

Strategic Vision – Population Health and Vision in the Military

MODERATOR



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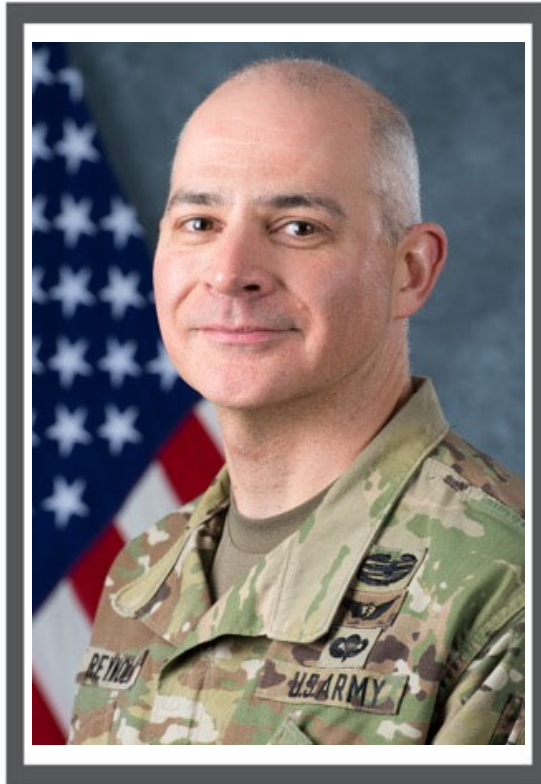
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Health and Vision in the Military**

DoD/VA Vision Center of Excellence

Research and Development

Directorate, Defense Health Agency



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- The views expressed in this presentation are those of the author and does not reflect the official policy of the Defense Health Agency, Department of Defense, or the U.S. Government.
- Presenter has no conflicts to disclose.
- All data presented is unclassified



Overview

- DoD/VA Vision Center of Excellence background
- Population Overview
- Ocular Injuries
- Visual Dysfunction after TBI
- Disease/Non-battle Injuries (DNBI)
- Human Performance Considerations



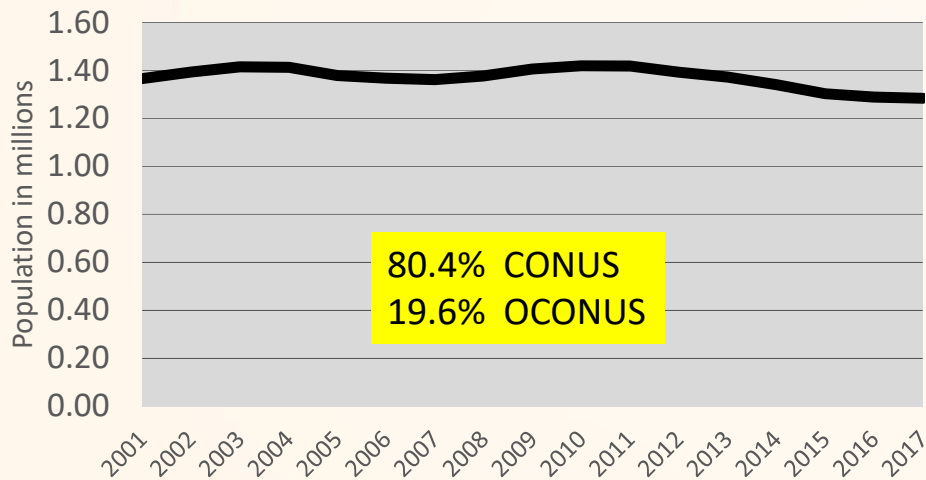
DoD/VA Vision Center of Excellence

- NDAA 2008 directed the establishment of a Center of Excellence in the prevention, diagnosis, mitigation, treatment, and rehabilitation of military eye injuries, including visual dysfunction related to traumatic brain injury
- Directed a registry of information for the tracking of the diagnosis, interventions and follow up for eye injuries incurred while serving on active duty
- Ongoing collaboration with Veterans Affairs for continuity of care

