



Prolonged Field Care: Comparison of the Military Treatment Facility and a Civilian Level 1 Trauma Center Utilizing QuEST to Investigate Nursing Clinical Exposure for Medical Readiness

Anna R. Prendergast, MSN¹, Jeremy P. Kilburn, MD, FCCP¹, Melissa J. Conner, MSN¹, Rebecca Bryant², Satinder Garcha², MSN, Gavin Gloor²

¹Mike O'Callaghan Military Medical Center, 99th Medical Group, Las Vegas, NV, ²711th Human Performance Wing, Dayton, OH

Introduction

Military nurses care for casualties across the continuum of care – at point of injury, as part of specialized surgical teams, during aeromedical evacuations and critical care air transports, and in hospitals with the full spectrum of capabilities for definitive care. Sustaining clinical skills continue to be a peacetime challenge for Air Force nurses who predominantly work in Military Treatment Facilities (MTFs) caring for low acuity and volume of patients. Military-civilian partnerships (MCPs) are utilized to obtain patient care hours in civilian level 1 trauma centers, as they most closely mimic wartime hospitals in trauma resuscitations, injury severity scores, and operative density. Current readiness checklists do not objectively capture the prolonged field care skills performed by Air Force nurses during their training in MCPs or MTFs. Moreover, it has not been studied which clinical units within the MCP provide the greatest opportunity for nurses to develop and sustain expeditionary skills.

