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Establishing Standards for Trauma Nursing Education: The Central Ohio Trauma System's Approach

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ABSTRACT

Trauma nursing requires mastering a highly specialized body of knowledge. Expert nursing care is expected to be offered throughout the hospital continuum, yet identifying the necessary broad-based objectives for nurses working within this continuum has often been difficult to define. Trauma nurse leaders and educators from 7 central and southeastern Ohio trauma centers and 1 regional trauma organization convened to establish an approach to standardizing trauma nursing education from a regional perspective. Forty-two trauma nursing educational objectives were identified. The Delphi method was used to narrow the list to 3 learning objectives to serve as the framework for a regional trauma nursing education guideline. Although numerous trauma nursing educational needs were identified across the continuum of care, a lack of clearly defined standards exists. Recognizing and understanding the educational preparation and defined standards required for nurses providing optimal trauma care are vital for a positive impact on patient outcomes. This regional trauma nursing education guideline is a novel model and can be used to assist trauma care leaders in standardizing trauma education within their hospital, region, or state. The use of this model may also lead to the identification of gaps within trauma educational systems.

Key Words

Central Ohio Trauma System (COTS), Compliance pathways, Continuum of care, Educational/behavioral objectives, Nurse education plan, Stakeholder analysis, Trauma center verification, Trauma nurse education

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Author Contributions: (a) Conceived the idea, analyzed the data, or collected data: Conceiving and design of work—all authors except Kovach conceived the idea. Kovach was not employed at COTS during conception. All authors participated in analysis and collection of the data, including Kovach. All authors wrote a part of the manuscript as noted: (b) Manuscript: Haley—the plan, key points, results, storyboard, references, editing; Martin—literature review, results, conclusion; Kilgore—purpose, results; Lang—purpose, results, editing; Rozzell—literature review, results, conclusion; Coffey—key points, references, editing; Eley—key points, results; Light—topic, results, conclusions, editing; Hubartt—introduction, results, conclusions; Kovach—abstract, key points, conclusion, editing; Deppe—introduction, plan, results, storyboard, editing. (c) All authors participated in the final review of the manuscript prior to submission.

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Traumatic injury continues to significantly impact the health care system. Sophisticated technologies, advanced understanding and treatment of pathologies, clinical advancements, increased acuity, budgetary limitations, an aging population (National Advisory Council on Nurse Education and Practice, 2010), staff turnover, and process improvement initiatives all present challenges to nurses providing direct patient care.

Maintaining a workforce of competent nurses who are able to adapt and meet these fluid challenges poses a great concern to all who manage personnel, educate staff, plan strategies, and evaluate patient outcomes. Recognizing and understanding the educational preparation and defined competencies required for nurses providing care are vital for a positive impact on patient outcomes. Evans et al. (2014) identified that "new strategies are required … to meet the needs of a dynamic healthcare and changing global environment to provide quality education for students" (p. 1).

Trauma nursing requires mastering a highly specialized body of knowledge that focuses on mechanism of injury and the resulting pathophysiological responses to insult. This structured knowledge base is supported by a framework of technical competencies, critical thinking

skills, and rapid assessment that is vital for providing optimal care. Expert nursing care that is provided throughout the hospitalization continuum is initiated during emergency stabilization, continued throughout the critical care/surgical theater, and maintained seamlessly throughout acute care and patient rehabilitation. Identifying the necessary broad-based competencies for nurses working along this continuum has often been difficult to determine.

The American College of Surgeons' (ACS, 2014) *Resources for Optimal Care of the Injured Patient* identifies that all verified trauma centers must engage in professional education and that in "level I, II, and III trauma centers, the hospital must provide a mechanism to offer trauma-related education to nurses involved in trauma care" (p. 190). Trauma center criteria addressing trauma nursing educational requirements are nonspecific, thereby permitting individualized interpretations and flexibility in the choice of measurements for evaluation. Meeting the criteria for trauma nursing education has been challenging for trauma centers because both the criteria and standards are not well defined, resulting in numerous pathways with varying results. Unhasuta, Robinson, and Magilvy (2010) suggest that establishing regional core measures can be integrated into a strategic plan supporting better levels of consistency in practice.