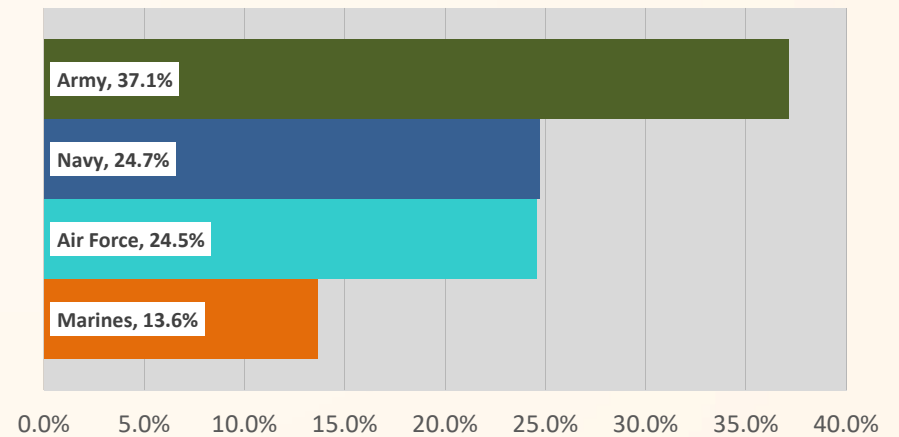


Population Overview

All Services, Active Component 2001-2017



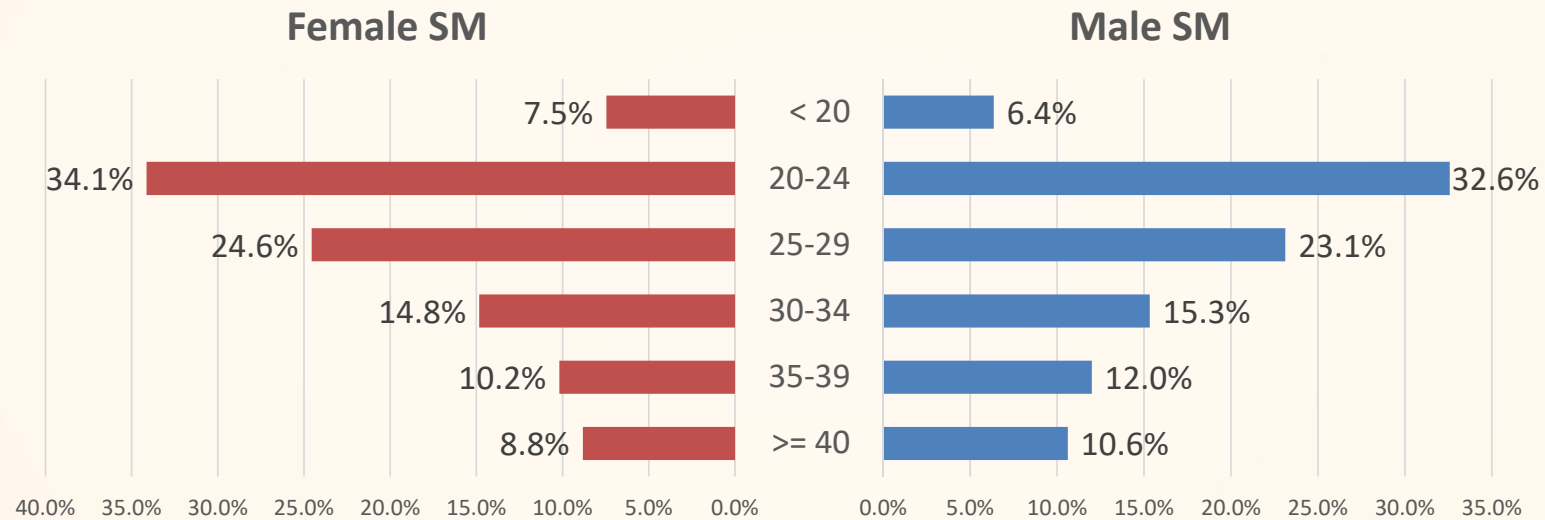
Service Breakdown, Active Component 2001-2017



Data from the Defense Medical Epidemiology Database, The Armed Forces Health Surveillance Branch, Defense Health Agency, Silver Spring, Maryland [2001-2017]