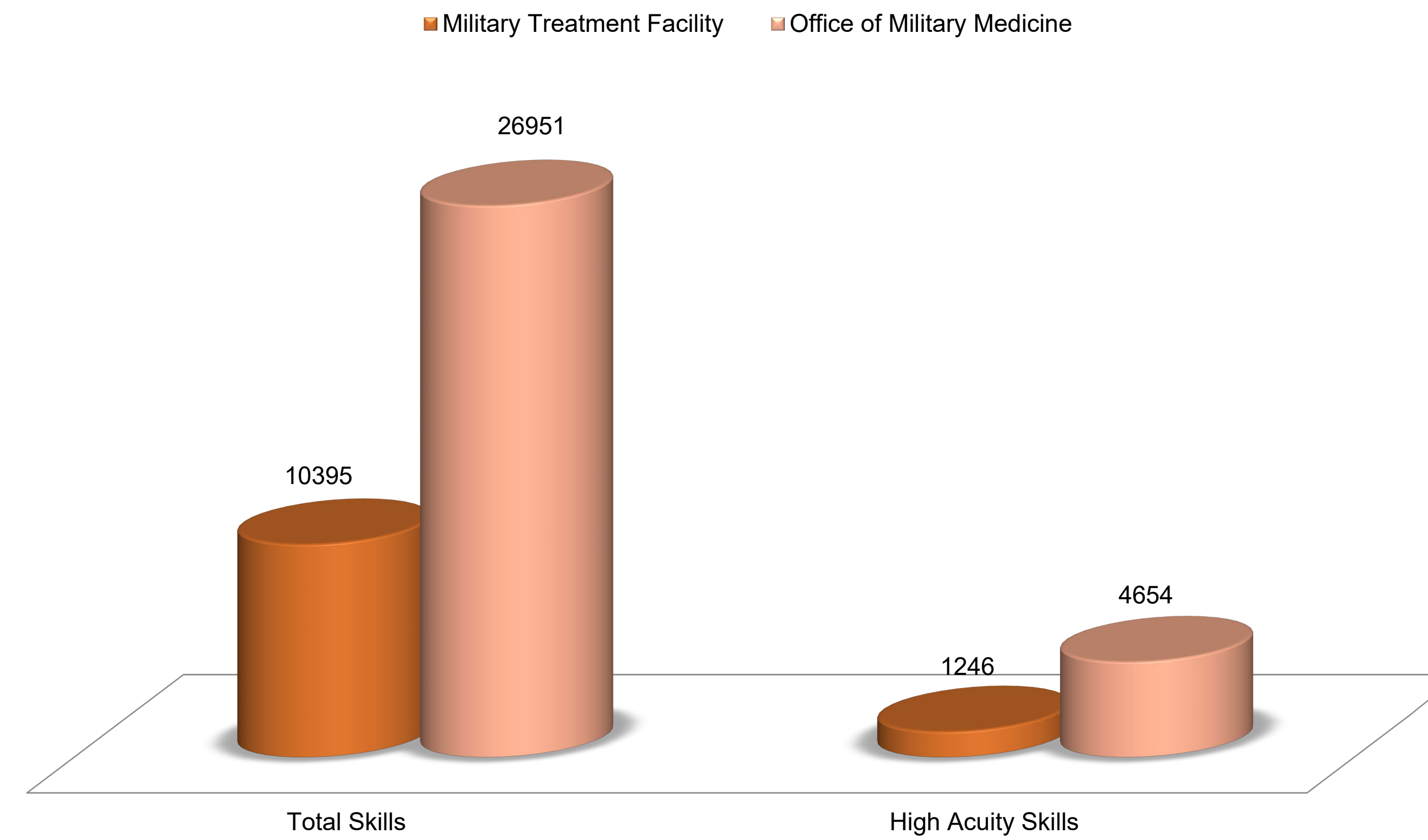
Materials and Methods

A sample of 107 Air Force nurses who attended medical skills sustainment training at University Medical Center Southern Nevada used a locally developed Quantitative Expeditionary Skills Tracker (QuEST) to investigate clinical practice during their two-week MCP rotation. Prolonged field care skills identified as high acuity by the nurse investigators were also separated for analysis. Clinical units within the MCP were compared to identify which units afford the greatest opportunities for clinical skills sustainment. The nurse rotators also completed QuEST for an equivalent number of hours at their home station for comparison of the MCP to the MTF.