PURPOSE

This article discusses a novel process of identifying and establishing standardized trauma nursing education objectives for the ACS-verified trauma centers in central, eastern, and southern Ohio and members of the Central Ohio Trauma System (COTS).

Founded in 1997, the COTS's mission is to improve patient outcomes by providing a forum where independent health care systems and community partners can come together to improve trauma and other time critical emergency care within the central Ohio region. The COTS coordinates health care services in times of disaster and optimizes the delivery of educational services for the region. Membership includes seven trauma centers verified by the ACS and 22 acute care hospitals and freestanding emergency departments.

To better understand the educational needs of an estimated 9,000 nurses who provide care to the injured in the region, the COTS Nursing Education Subcommittee completed a stakeholder analysis identifying major trauma education issues impacting COTS member hospitals in 2013. The results of the study suggested a gap in Ohio's state and regional trauma system when identifying standards for trauma nursing education. Hospitals verified as trauma centers in Ohio must meet the standards and resources defined in the *Resources for Optimal Care of the Injured Patient* (ACS, 2014). The ACS criteria identifying the nursing education requirements are subject to interpretation. For example, the state of Ohio's trauma system has been unable to reach consensus or determine the specific quality metric language in order to establish trauma nursing education standards. This lack of definition has resulted in some confusion and discontinuity regarding trauma nursing education requirements and associated best practices across the region. Our stakeholder analysis identified an ambiguous understanding of nursing education requirements existing among the COTS trauma centers. The COTS nursing education group identified that standardizing trauma nursing education expectations could decrease interpretation variances and provide clarity to expectations, thereby supporting the same quality of trauma care delivery through all departments at all trauma centers.

Numerous broadly recognized, nationally based educational courses have historically provided baseline education and preparation for nurses who care for victims of traumatic events. The stakeholder analysis associated with this project identified these courses to be very effective, but continued attendance to sustain knowledge was cost-prohibitive and complicated by staff turnover and budgetary restraints. As a result, trauma centers have sought to develop customized classes and courses that utilized various teaching/learning resources available at their specific institutions. Benchmarking among the trauma centers revealed that course content varied and often utilized a wide range of simulator training scenarios, evaluation models, and methods for credentialing faculty experts.

LITERATURE REVIEW

Perkins et al. (2005) proposed establishing core competencies as the basis for standardizing training in acute care. A paucity of articles addressed the development of regional standards for trauma nursing education requirements able to span the entire continuum of trauma care.

Schultz, Koenig, Whiteside, and Murray (2012) described a process for developing disaster-based training grounded by standardized competencies. Their work supported a process to ensure that medical acute care professionals demonstrate and practice knowledge and skills required for response to disaster-related events. Important and supportive to our work, they also noted that core competencies provide a framework that can be adapted for local and changing training needs. Petroze et al. (2015) initiated focused trauma education courses in Rwanda that resulted in decreased mortality of severely injured patients. Haley and Schweer (2007) reported inconsistencies across the nation in educational requirements and standards in pediatric trauma care.

The ACS Pre-Review Questionnaire (PRQ) requires documentation of trauma nursing education preparation for nurses on specific units providing care to the injured

patient. The ACS does not specifically identify any particular mechanism by which to evaluate competency and qualifications. The literature search failed to identify specific published standards outlining definitive ways to meet the established ACS standards or address regional, state, or national standards for all environments of trauma nursing care.

THE PROCESS FOR DEFINING TRAUMA EDUCATION PLAN

In October 2013, the Trauma Nursing Education Subcommittee summit convened to include trauma program managers and trauma educators from COTS member trauma centers. The process and methodology for establishing standardized expectations were identified using successful practices identified by a review of the literature.

Several articles were found to support the use of the modified Delphi method to accurately identify problems and resulting resolutions. The Delphi communication model utilizes interactive structured group expertise for the development of a forecast or to address an issue (Brown, 1968; Sackman, 1974). Hsu and Sandford (2007) found the Delphi method to be a commonly applied and accepted method for gathering data and setting standards from participants within their area of expertise. References to the modified Delphi method were also noted in medical and nursing literature. Unhasuta, Robinson, and Magilvy (2010) described the value of brainstorming sessions as a means for establishing agreement of a vision.

