal and formal academic settings. Informal methods include educational workshops, continuing education courses, and certification programs. Formal academic education consists largely at the graduate level with various masters level programs offering either a Master in Science Nursing degree with a forensic concentration or an Advanced Forensic Nursing track. Forensic content at the undergraduate level exists on an elective basis and primarily consists of survey courses that are not solely directed at the nursing profession. Students at the undergraduate level are still afforded limited flexibility in their schedules for electives outside of their core content (Crane & Muscari, 2006).

Forensic care in the ED

Despite an overwhelming acknowledgment by professional nursing organizations, international health organizations and even state and local governments for forensically trained personnel within the ED setting, implementation of this standard has yet to be accomplished on even a small scale. There is an overall lack of research describing how practicing ED clinicians actually provide care to patients with forensic needs. Instead, there are a

host of articles that discuss how care *should* be provided to the forensic patient by ED clinicians and few if any studies that evaluate the quality of care or the outcome of care provided in the ED setting to victims and/or perpetrators of criminal and or violent activity.

One study examined the difference between ED nurses and intensive care unit (ICU) nurses with respect to their attitudes and beliefs related to forensics and their practices (Eldredge, 2008). This study of trauma nurses found that while the majority of nurses had some knowledge of forensics, ED nurses were more knowledgeable than ICU nurses. A review of the literature suggests that while forensic nursing education was introduced in universities and continuing education programs in the late 1980s and early 1990s, there was insufficient infrastructure to support it (Kent-Wilkinson, 2011).

Comparison of providers' forensic practice

Only one study was found that compared knowledge levels of ED clinicians with regard to assessment of forensic injuries. While physicians scored better than other ED clinicians, there were no significant differences in the assessment scores of ED nurses and physicians (Reijnders, Giannakopoulos, & de Bruin, 2008). This is important because all of the physicians in this study in the Netherlands had received forensic education and were deemed qualified in forensic medicine. ED physicians like ED nurses are often the first healthcare providers to encounter a patient following injury from an act of violence and/or criminal activity. Like the ED nurse, the ED physician must also be able to properly address both the potential medical and legal issues that accompany the forensic patient. Forensic medicine is regarded as a specialty form of medicine and unfortunately is not widely practiced by ED physicians. Ryan (2000) accurately characterizes the view of emergency medicine clinicians regarding clinical forensic medicine in the following statement: “The majority of emergency physicians have not given much thought to what forensic medicine is, or questioned how well it is practiced within our current level of training” (p. 271). Wiler & Bailey (2007) suggest that emergency medicine programs incorporate forensic medicine into their curriculum (p. 738). Although the American College of Emergency Physicians (AACP) has recognized the need for forensic medicine training, it is unclear how many domestic emergency medicine programs include forensic medicine in their residency programs.

The lack of research surrounding the educational needs of ED clinicians with respect to forensics in their practice is perhaps one of the largest barriers to the implementation of standardized quality care for this vulnerable

population. The era has come when competent and proficient forensic practice within the ED setting should no longer be a consideration but a constant and a minimum standard. The nurse can become an effective liaison between the medical and legal world, promoting patient dialogue and expression. In this bridge between the medical and legal arenas, the role of the forensic nurse becomes a vital asset. However, before this can be accomplished, the gap between academia and clinical practice must be lessened. In order to bridge this gap, it is paramount to first discover and evaluate the educational needs of ED healthcare providers.

Based upon the growing numbers of forensic patients in EDs, healthcare providers can and must integrate a forensic assessment into their practice while considering proper evidence recognition, collection, and preservation techniques (Lynch, 2010). Limited information exists that describes the state of forensic education in healthcare and more importantly how much training most clinicians in the ED receive.

The purpose of this study was to describe and compare forensic knowledge, practice, and experiences of nurses and physicians who work in the ED. Specific aims were to: 1) describe experience of nurses and physicians related to forensic practice; 2) compare clinical forensic knowledge and experience between nurses and physicians; and 3) describe forensic learning needs. Finally, this study provides support for the implementation of specific protocols to enhance the availability of training for and knowledge of medical staff that may help ensure that medical providers have the skills to collect, handle, and preserve vital evidence in the care of forensic patients in ED settings.

