Society for Academic Emergency Medicine
FOUNDATION

Taylor McCormick, MD, MSc
Denver Health
2020 Research Training Grant (RTG)- $300,000
"Population-based Assessment of Pediatric Trauma Triage"

Severely injured children have better outcomes if they are transported from the field to pediatric trauma centers. Field trauma triage aims to identify patients who require trauma center resources while avoiding overwhelming trauma centers with uninjured patients; secondary triage then determines whether trauma team activation is necessary. The American College of Surgeons (ACS) and the Centers for Disease Control and Prevention (CDC) have put forth distinct field and secondary trauma triage criteria that have been widely implemented by emergency medical services (EMS) agencies and emergency departments (EDs), nationally. Previous studies evaluating the accuracy of these guidelines in children show unacceptably high rates of under triage with, reported sensitivities of 66%-85% for field triage and 54%-84% for secondary triage. In addition, these studies have important limitations including heavy reliance on provider judgement as the sole criterion for trauma center need, lack of a population-based design necessary to determine true under- and over triage rates, and inconsistent outcome measures. To address these gaps and improve the prehospital triage of injured children, we will perform a population-based, multi-center, observational study that links prehospital, ED, and trauma registry records to estimate the predictive accuracy of the ACS/CDC Field Triage Guidelines (Aim 1) and the ACS Six Minimum Criteria (ACS-6) for secondary triage (Aim 2), and evaluate the effect of incorporating pediatric shock index (pSI), as a marker of compensated physiologic response among children, into these guidelines. Using consensus-based criterion standard definitions for trauma center and trauma team activation need, we hypothesize that the addition of pSI will increase the sensitivity the ACS/CDC Field Triage Guidelines and ACS-6 by at least 15% with acceptable decreased specificity, bringing their sensitivities in-line with target recommendations for under triage. The proposed research training program will provide Dr. McCormick with intensive mentorship, selected didactic coursework in advanced analytics, and experience with probabilistic linkage, multiple imputation, chart abstraction, and management of multiple large observational databases.

The proposed work and training program will leave her well-poised for an individual career development (K series) award and ultimately for success as an independently-funded pediatric emergency health services scientist.