Once the methodology for establishing a foundation for standardizing trauma nursing education was developed, the panel of nursing experts began identifying the desired project goals and outcomes. Following significant discussion and brainstorming, the project goals were to determine the minimal number of learning objectives that could be realistically achieved and to generate unanimous support for meeting the learning objectives across the region. The panel concluded that all prioritized trauma nursing topics would be written as educational learning objectives. The consensus of the group was that the education plan would be robust enough to allow the participant the option of using a variety of preapproved learning pathways and available courses to accomplish compliance with the learning needs.

Over a period of 18 months, the committee worked collaboratively to review 42 sample educational objectives related to trauma education and successfully narrowed the final list down to three learning objectives (Table 1). Although the process of finalizing the objectives was arduous, the path for establishing compliance parameters for each trauma nursing specialty line was even more difficult. Idealistic perceptions were unable to match more realistic expectations. The committee members collaborated to produce reasonable and acceptable compromises.

The ability to provide effective, objective evaluation proved vital when reviewing numerous training courses for content equivalency. Many of the well-known, nationally based trauma courses provided the required content to fulfill the educational objectives, whereas the homegrown hospital-based courses provided exemplars explaining how their faculty experts and course content would meet each of the three chosen learning objectives. The hospital-based courses provided exceptional teaching plans, utilizing simulation-based training methods that exceeded the panel's expectations, proving their course teaching plans and content would meet all the established educational objectives.

THE RESULTS

The COTS trauma program managers identified three realistic, achievable, and measureable learning objectives able to directly impact nursing education and indirectly optimize patient outcomes. The following objectives were chosen by consensus to be the framework for the COTS Trauma Nursing Education Guidelines (Figure 1A):

- The registered nurse (RN) caring for the injured patient will be able to define predictable clinical manifestations relative to the mechanism of injury.
- The RN caring for the injured patient will be able to describe a basic trauma nursing assessment and identify appropriate interventions based on pathophysiology, clinical manifestations, and medical/nursing management principles.
- The RN caring for the injured patient will be able to identify the interventions needed before transferring the patient to the next step in definitive care.
- The objectives have become the standard expectations for all trauma center nurses caring for the injured patient within the COTS region. The COTS trauma program managers have committed to ensuring compliance to these guidelines using a stratified measurement scale across the trauma care continuum. Compliance rates were chosen by establishing a realistic target for the first year of implementation. Turnover rates, budgets, and availability of educational materials were considered for compliance rate determination. As compliances are met, the target measurement can be modified and continue to remain fluid until each specialty area can achieve a maximum target. Ninety percent of all emergency department nurses will demonstrate compliance with the standards applicable to their specialty.