Methods

This descriptive correlational study describes the level of forensic knowledge and compares the practice of ED nurses and physicians related to care of the forensic patient. An electronic survey was used to examine forensic knowledge of ED nurses and physicians, availability of forensic resources, interest in forensic education, and knowledge of proper documentation.

Sample and setting

This study was conducted within the ED of two urban Level I Trauma centers in the Northeast. Both EDs are busy with high volume, receiving more than approximately 75,000 patients yearly. The patient population within both hospitals is ethnically and socioeconomically diverse. To participate in the study, individuals had to be

nurses or physicians, 18 years of age and older, and employed in the ED at either or both institutions. A non-probability sample was recruited by e-mail to participate in an electronic survey.

Sample size determinations

A pool of 316 of ED physicians and nurses were invited to participate in the study. The aim for this descriptive study was to have 128 usable surveys with a 40% retention rate (Dillman, Smyth, & Christian, 2009).

Data collection

After receipt of Institutional Review Board (IRB) approval, nurses and doctors within the ED of both Level I Trauma centers were recruited to anonymously complete an online survey generated by the Survey Monkey®. Hard copies of the survey were also made available to all staff members in order to ensure that everyone had an equal opportunity to complete the survey and so as not to discriminate against those who either did not have Internet access at their disposal, or who did not prefer to use computer technology. No one requested paper surveys. The survey was sent to participants as a secure hyperlink embedded within the initial e-mail letter of recruitment. The initial letter of recruitment solicited participants on a voluntary basis and provided a brief explanation of the purpose of the project as well as an explanation of how the data would be used. The survey was available for completion online for a period of 60 days. Participants were told that participation in the study implied informed consent. Internet protocol (IP) addresses were not collected and no names were given on the surveys; therefore, anonymity was provided and participants' confidentiality was protected. Using principles outlined by Dillman et al. (2009), a second e-mail was sent to all members of the target population. This letter served as a reminder to complete the survey or a thank you to those who had completed the survey.

Measures

The study utilized a researcher-designed questionnaire aimed at assessing the forensic competency of nurses and physicians within the ED setting. Content for the questionnaire was determined based on an extensive literature review through searches in CINAHL and MEDLINE. The search parameters used the key terms of forensic nursing, evidence collection, forensic medicine, SANE, and chain of custody in research articles. Articles from 2003-2012 were reviewed yielding 260 articles. The first author reviewed all of the articles and kept a list of

terms that were relevant to forensic practice, education, and knowledge. Forensic nursing and forensic evidence collection text books were also consulted when selecting content for the questionnaire (James & Nordby, 2009; Lynch, 2010, Saferstein, 2009) The questionnaire was developed to include gunshot wounds, stabbings, bullets, wound documentation, evidentiary documentation, and the interface between the healthcare and the criminal justice systems. Three experts in the field reviewed the questionnaire and gave input on the content validity, comprehensiveness, and readability.

The total survey was divided into seven thematic sections with a total of 50 questions. This analysis only uses 15 items; 4 demographic related questions and 11 questions related to forensic practice, confidence in practice, and educational needs. Each of the 11 items related to knowledge is worth five points with maximum score of 55 and a higher score indicating greater knowledge. Five questions asked for definitions of forensic terms, three tested a critical judgment for resource use, and the other three tested appropriate documentation skills. To examine documentation, a question asking the frequency of wound diagram use was selected. To determine if the practitioner is confident in providing forensic-related service, the following question was used: "Do you feel you could successfully recognize, collect, and document potential physical evidence from a victim of criminal activity given your current educational and clinical background?"

To explore forensic-practice-related educational needs in nurses and physicians, a question inquiring the degree of intention to attend three differently focused class options was used.

