

**Title:**

Identifying Educational Needs: Training Gap Analysis of United States Air Force Aeromedical Evacuation Technicians/Nurses

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**Session Title:**

Effective Decision-Making: How Concepts Come Together

**Slot:**

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**Scheduled Time:**

3:45 PM

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**Keywords:**

Research, Simulation and Training

**References:**

De Jong, M. J., Dukes, S., Dufour, K. (2014). Clinical experience and learning style of Air Force flight nurses and aeromedical evacuation technician students. Presented at the TriService Nursing Research Program Research and Evidence-Based Practice Dissemination Course, San Antonio, TX.

Fairhurst, K., Strickland, A., & Madden, G. (2011). Simulation speak. *Journal of Surgical Education*, 68(5), 382-386. doi:10.1016/j.jsurg.2011.003.003

O'Connell, K. M., De Jong, M. J., Dufour, K., Millwater, T., Dukes, S., Winik, C. (2013). Simulation use in aeromedical evacuation training: research gaps from an integrated review. *Clinical Simulation in Nursing*, 66, 3-15.

**Abstract Summary:**

The United States Air Force en route care area completed a training gap analysis to evaluate areas for focused sustainment needs. The findings from this study will continue to build a foundation for education initiatives and allow for targeted interventions to meet sustainment needs of en route care medical providers.

**Learning Activity:**

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
1. Discuss the process of completing a focused training gap analysis for focused decision making in educational initiatives	The process used to complete the training gap analysis for the active duty aeromedical flight nurses and technicians will be described including creation of tools that were used in data collection.
2. Discuss the impact of training gap analysis in decisions regarding fund/time allocation.	Dissemination of information to stakeholders and how this is done for decision making will be described.

3. Identify the learning needs of active duty flight nurses and aeromedical evacuation technicians.	The results of the training gap analysis of active duty flight nurses and aeromedical evacuation technicians will be shared.
4. Discuss the impact of the reported learning needs in sustainment training for active duty flight nurses and aeromedical evacuation technicians.	Application of results from study findings and the process used for implementation will be shared.

#### **Abstract Text:**

### **INTRODUCTION**

The United States Air Force (USAF) is curtailing its medical treatment facilities, thus reducing the number of opportunities for skill attainment and proficiency for flight nurses (FNs) and aeromedical evacuation technicians (AETs). Assignment to outpatient clinics and inpatient units with lower census and acuity creates skills gaps for aeromedical team members. It is critical that FNs and AETs demonstrate clinical expertise on the ground before they can be expected to proficiently care for combat or civilian wounded on an 8- to 12-hour flight in the back of a cargo aircraft within the en route care environment. Opportunities to practice these skills on the ground have been challenging, requiring the USAF to initiate alternative training opportunities.

Current clinical prerequisites for active duty USAF FNs and AETs include a minimum of 2 years clinical experience (1 year inpatient experience is recommended), current Basic Life Support, current Advanced Cardiac Life Support (nurses), current registration in the National Registry of Emergency Medical Technicians (technicians), skilled in Air Force Specialty Code, and core clinical competencies such as patient assessment, blood administration, intravenous therapy, and management of the patient in hypovolemic shock. Clinical competency can be broadly interpreted across the various practice environments. FNs and AETs often attempt to maintain clinical competency in a simulation laboratory due to limited, or absent, opportunities to perform skills in a clinical setting with patients. Simulation has been shown to be an effective training method. Today's healthcare providers often learn high-risk and low-volume procedures in simulated environments, offering the chance to learn and practice in a safe setting (Fairhurst, Strickland, & Madden, 2011). Much like the civilian environment, the USAF is also using simulation for sustainment of skills. However, there is minimal information about the best way to train this unique AE population (O'Connell et al., 2013).

Very little research exists to support simulation decisions in the USAF AE environment (O'Connell et al., 2013). A program of research was developed to provide an evidence base for decision making on education and training initiatives. An assessment of training needs was identified as a foundational study for this new trajectory of research within the USAF. A training gap analysis study was completed; the aims of this study were to (1) describe the clinical experience of active duty (AD) FNs and AETs and (2) identify the clinical education needs of the AD FNs and AETs.

### **METHODS**

The aims of the study were accomplished concurrently through the use of a single paper survey developed by subject matter experts (SMEs). Content validity was developed using the established USAF clinical competencies and SME feedback. Survey questions identified clinical experience and level of comfort performing clinical tasks. A convenience sample of AD FNs and AETs assigned to one of the following AD aeromedical squadrons were invited to participate: Kadena Air Base, Japan; Pope Army Airfield, North Carolina; Ramstein Air Base, Germany; and Scott Air Force Base, Illinois. Over 100 AE clinicians participated in the study (n=102 following statistical exclusions). Since this study was

descriptive and exploratory in nature, a power analysis was not conducted. Descriptive statistics were used to analyze results.

## **RESULTS**

Demographics of study participants were similar to a previous skills gap conducted on students attending the FN and AET course (n=198, officer 39%, enlisted 61%, tech training 51%, associate degree 7%, BS degree 36%, MS degree 7%) (De Jong, Dukes, & Dufour, 2014). Specifically, clinicians were half enlisted (50%) and half officers (50%) by rank; approximately half AETs (48%) and half FNs (49%); educated to a variety of levels, from Emergency Medical Technician/Paramedic (33%), Associate Degree Nurse/Associate Degree (9%), Bachelor's of Science in Nursing/Bachelor's of Science (39%), to Master's of Science in Nursing/Masters of Science (18%); and displayed varying years of patient care experience, from fewer than 3 years (4%), 3 to 5 years (38%), 5 to 10 years (35%), to greater than 10 years (23%). One hundred three participants reported their role and years of patient care experience, while 102 reported military rank and level of education and 100 provided duration in current assignment. This sample is representative of 25% to 33% of each AD aeromedical squadron.

Analysis of clinician comfort, as measured by the developed tool, looked at various healthcare tasks. This revealed 10 key areas where FNs and AETs were less comfortable providing care (on a 5-point scale, 1=least comfortable, 5=most comfortable): managing neonatal patients (2.82), using a ventilator (2.87), treating labor & delivery patients (2.94), managing obstetric patients (3.19) and pediatric patients (3.48), managing a central line (3.49), giving blood components (3.61), managing hematology (3.62) and endocrine disorders (3.74), and treating burn victims (3.80). By comparing collected data to SME ranking of important skills to AE comfort level, several tasks were distinguished as more comfortable to AE clinicians than important to SMEs. Thus, these tasks were well-grasped by clinicians, and training regimens do not require focused intervention at this time. These tasks include monitoring vitals and pulse ox, using restraints, managing nasogastric tubes, and others.

## **DISCUSSION**

The data from this study revealed the typical clinical experience of FNs and AETs in the tasks they were most comfortable with and shed light on the tasks that must be emphasized in future training. This allows effective decision making related to training and competency tasks before clinicians take to the air with their AE squadrons.

The findings from this study will continue to build a foundation for education initiatives and allow for targeted interventions to meet sustainment needs of AD FNs and AETs. Given fiscal constraints, leadership has identified a need to provide an evidence base for educational initiatives. This study begins to provide an evidence base and future direction of skill sustainment training for FNs and AETs.