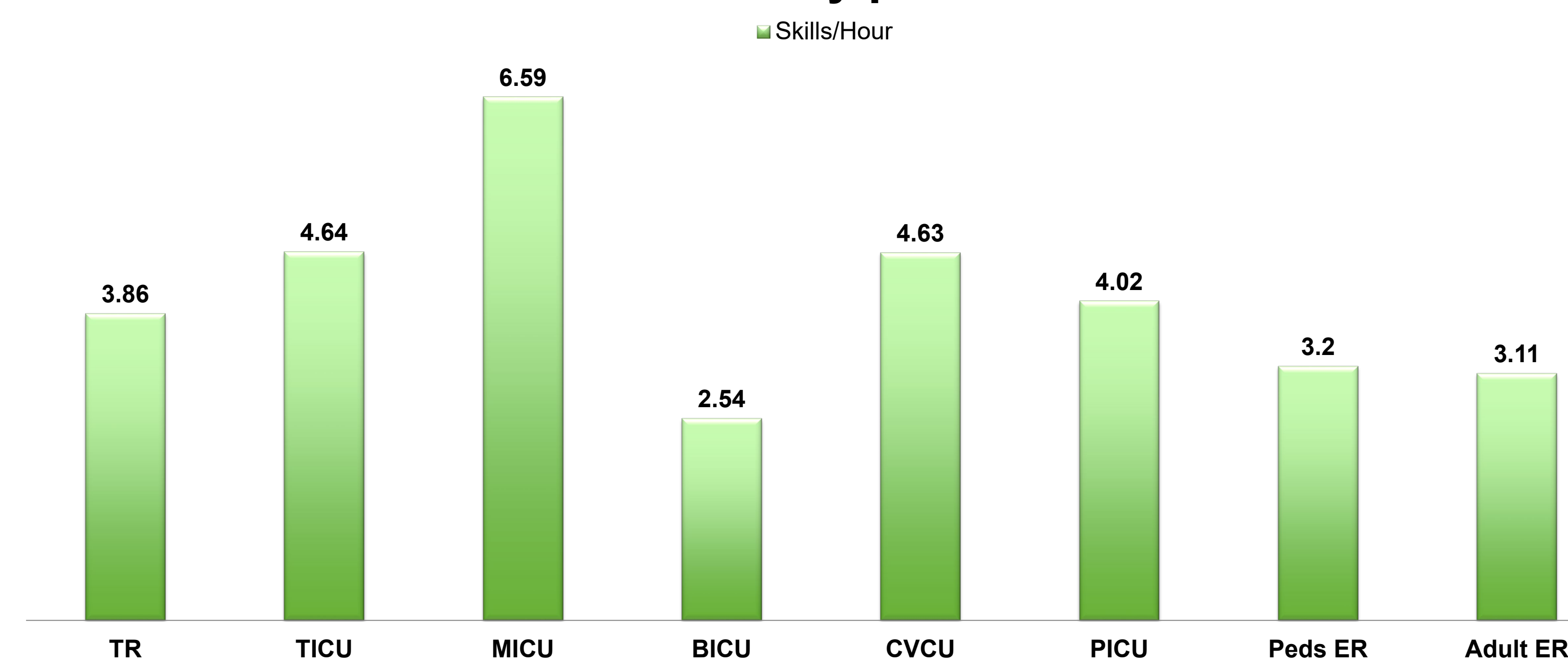
Main Results

Nurse rotators completed 2.6 times as many skills at the MCP than the MTF, 26,951 tasks vs. 10,395. High acuity skills were accomplished 3.7 times more frequently in the MCP than the MTF, 4,654 vs. 1,246. Clinical units were compared within the MCP, revealing the Medical Intensive Care Unit (ICU) had the greatest density of total skills per hour (6.59) and second to the Cardiovascular ICU in high acuity skills per hour (1.25 and 1.27 respectively). The Trauma Resuscitation unit had a skill density of 3.86 skills per hour and high acuity skill density of 0.79 skills per hour.