Data analysis

The statistical analysis package, SPSS[®] version 17, was used in the study. The alpha level was set at 0.05 based on two-sided hypothesized testing. Descriptive statistics were calculated for all variables and frequencies used to convey this information. Aim 1 provides descriptive data on the forensic experience of nurses and physicians. To compare the means of the total knowledge test score between nurses and physicians, a *t*-test was used. Aim 2 compared nurses and physicians on forensic knowledge and practice and confidence. Chi-square analysis compared type of profession to categorical variables related to forensic practice, confidence, testimony experience, and the wound documentation frequency. Aim 3 compared the educational needs of nurses and physicians. ANOVA was used to compare the interval variables for learning needs: the intention to attend to classes with following focuses: 1) forensic documentation; 2) courtroom testimony; and 3) forensic assessment.

Table 1 Demographics

Variable	Nurses		Physicians		χ^2
	<i>n</i>	%	<i>n</i>	%	
Gender					26.57*
Female	87	87.9	21		
Male	12	12.1	23	52.3	
Age					9.654
20–30 years	16	16.2	13	29.5	
31–40 years	31	31.3	20	45.5	
41–49 years	39	39.4	8	18.2	
>50 years	13	13.1	3	6.8	
Experience					35.14*
< 5 years	14	14.1	26	59.1	
5–9 years	19	19.2	8	18.2	
10–14 years	19	19.2	6	13.6	
> 15 years	47	47.5	4	9.1	
Testimony					0.001
Yes	22	22.4	10	22.7	
No	76	77.6	34	77.3	

**p* < 0.0005.

Findings

Description of the sample

The survey was distributed to a total of 316 ED nurses and physicians. A total of 176 participants completed the survey during the 60-day time period during which the survey was open. Hence, there was a 55.7% response for this study. Data from 134 participants were included for a primary data analysis. Incomplete surveys were excluded for further data analysis. Forty-three physicians and ninety-nine nurses were compared.

The demographics section of the questionnaire consisted of a total of four questions focusing on, age, gender, and type of profession (nurse or physician), professional experience (years), and testimony experience. As seen in Table 1, the range in ages of participants was from age 20–50 and over. Results also showed that the nurses had significantly more female participants than physicians. In terms of years of experience, significant differences were noted. Most physicians reported less than 5 years clinical experiences, whereas more than 45% of nurses reported more than 15 years of clinical experience.

Forensic experience

Aim 1 describes the forensic experience of nurses and physicians. Even percentages of nurses and physicians reported the experience of testifying in a court of law. Both professionals seem to have equal opportunities to assist victims during the legal process. Finally, only 13% (*n* = 19) of all participants had completed some

Table 2 Wound diagram use ($\chi^2 = 8.123, df = 2, p = 0.02$)

Wound diagram use	Profession	
	Nurses	Physicians
Never/almost never	52 (57%)	17 (41%)
Occasionally/some of the times	11 (12%)	10 (24%)
Some/most of the times	11 (12%)	10 (24%)
Always	17 (18%)	4 (7%)

educational training in forensics. The most common responses were courses for a Master’s degree in forensic nursing, SANE training, seminars, conferences, and residency experiences.

Forensic knowledge

Aim 1 was analyzed using a *t*-test. No significant difference between nurses and physicians existed for the total score on the forensic knowledge test ($t = 1.77, df = 141, p < 0.08$). The highest possible test score was 50. The mean total score of nurses was 37.7 points (SD 7.87), whereas the score of physicians was 40.1 points (SD 6.33). The result indicates that both professions held equal level of knowledge in forensic practice that is consistent with previous literature (Reijnders et al., 2008).

The frequency of wound diagram use

As seen in Table 2, cross tabs and Chi-square analysis indicated that the two professions differed significantly on the frequency of wound diagram ($\chi^2 = 8.123, df = 2, p = 0.02$). Wound diagram usage is reported always or most of the time by 40% of nurses and 31% of physicians. However, 41% of physicians reported never using a wound diagram as compared to 57% of nurses. In general, physicians more frequently utilized the wound diagram as compared to nurses. Nurses had a polarized pattern of the diagram using it either or always or not at all.

