

Guest Editorial

The Critical Link Between Acute Care Nursing and Military En Route Care

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Moving a patient between medical facilities or within a hospital—even just down the hallway to the radiology department—requires a series of events that involve a large number of health care team members and can result in a number of adverse events.¹⁻³ A recent study of interhospital transport using an electronic medical record identified that up to 16% of patients experienced a critical event during transport.⁴ Central to the process of preparing patients for transport is making sure that ongoing treatments can be completed or maintained and any potential crises can be appropriately managed, ensuring the patients' overall status remains as stable as when they left the unit.^{2,5} That is a critical element of nursing care.

These same concepts are true in military nursing when it comes to *en route care*. En route care is the process of caring for patients as they are transported from an initial point of injury or illness to initial stabilization (sometimes in a tent with few medical resources), then to different medical facilities around the world to get to a place that has the right level of clinical care as close as possible to

the patients' military unit, family members, and support system. In many cases, the en route care journey begins in some of the most dangerous and remote locations in the world.⁶ Orchestrating patient care during this type of transport is critical, but complicated by the fact that it relies on the use of cargo airplanes, and these trips are usually repeated multiple times during the initial phases of injury or disease as patients return to a medical facility in the United States.

En route care is not unique to the military. There are plenty of nonmilitary patients in rural locations or other remote areas who become ill or injured in skiing accidents, mountain climbing incidents, avalanches, or other unfortunate events. In some cases a local community hospital can provide initial treatment or stabilization, but often the most acute patients must be transferred to a medical center with specialty care.⁷ If the patient is not stable enough to be discharged, nurses are needed to provide the appropriate level of care during the transport time. Transport nurses are not a large community, but they provide a critical skill that can have a direct impact on patient survival rates and long-term outcomes.⁷

Some nursing activities provided in this en route care setting are appropriately informed by evidence-based practices used in the critical care or acute care setting. However, many other things about nursing care change in the transport environment (eg, in an ambulance, a helicopter, or the back of an airplane): managing pain, protecting skin integrity, and the function of medical equipment. Perhaps just as importantly, transport also

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has an impact on nurses as they care for patients in this environment. These issues, and many others, are just the beginning of a program of research that applies directly to nurses in the acute care setting.

Traditionally the en route care community has focused on the “platform”—whether that is an ambulance, a helicopter, or a specific type of airplane. Policies, training, and equipment have historically been separated by these distinct types of vehicles. The more research that is conducted, however, and the more technological advances, the more it is clear that the clinical needs are less influenced by the actual vehicle but more by patients and their injuries, the constellation of environmental stressors, and the capability of clinicians and their equipment. Understanding the dynamic interplay among all of these factors and being able to evaluate new therapies in a realistic and meaningful way are critical to the future of en route care.

Another important factor that has been learned by the military is recognizing the tasks and skills required to prepare a patient for movement and to receive a patient after transport. These tasks do not have a dedicated nurse to accomplish them, so all acute care nurses should have a basic understanding of what happens during transport to be able to care for the patients, for example, making sure that the appropriate skin integrity interventions are available or that patient education about pain management is tailored to the transport environment. It is also helpful to understand the stressors that affect the transport nurses themselves when giving or receiving a full report on the patient. Ensuring a safe and effective patient handoff before and after transport is a critical skill that relies on many factors beyond simple clinical documentation.

The en route care team can also be remarkably diverse. In the military, these teams include emergency medical technicians, flight paramedics, registered nurses, certified registered nurse anesthetists, respiratory therapists, and physicians. Depending on the assigned mission, these individuals may receive a quick orientation to the aircraft before accompanying a patient; 2 weeks of instruction on the basics of patient preparation, transport equipment, and different transportation platforms; or months of in-depth training on the stressors of flight, the technical capabilities of each airplane, and a certain number of flight hours until considered a fully qualified flight nurse. Although the clinical needs of the patient generally determine the clinical

capability of the en route care team member, this variation in background and preparation can be a complicating factor in preparing and receiving a patient from the en route care system.

Nurses have a unique ability to contribute the evidence to provide excellent patient care in the en route care system. Recognizing the challenges of en route care and identifying the gaps in evidence or in existing clinical practice guidelines is a critical place to begin. Research studies have identified potential negative effects of altitude on brain injuries,⁸ suboptimal documentation of pain assessment and treatment during transport,⁹ and more prevalent than expected hypoxemia during routine transports.¹⁰ In addition, it has been found that low hemoglobin measures are not associated with adverse outcomes¹¹ and that the use of ketamine to manage pain in the en route care setting can be safe.¹²

Despite the incremental advances that have been made, nurses in the acute care setting have an important perspective to identify potential problems or sources of error that could negatively affect patients and their recovery process. Becoming part of a process improvement or research team is another critical role that nurses can play to improve en route care. Because transport platforms rarely have room for extra people to observe or collect data, clinicians who are already part of the en route care team provide valuable insight and the ability to collect data. Last, acute care nurses are able to see patient care as a complicated and interconnected process, which is precisely the way en route care works. Designing and conducting research in en route care require the ability of a research team to work through these complicating factors to create new knowledge (evidence) that can be applied in real life.

Because of all these factors, the TriService Nursing Research Program established a research interest group for en route care in 2011. It began with a small team of nurse researchers with interests in en route care who wanted to formalize a working relationship and expand the group to foster collaboration, mentoring, and education opportunities for others practicing and doing research in this space. Much like a research committee on a hospital unit, but spread, literally, around the world, the team has worked together to support work in this field and help advance science in the care of their patients. Members have collaborated on projects ranging from identifying key en route care literature, navigating the

approval process required to collect patient level data during military flights, and translational work like updating a battlefield pocket guide¹³ to incorporate en route care topics.

As we remember military members who have given their lives on this Memorial Day, we encourage you to consider contributing to excellence in en route care as a way to honor their sacrifice. Your effort to develop or implement new evidence in en route care might just benefit military members injured in the future; at the very least it will improve the care your patients receive. What better way to mark the occasion. [CCN](#)

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Disclaimer

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