Population Overview



85.7% Male SM
16.1% Female SM

Data from the Defense Medical Epidemiology Database, The Armed Forces Health Surveillance Branch, Defense Health Agency, Silver Spring, Maryland [2001-2017]



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Ocular Injuries

- Significant impact on readiness and retention
 - Occupational requirements
- Battle and Battle-related Injuries
 - Documentation
 - Evacuation chain
- Garrison/Training environment



*Photo by Petty Officer 2nd Class Timothy Black
Fleet Combat Camera Pacific*



Ocular Injuries

TABLE IA. Incident Eye Injury

Type of Eye Injury	2000–2017Q1 Ambulatory	2000–2017Q1 Hospitalized	2000–2017Q1 Total
Total	270,505	5,237	275,742
Superficial	193,658	701	194,359
Non-Superficial	76,847	4,536	81,383
High risk of blindness	5,144	943	6,087
	Annualized	Hospitalized	Annualized
Total	15,681	304	15,985
Superficial	11,227	41	11,267
Non-Superficial	4,455	263	4,718
High risk of blindness	298	55	353

Frick KD, Singman EL. Cost of military eye injury and vision impairment related to traumatic brain injury: 2001–2017. *Mil Med.* 2019;184(5–6):338–343.



Ocular Injury Initiatives

- Prehospital and Prolonged Field Care
 - Clinical Practice Guideline
- Ocular Laser Exposures
 - Diagnosis, treatment and documentation
- Expeditionary Eye Care
 - Most current recommendations across subspecialties



Photo by Seaman James Wilson, Navy Public Affairs Support Element East - (Active)



Defense and Veterans Eye Injury and Vision Registry (DVEIVR)

- Provides the DoD and VA vision care community with a health registry consisting of DoD and VA ocular clinical and related data
- Enable tracking of eye injuries of active duty Service Members to inform
 - Coordination of care
 - Longitudinal analysis
- Ongoing outcome analysis of diverse injury types to inform treatment recommendations



Ocular Injuries – Prevention



- Spectacles must be capable of defeating a 0.15 caliber, 5.8 grain, T-37 shaped fragment simulating projectile at 640 feet per second which is much better than the current ANSI standards for high velocity impact requirements.
- Spectacles must weigh 1.7 ounces or less
- Goggles must be capable of defeating a the T-37 projectile at 550 feet per second and weigh 5.1 ounces or less
- Must absorb 99.9 percent of UVA and UVB light

Tri-Service Vision Conservation & Readiness Division, Army Public Health Center



Visual Dysfunction after TBI

- Over 375,000 TBIs reported by the Defense and Veterans Brain Injury Center since 2000
- Dysfunctions range from accommodative dysfunction and convergence insufficiency to visual field loss
- Dysfunctions vary by severity of TBI
- Variations in documentation and interventions