Confidence in practice

The participants’ confidence in providing forensic care was assessed using a Likert scale measure. A total of 58% of nurses ($n = 57$) and 54% of physicians ($n = 23$) reported that they were confident with recognizing, collecting, and documenting potential physical evidence. The differences between the professions were not significant ($\chi^2 = 0.026, p < 0.87$).

Education needs

There were significant differences in the likelihood of attending a forensic clinical documentation class

($F = 11.85, p < 0.0005$). Physicians ($M = 1.82, SD = 0.72$) demonstrated more interest in attending learning opportunities about forensic clinical documentation than nurses ($M = 1.42, SD = 0.61$). On the other hand, no significances were found in the likelihood of attending educational programs on courtroom testimony ($F = 3.691, p = 0.057$) and forensic assessment ($F = 3.691, p = 0.057$). The results suggest that there are different learning needs in two professions.

Discussion

Study findings add to the scientific knowledge on the forensic education and training needed in the clinical arena. Limited research has been conducted on forensic education. No statistically significant differences were seen in the level of forensic education between physicians and nurses. However, forensic patients are more likely to be seen in the ED than other hospital units. This would suggest that this sample could have seen forensic patients in their practice. As knowledge is helpful for both groups to practice effectively in the ED, it is encouraging that both have similar knowledge levels. This is consistent with previous research that indicates that both professions held equal levels of knowledge in forensic practice (Reijnders et al., 2008). The findings could also have resulted because the practicing nurses in our sample had lengthier job histories and experience which could have brought more knowledge and because the younger age of the physicians may have made it more likely that forensic content may have been included in their medical school curricula.

The American College of Emergency Physicians (ACEP) (2012) endorses the need for education in the ED setting in its most recent mission statement entitled *Violence-Free Society*. In this statement, the AACP declares that, “violence takes many forms...and that it believes that “emergency physicians have a unique opportunity and responsibility to reduce the prevalence and impact of violence through advocacy, education, and research initiatives (p. 126). The ACEP further declares that “the development of mechanisms for the ED to treat patients either as victims or perpetrators presenting with mental and physical consequences of violence will be important achievements” (p. 126). However, with the increased number of individuals with forensic needs, it is encouraging to note that nurses and physicians can equally meet their care needs.

Similarly, no differences were noted between ED physicians and nurses in their confidence in the evidence collection process or testimony experience. Again, the busy EDs in which they practice could indicate that study participants have seen large numbers of forensic patients,

which could bring confidence. Participants also demonstrated confidence in providing appropriate care to this population. However, confidence is not representative of proficiency that is vital to patient care outcomes in both the healthcare and legal arenas. Finally, while over half of the sample felt confident in providing care for forensic patients, just under half did not. This finding suggests that more can be done to increase the confidence of ED clinicians in meeting the needs of patients who have forensic issues.

Finally, physicians and nurses differed on the frequency of wound diagram use. The use of body maps to document injuries related to violence is commonplace (Darnell, 2011; Laughon, Amar, Sheridan, & Anderson, 2010). As wound documentation is important for the legal aspects of forensic practice, further study is warranted. Future study could include testing of educational programs on the use of the wound diagram, and comparisons between the availability of the diagram and its actual use and existence in medical records.

Nurses in this study demonstrated polarized attitudes for the use of wound diagramming with nurses using wound diagramming all the time or not at all. Documentation is a form of communication that when done correctly can be a powerful tool. Conversely, improper or careless documentation can have far-reaching devastating effects for both the healthcare provider as well as for the patient. Proper documentation can ultimately assist the patient in obtaining the justice he or she deserves. "Mistakes made in not appropriately and objectively evaluating and documenting injuries may deny information to the patient, the courts, or a suspect that might substantiate claims of innocence or guilt" (Apfelbaum, Schockley, Wahe, & Moore, 1998, p. 742). Proper documentation "provides evidence that the care provided met professional standards" (Ferrell, 2007, p. 61).