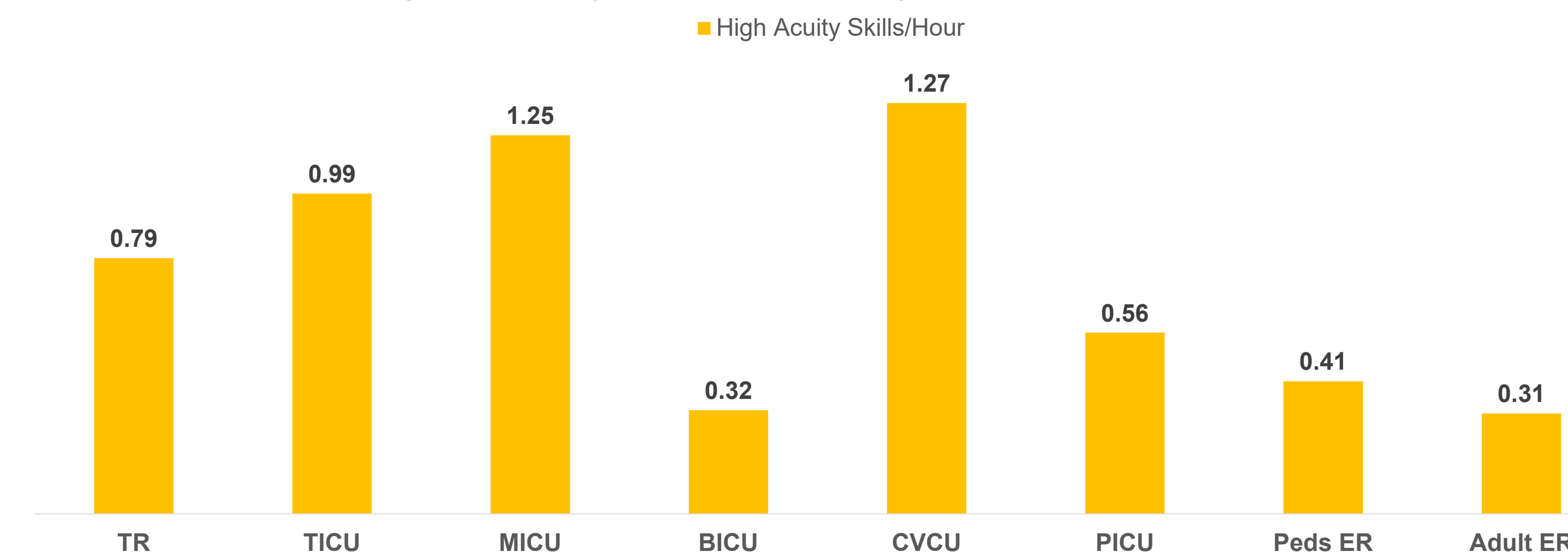
Nurse Expeditionary Skill Exposure



Skill Density per Civilian Unit



High Acuity Skill Density per Civilian Unit



Conclusion

QuEST can provide meaningful data for military leaders to assess the exposure of their nurses to clinical skills needed in the deployed environment. The MCP continues to provide necessary high acuity patient care experience, which is unavailable in volume or complexity at MTFs. Additionally, non-trauma units can be vital resources for sustaining prolonged field care skills that are applicable to caring for the trauma patient. In anticipation of the Great Power Competition, air superiority will be contested and aeromedical evacuation of casualties to higher levels of care may be delayed. Medical teams can expect to hold patients for days, instead of hours as in previous conflicts. It is thus imperative to measure the practice of these skills as well as identify the environments with the greatest opportunity for complex patient care and skill sustainment.

References

- Nam JJ, Colombo CJ, Mount CA, et al: Critical Care in the Military Health System: A Survey-Based Summary of Critical Care Services. *Mil Med* 2018; 183: e471-e477.
- Thorson CM, Dubose JJ, Rhee P, et al: Military trauma training at civilian centers: A decade of advancement. *J Trauma Acute Care Surgery* 2012; 73: S483-S489.
- Hight RA, Salcedo ES, Martin SP, et al: Level 1 academic trauma center integration as a model for sustaining combat surgical skills: the right surgeon in the right place for the right time. *J Trauma Acute Care Surg* 2015; 78(6): 1176-81.
- Hall A, Speegle D, Glaser J: Civilian-military trauma partnerships and the visiting surgeon model for maintaining medical readiness. *Journal of Surgical Education*. 2019; 76: 738-744.
- Lee JJ, Hall AB, Carr MJ, et al: Integrated military and civilian partnerships are necessary for effective trauma-related training and skills sustainment during the inter-war period. *Journal of Trauma Acute Care Surgery*. 2021; 92: e57-e76.
- Butler WP, Steinkraus LW, Fouts BL, et al: A retrospective cohort analysis of battle injury versus disease, non-battle injury-two validating flight surgeons' experience. *Mil Med* 2017; 182(S1): 155-61.
- Kilburn JP, Streit SM, Luan WP, et al: Beyond Trauma: High-Volume Critical Care Medicine in a Military Medical Center-Based Military-Civilian Partnership. *Mil Med* 2023
- Blackman VS, Torres T, Stakley JA, et al: Quantifying clinical opportunities at the navy trauma training center. *Mil Med*. 2021; 186: 40-48.
- Torres T, Stakley JA, Garcia E, et al: Preliminary Data on Trauma Knowledge, Confidence, and Stress During Navy Trauma Training. *Mil Med* 2021, 186: S1, 266-272.
- Sussman MS, Ryon EL, Urrechaga EM, et al: The Key to Combat Readiness is a Strong Military-Civilian Partnership. *Mil Med* 2021; 186(5-6): 571-576.

Disclaimer

The views expressed are those of the authors and do not reflect the official policy of the U.S. Defense Health Agency, Department of the Air Force, Department of Defense, or the U.S. Government.