*Photo by Patricia Beal, Womack
Army Medical Center*



Disease/Non-battle Injuries

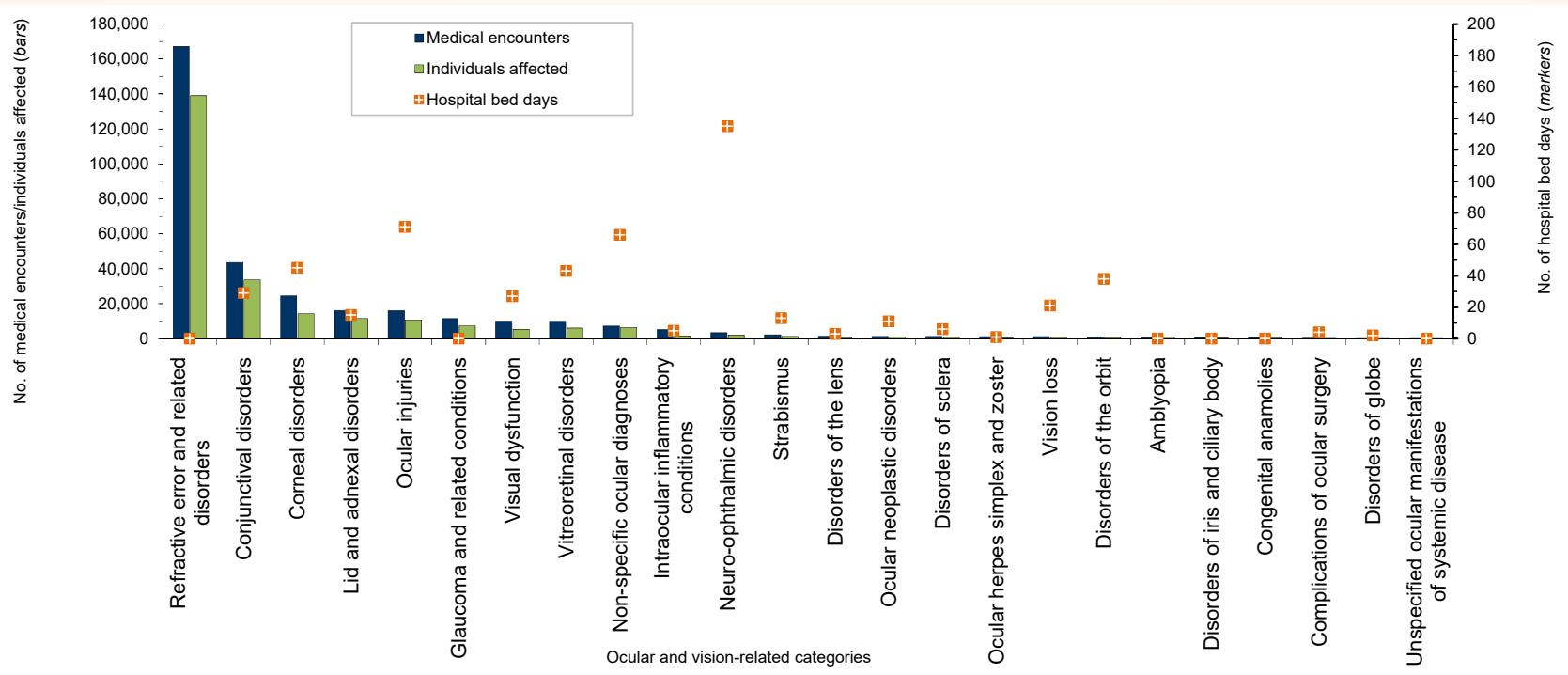
- Significant effects on readiness in all environments
- Acute and chronic conditions
- Frequent cause of medical evacuation
- Challenges in defining magnitude and risk factors



*Photo by Tech. Sgt. Robert Cloys
386th Air Expeditionary Wing Public Affairs*



Burden of Ocular and Vision Conditions 2018



Data from the Defense Medical Surveillance System, The Armed Forces Health Surveillance Branch, Defense Health Agency, Silver Spring, Maryland [2018]