With the advent of technology and the acceptance of the use of digital photographs in a court of law, healthcare providers might also consider opting to photographically rather than pictorially documenting wounds and/or injuries. Documents themselves vary among institutions and include but are not limited to: flow sheets, progress notes, admission notes, pictorial diagrams, and even dictation. Unfortunately, documentation methods are often confined to the written format and rarely include the art of photo documentation.

While only a small number of ED nurses in this study (13%) reported having received any informal forensic education, an even smaller number (0.2%) reported having received any formal forensic education. While physicians were more interested in attending educational offerings, no statistically significant difference existed between

nurses and physicians on attendance of other forensic education topics. Despite acknowledgement from professional organizations including the Emergency Nurses Association that nurses need education and training on forensic aspects of nursing care, limited resources are available to accomplish this task. However, nurses felt that they could benefit from future educational offerings in the form of in-service training related to documentation techniques, forensic assessment, and courtroom testimony. Clearly, the need for forensic education in the ED setting is overwhelming.

Research implications

As with any study, the findings must be viewed with consideration of the limitations. This study is limited by the use of a convenience sample in one region of the country, small sample size, and a researcher-constructed survey. We are not certain that those who responded to or neglected to respond did not self-select in some way as to create sampling bias. As our response rate was 55.7% and multiple formats were used to collect the data, we feel that our findings are representative of this population. Despite the seemingly significant response rate for this study, generalizability of the study's findings to the larger population may be limited because of the setting and participant specificity. This study provides a basic knowledge that can and should be validated with a larger sample size. Another study limitation was having prescribed content choices for the educational activities. It would have yielded more meaningful data had open-ended questions been used. However, the researcher-constructed survey was developed using content and ecological validity. Further research can determine the reliability and construct validity of the tool. Further research is important to describe the educational training in forensics received by nurses and physicians and to evaluate the effectiveness of the training. Long-range research can seek to link educational training, resulting knowledge, and patient outcomes.

Practice implications

Clearly, nurses are interested in participating in educational opportunities in forensics. This study provides baseline information of educational needs. Exposure to evidence collection and strategies to assist victims and offenders in healthcare settings is necessary for effective nursing practice (Darnell, 2011). Nurses working in the ED have a responsibility to collect and preserve forensic evidence (Eisert et al., 2010). Currently, exposure to the topic of courtroom testimony exists only at the graduate

level in forensic nursing curricula. However, education surrounding expert witness status is again elementary in nature and is a learned skill that is refined via repeated experience and exposure to the courtroom setting. Perhaps, greater exposure at the student level to the criminal process will better prepare healthcare providers and familiarize the medical community with proper techniques and practices leading to an increase in positive legal outcomes. It is imperative that faculty at universities and in healthcare settings include forensic topics in their curriculum. With the high rate of violence, victimization, and perpetration, nurses must be prepared to tackle the challenge of meeting the healthcare and legal needs of patients.

Conclusion

The provision of proficient, safe, quality care for the forensic patient within the ED setting can no longer be a consideration but must be operationalized. Although it is the responsibility of law enforcement to investigate crime, healthcare providers can have a significant impact on the legal outcomes of forensic cases. There exists still a strong delineation between law enforcement and healthcare. This delineation alone warrants the need for education within the healthcare setting regarding the impact that nurses and doctors can have within the criminal justice system. What many nurses and physicians fail to recognize is that they already incorporate forensic applications into their current practice. Although nurses in this study exhibited confidence in their ability to provide care to this population, they also acknowledged and expressed interest in receiving forensic education. The number of victims of criminal activity throughout the United States though it has declined over the last decade still comprises a significant part of the patient population presenting to EDs across the country. Consequently, to provide competent care to this patient population, providers could benefit from increased forensic education. Proper evidence recognition, preservation, and collection are paramount to ensuring that patients are afforded every opportunity to maximize both their healthcare and legal outcomes (Eisert et al., 2010). Failure on the part of healthcare providers to be familiar with and proficient in these skills can potentially affect the legal outcomes of forensic cases.

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