



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Injury to Sensory Systems

Comparison of Ocular Injury Surgical Simulator Systems to Live Tissue Training When Training Military Ophthalmologists

The Tri-service Ocular Trauma Skills Laboratory (TOTSL) at the Uniformed Services University of the Health Sciences (USUHS) is an annual training environment for all military ophthalmology residents which is geared to close the Clinical and Rehabilitative Medicine Research Program (CRM RP) training gap of “inadequate vision care education, training, and simulation.” Over a four year period, up to 125 Ophthalmology residents (second and third year residents) and 48 Ophthalmology faculty members participating in the Tri-service Ocular Trauma Course at USUHS will participate in this research study at the TOTSL. This study is funded by the CRM RP and managed by the Congressionally Directed Medical Research Program (CDMRP). Since initiation of the TOTSL, researchers have enrolled 91 residents and 28 faculty members. In FY16, 50 subjects were enrolled to compare the efficacy of time-limited training on surgical performance of novice (n=34) and expert (n=16) military ophthalmologists, with an emphasis on objectively assessing the role of live tissue versus simulation in the curriculum. To date, corneal laceration repairs improve following structured training, but there is some variability in surgical improvement in eyelid laceration repairs. Corneal laceration research data was presented at the 2016 Military Health System Research Symposium (MHSRS).¹ Simulation-based training facilitates initial surgical skill acquisition in ophthalmology. The integration of surgical simulation systems in military ocular trauma training programs benefits participants as evidenced by improved performance and positive feedback from trainees post training. Also, as a component of the TOTSL, in FY16, instructors included new topics on traumatic brain injury (TBI), visual dysfunction, psychological impacts of vision loss, and blast biomechanics as core components of the curriculum. Given that the Ocular Trauma Course is the only controlled environment for ocular trauma training, an emphasis must be placed on expanding readiness training, both in number of training cycles and locations. Improved training will result in highly skilled surgeons performing complex ocular surgeries in a deployed setting improving outcomes for Service Members.

¹ Zangeneh, T., Coggin, A., Pasternak, J., Ryan, D., Sia, R., & Coyler, M. (2016). From residency to deployment: Impact of live tissue-based ocular trauma training on novice and expert military ophthalmologists. In Proceedings of the 2016 Military Health Science Research Symposium. Kissimmee, FL.