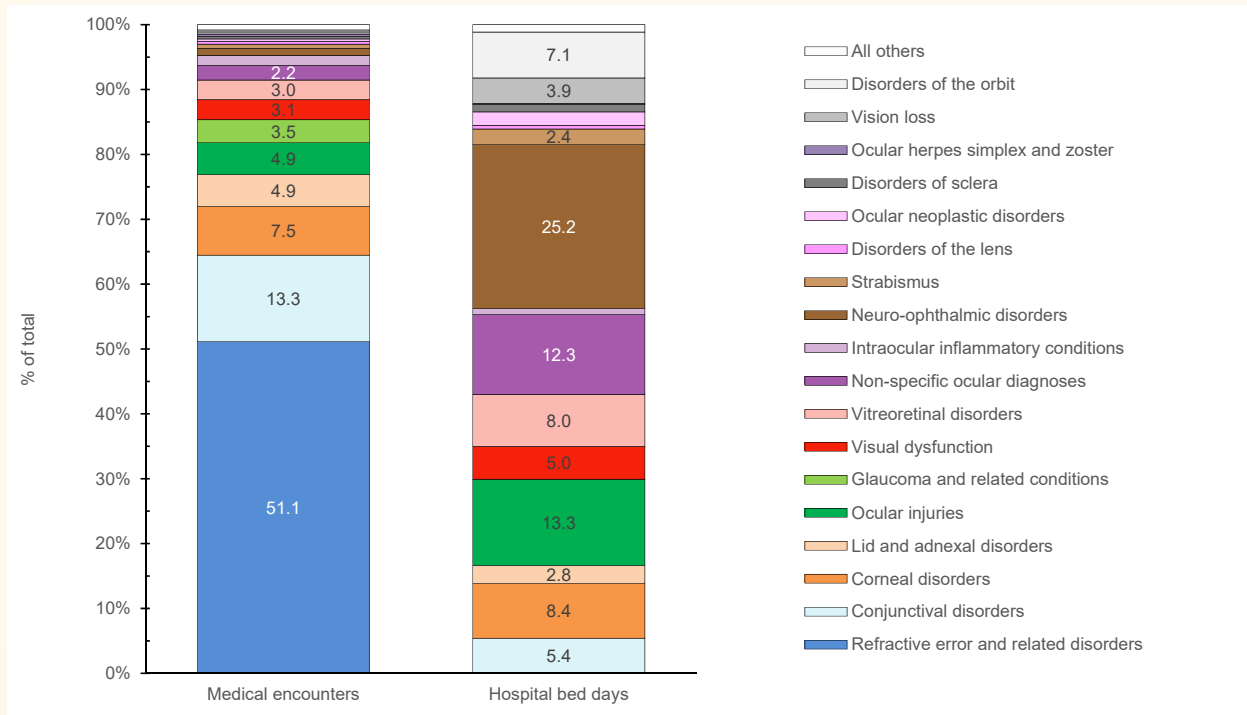


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Burden of Ocular and Vision Conditions 2018

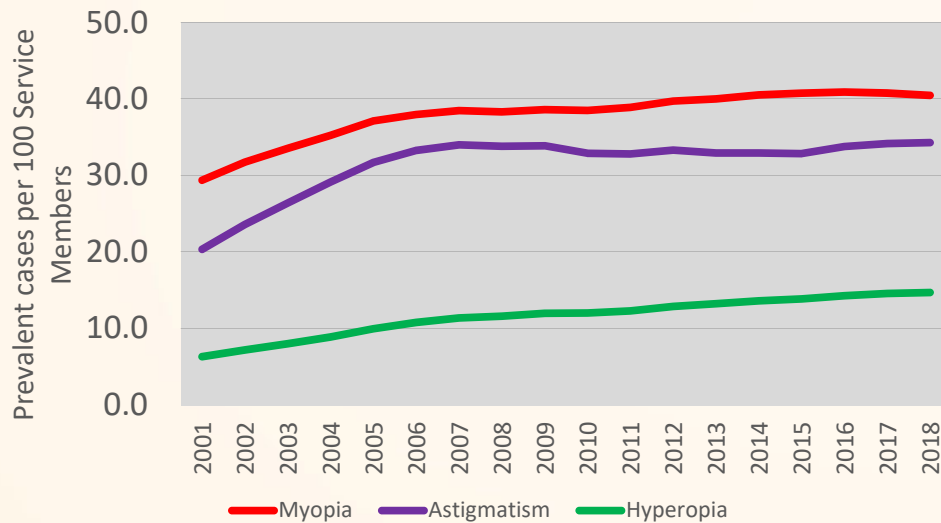


Data from the Defense Medical Surveillance System, The Armed Forces Health Surveillance Branch, Defense Health Agency, Silver Spring, Maryland [2018]



Human Performance

Annual Lifetime Prevalence of Selected Refractive Errors, Active Component, U.S. Armed Forces, 2001–2018



- Sub-optimal visual acuity due to refractive error affects target discrimination and marksmanship performance
- Tactical athlete
- Static and dynamic visual acuity in sports
- Preference for contact lens use in activity
- Risk of CL use in operational settings
- Potential interaction with other readiness indicators



Human Performance



*Photo by Airman 1st Class Joseph Barron
100th Air Refueling Wing Public Affairs*



*Photo by Pfc. Rashene Mincy
55th Combat Camera*



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Questions

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