TABLE 1 The Process in Storyboard

Date	Conclusion
October 16, 2013: The initial meeting of COTS Trauma Nursing Education Workgroup/ Committee.	Although the ACS *Resources for Optimal Care of the Injured Patient and* PRQ identifies the requirement for the provision of trauma nursing education, precise criteria are limited, and this allows the criteria to be subject to interpretation. Measureable standard behavioral objectives could address variation and provide consistent expectations. A foundation is needed to standardize learning objectives: • Identify behavioral/educational standards that will be written in metric language (measureable). • Compliance must be measureable and specific across the continuum of care to include all specialty units: Emergency department (ED), operating room (OR), post anesthesia care unit (PACU), intensive care unit (ICU), and general/step-down care. • Establish the minimal acceptable compliance percentage for each unit. • Develop educational standards that will serve as measurement to determine if custom courses can serve as an equivalency. • Custom courses will be evaluated to ensure compliance is achievable. • The Delphi methodology will be utilized for gathering data and developing standards. • A pick list of 42 sample educational objectives was established, distributed, and reviewed.
November 26, 2013	Sample educational objectives from the pick list were prioritized. Brainstorming discussions identified that the more weighted learning objectives warranted a higher priority. Thirteen objectives were chosen as relevant and met the following criteria: • The objective must be attainable. • The objective must be measureable. • The objective must be achievable via multiple methods. • The objective must reflect baseline education needs.
January 29, 2014	The modified Delphi method was used to identify the top five educational objectives.
March 13, 2014	The Delphi method continued to be used to finalize the three educational objectives. As a result of continued discussions, ACS requirements and verbiage reflecting the PRQ were emphasized. • Members refined the minimum educational compliance percentage across the trauma care continuum. • Course equivalencies and specialty training opportunities were identified for each specific specialty area: ED, ICU, OR, PACU, and general/step-down. • Members discussed establishing guidelines detailing the rationale behind percentages. • Members determined the Trauma Nursing Education Summit completed their mission of creating the standardized nursing education document. A permanent Trauma Nursing Education Subcommittee was developed to continue the process and identify strengths/weaknesses in the program.
July 7, 2014	The first Trauma Nursing Education Subcommittee meeting was convened. Cochairs were elected. A progress report was discussed to identify next steps.
August 5, 2014	The educational objectives continued to be refined. Hospital-based programs submitted teaching plans, teaching models, syllabi, instructor credentials, and methods for evaluating learning to evaluate compliance with the trauma nursing educational objectives.
February 3, 2015	Course equivalencies were evaluated using internal educational plans submitted by each trauma center. Courses received approval if content was able to demonstrate compliance with COTS trauma nursing educational objectives. Although methodologies vary, nationally recognized and local courses were reviewed and acceptable courses were identified. Future or additional courses/classes/in-services will need to be submitted to the Nursing Education Subcommittee for approval. All new educational offerings will be evaluated for educational objective congruity and compliance.
April 7, 2015	The COTS *Standardized Trauma Nursing Education Objectives* was completed and approved by each member of the subcommittee. The document will be presented to the COTS Board for final approval. The tool will also be presented to the OSTNL for support and advisement.

(*continues*)

TABLE 1 The Process in Storyboard (*Continued*)

Date	Conclusion
August 26, 2015	An introductory letter and a copy of the document were sent to the chair on the Committee on Trauma, American College of Surgeons Verification Review Committee. The letter was signed by the Trauma Medical Directors of each verified trauma center in COTS region.
May 26, 2015	The *COTS Standardized Trauma Nursing Education Objectives* were approved by the COTS Board.
June 5, 2015	The *COTS Standardized Trauma Nursing Education Objectives* were presented to the OSTNL.
March 1, 2016	The *Trauma in the First 48 Hours* © course was approved by the Trauma Program Managers Subcommittee as an accepted pick list choice for obtaining trauma nursing education in the central Ohio region.

Note. ACS = American College of Surgeons; COTS = Central Ohio Trauma System; ED = emergency department; ICU = intensive care unit; OSTNL = Ohio Society of Trauma Nurse Leaders; OR = operating room; PACU = post-anesthesia care unit; PRQ = Pre-Review Questionnaire.

- Eighty percent of all RNs working in critical care units will demonstrate compliance with the standards applicable to their specialty.
- Fifty percent of all RNs working in the operating room will demonstrate compliance with the standards applicable to their specialty.
- Fifty percent of all RNs working in the post-anesthesia care unit will demonstrate compliance with the standards applicable to their specialty.
- Fifty percent of all RNs working in the step-down/general trauma unit will demonstrate compliance with the standards applicable to their specialty.

These guidelines were also developed to serve as the foundation for future educational programs and the advancement of learning through the identification of adjunct objectives. Future adjunct objectives will build upon these established baseline learning objectives, enabling tenured nurses to attain an advanced clinical practice. The COTS trauma program managers also identified incorporating the objectives into each institution's respective annual competency training, thereby providing the building blocks to structured learning.

The pathway for meeting each objective was developed to optimize flexibility for learning. Numerous nationally recognized course offerings and all institutionally developed courses or classes were evaluated for structure and content. To identify acceptable methods to meet each learning objective, each reviewed course was required to provide continuing education and demonstrate evidence of prevalent content addressing each objective. The approved courses or classes were organized into a pick list, allowing institutions and students a flexible choice of venue (Figure 1B).

CONCLUSION AND IMPLICATIONS

The ACS's (2014) *Resources for Optimal Care of the Injured Patient* has stressed the importance of nursing education yet remains vague upon how and what type of education fulfills the criteria. Among COTS member trauma centers, numerous nursing educational needs across the continuum of care were identified but actual standards or parameter definitions were not clearly identified, resulting in a wide variance of education standards for nurses caring for trauma patients. Additional factors impacting nursing education within the region included budgetary constraints, staffing issues such as turnover and course availability, and inconsistent competency requirements. Establishing standardized nursing education will necessitate the leadership role of COTS within the health care community because the nursing education standards have yet to be well defined and a process for trauma nursing education based on quality metrics has not been established within any of Ohio's trauma regions, statewide, or nationally.

To address the variability in trauma nursing education, the nursing leaders from seven regional trauma centers worked in collaboration and under the auspices of COTS to identify educational needs for the nurse providing care to the injured patient. A gap analysis was completed and priorities were determined. Standards were defined and solutions were identified. Realistic expectations superseded lofty goals. Our cohort of hospitals was diverse and included Level I, Level II, and Level III adult and pediatric centers from rural and urban Ohio. Priorities crucial for all levels of trauma centers were approved, whereas agreement was reached on methods for implementing these guidelines.

The COTS members are positioned to offset some risk for ACS reverification failure related to nursing care supported by trauma nursing education by drawing attention to the formalized expectations, standards, and pathways for compliance on a regional level. Upon program implementation in the summer of 2015, the trauma medical directors from seven COTS trauma centers sought endorsement from the ACS Verification Review Committee (VRC). Although the VRC did not specifically endorse the model,

(A)

Content related to:	Objective	Emergency Department	Intensive Care/Critical Care Unit	Post Anesthesia Care Unit	Operating Room	Inpatient/ General/ Step-Down Trauma Unit
Min % of nurses who receive trauma specialty training. *(ACS Criteria in PRQ)*	**The % of nursing staff* who have met the Central Ohio Trauma System (COTS) Regional Educational Objectives:** The RN caring for the injured patient will be able to define predictable clinical manifestations relative to the mechanism of injury. The RN caring for the injured patient will be able to describe a basic trauma nursing assessment and identify appropriate interventions based on pathophysiology, clinical manifestations and medical/nursing management principles. The RN caring for the injured patient will be able to identify interventions needed prior to transferring the patient to definitive care. **applicable for RNs employed > 1 year.*	**A minimum of 90% of Emergency Department Nursing Staff meet the following COTS Regional Educational Objectives:** The RN caring for the injured patient will be able to define predictable clinical manifestations relative to the mechanism of injury. The RN caring for the injured patient will be able to describe a basic trauma nursing assessment and identify appropriate interventions based on pathophysiology, clinical manifestations and medical/nursing management principles. The RN caring for the injured patient will be able to identify interventions needed prior to transferring the patient to definitive care. **applicable for RNs employed > 1 year*	**A minimum of 80% of Critical Care Nursing Staff* meet the following COTS Regional Educational Objectives:** The RN caring for the injured patient will be able to define predictable clinical manifestations relative to the mechanism of injury. The RN caring for the injured patient will be able to describe a basic trauma nursing assessment and identify appropriate interventions based on pathophysiology, clinical manifestations and medical/nursing management principles. The RN caring for the injured patient will be able to identify interventions needed prior to transferring the patient to definitive care. **applicable for RNs employed > 1 year*	**A minimum of 50% of Post Anesthesia Care Unit Nursing Staff* meet the following COTS Regional Educational Objectives:** The RN caring for the injured patient will be able to define predictable clinical manifestations relative to the mechanism of injury. **applicable for RNs employed > 1 year*	**A minimum of 50% of Operating Room Nursing Staff* meet the following COTS Regional Educational Objectives:** The RN caring for the injured patient will be able to define predictable clinical manifestations relative to the mechanism of injury. **applicable for RNs employed > 1 year*	**A minimum of 50% of Inpatient/ General /Step-Down Trauma Unit Nursing Staff* meet the following COTS Regional Educational Objectives:** The RN caring for the injured patient will be able to define predictable clinical manifestations relative to the mechanism of injury. The RN caring for the injured patient will be able to describe a basic trauma nursing assessment and identify appropriate interventions based on pathophysiology, clinical manifestations and medical/nursing management principles. **applicable for RNs employed > 1 year*

(B)

Content related to:	Objective	Emergency Department	Intensive Care/Critical Care Unit	Post Anesthesia Care Unit	Operating Room	Inpatient/ General/ Step-Down Trauma Unit
Resuscitation and Stabilization. *(COTS Regional Objective)*	**The RN caring for the injured patient will be able to define predictable clinical manifestations relative to the mechanism of injury.**	**90% of ED RNs caring for the injured patient will meet this objective through one of the following methods:** • TNCC ™ • ATLS Audit ® • STN Module: 3 • Trauma Tactics © • TCAR ® • PCAR ™ • Other (hospital or unit specific class)	**80% of Critical Care RNs caring for the injured patient will meet this objective through one of the following methods:** • TNCC ™ • ATLS Audit ® • STN Module: 3 • Trauma Tactics © • TCAR ® • PCAR ™ • FCCS © • PFCCS © • Other (hospital or unit specific class)	**50% of PACU RNs caring for the injured patient will meet this objective through one of the following methods:** • TNCC ™ • ATLS Audit ® • STN Module: 3 • Trauma Tactics © • TCAR ® • PCAR ™ • FCCS © • PFCCS © • Other (hospital or unit specific class)	**50% of OR RNs caring for the injured patient will meet this objective through one of the following methods:** • TNCC ™ • ATLS Audit ® • STN Module: • Trauma Tactics © • TCAR ® • PCAR ™ • FCCS © • PFCCS © • Other (hospital or unit specific class)	**50% of inpatient RNs caring for the injured patient will meet this objective through one of the following methods:** • TNCC ™ • ATLS Audit ® • STN Module • Trauma Tactics © • TCAR ® • PCAR ™ • FCCS © • PFCCS © • Other (hospital or unit specific class)
	The RN caring for the injured patient will be able to describe a basic trauma nursing assessment and identify appropriate interventions based on pathophysiology, clinical manifestations, and medical/nursing management principles.	**90% of ED RNs caring for the injured patient will meet this objective by participating in one of the following:** • TNCC ™ • ATLS Audit ® • STN Modules • Trauma Tactics © • TCAR ® • PCAR ™ • Trauma in the First 48 Hours • Other (hospital or unit specific class)	**80% of Critical Care RNs caring for the injured patient will meet this objective with one of the following:** • TNCC ™ • ATLS Audit ® • STN Modules • Trauma Tactics © • TCAR ® • PCAR ™ • FCCS © • PFCCS © • Trauma in the First 48 Hours • Other (hospital/unit specific class)	**No requirement.**	**No requirement.**	**50% of inpatient RNs caring for the injured patient will meet this objective with one of the following:** • TNCC ™ • ATLS Audit ® • STN Modules • Trauma Tactics © • TCAR ® • PCAR ™ • Trauma in the First 48 Hours • Other (hospital or unit specific class)
Inter-facility transfers of patients. *(COTS Regional Objective)*	**The RN caring for the injured patient will be able to identify interventions needed prior to transferring the patient to definitive care.**	**90% of ED RNs caring for the injured patient will meet this objective by participating in one of the following:** • TNCC ™ • ATLS Audit ® • STN Modules • Trauma Tactics © • TCAR ® • PCAR ™ • COTS Trauma Transfer Self Study • Other (hospital or unit specific class)	**10% of Critical Care RNs caring for the injured patient will meet this objective with one of the following:** • TNCC ™ • ATLS Audit ® • STN Modules • Trauma Tactics © • TCAR ® • PCAR ™ • FCCS © • PFCCS © • COTS Trauma Transfer Self Study • Other (hospital or unit specific class)	**No requirement.**	**No requirement.**	**No requirement.**

Figure 1. (A, B) The results. Approved by the Central Ohio Trauma System Board, May 2015. Copyright © 2015 The Central Ohio Trauma System. ATLS = Advanced Trauma Life Support; FCCS = Fundamentals of Critical Care Support; PCAR = Pediatric Care After Resuscitation; PFCCS = Pediatric Fundamentals of Critical Care Support; STN = Society of Trauma Nurses; TCAR = Trauma Care After Resuscitation; TNCC = Trauma Nursing Core Course.

it commended the efforts for developing a program that standardized learning objectives and provided measures to direct nursing education (R. Kozar & N. Sandall, personal communication, October 30, 2015).

Standardizing the nursing educational expectations could also provide the opportunity to decrease institutional expenses associated with educating the health care provider. The process of identifying courses in compliance with the established learning objectives provided support for the continued use of the courses within the region. Although all hospital-specific trauma nursing education courses had met compliance for nursing continuing education, endorsement by the COTS Trauma Nursing Education Subcommittee provided additional clarity when identifying a course's educational effectiveness and highlighting trauma leadership within the region.

During the process, a review of existing courses and options for meeting educational objectives identified a limited number of options available to nurses working in the critical care arena. This led to an unexpected action of developing a regional course for this specialty. The COTS Trauma Nursing Education Subcommittee assembled critical care experts to develop a training program specific to the needs of critical care nurses caring for injured patients. Data extracted from the COTS trauma registry were used to identify the target critical care patient population and associated mechanisms of injury, prevalent diagnoses, complication rates, average length of stay in the intensive care unit, diagnostic studies, and outcomes for course development. A curriculum was developed for the course and titled *Trauma in the First 48 Hours*. This course targets the educational needs of critical care nurses utilizing a simulation-based training model.

Another unexpected gap was the lack of educational material related to the process of transferring a patient to definitive care within our region. To aid hospitals in meeting this nursing objective, a self-study packet was developed. The packet incorporated ACS transfer recommendations, state and regional guidelines, and regulatory requirements to assist trauma centers in attaining compliance. The self-study packet is now available for nurses working in a COTS member hospital.

Extensive subcommittee discussion identified potential threats to the program's success and maturation. Program sustainability and adherence to trauma nursing education guidelines would be valid and viable only under the authority established within the COTS structure. Because COTS is a voluntary system with no legislative authority, continued sustainability and success will be evident by the commitment and active participation by trauma nurse leaders within the region.

Assessment of compliance rates for the COTS Trauma Nursing Education Standards will begin in 2016. These data will be used to determine baseline compliance measurements in order to demonstrate forward progress or decline. Compliance will be reported in accordance with COTS data confidentiality policy that prohibits the release of any data that could be used to identify participating hospitals. Compliance data will be reported in aggregate. The COTS trauma program managers will determine a reporting schedule that will coincide and support their ACS trauma center reverification processes to avoid rework and potential data conflict.

Further work must be done establishing methods of accountability to ensure trauma programs are adhering to these established guidelines. Additional areas of study could be directed toward determining the effect of a standardized educational model on patient outcomes.

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KEY POINTS

- Identifying broad-based educational objectives for nurses working along this continuum is possible within a regional trauma system.
- The ACS PRQ requires documentation of current trauma education preparation of nurses providing care to injured patients. The ACS does not specifically recommend any particular mechanism by which to evaluate competency and qualifications. The literature search failed to identify specific published standards outlining definitive ways to meet the ACS standards.
- Numerous broadly recognized, nationally based educational courses have been providing the necessary baseline preparation for nurses who care for victims of traumatic events. Although these courses continue to provide education, attendance in one regional trauma system is becoming cost-prohibitive complicated by staff turnover and budgetary restraints. As a result, trauma centers have sought to develop customized classes and courses that utilize various teaching and learning resources available at their specific institution. The course content varies among trauma centers and often utilizes a wide range of simulator training scenarios and evaluation models and methods for credentialing faculty experts.

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