

**US DEPARTMENT OF
DEFENSE (DoD) COMBINED
ACTIVE DUTY
EYE INJURY SUMMARY
CALENDAR YEAR 2017**

Approved for public release, distribution unlimited

2017



INTRODUCTION: In 2010 the Armed Forces Health Surveillance Branch (AFHSB) and Tri-Service Vision Conservation and Readiness Program (TSVCRP) of the Army Public Health Center (APHC) began development of an Annual Active Duty Military Eye Injury Summary that would detail cause and type of injury along with demographics of eye injuries (Age, Gender, Rank, Occupational Group).

The first edition of the summary and annual summaries back through calendar year 2000, were produced in the spring of 2011. An analysis of years 2000-2010 was published in the May 2011 Medical Surveillance Monthly Report (MSMR). The AFHSB also developed a Case Definition for Eye Injuries that details the code set and methodology used to develop the summaries. Both the MSMR Article and Case Definition for Eye Injuries are available on the AFHSB website: <https://health.mil/afhsb>

This summary contains detailed data, along with a set of summary tables detailing Ambulatory and Hospitalization rates (per 1000 person-years) for Injury Group, Cause of Injury and Occupational Group. Summary tables for Deployment-Associated Eye Injuries detailing frequency of Eye Injuries by Type of Injury and Occupational Group are also provided. Occupational Group data is for Enlisted members only. Deployment-Associated Eye Injuries are presented without regard to Ambulatory or Hospitalized status.

As one of the underlying goals of the summary is to make eye injury surveillance data accessible and useable, individual annual eye injury summaries for all years and all services (Combined DoD, Army, Navy, Air Force, Marine Corps and Coast Guard) are posted on the APHC public website.

For questions or additional information regarding the summaries please contact the TSVCRP:

By Email: usarmy.apg.medcom-phc.mbx.dcpm-tri-service-optometry@mail.mil

Telephone: 410-436-1002 FAX: 410-436-4117

Additional program information and educational materials can be found on the APHC Public Website at: <http://phc.amedd.army.mil/Pages/default.aspx>

CONTENTS:

- 1) [Summary of Code Groupings](#)
- 2) [All diagrams by Injury Group](#)
- 3) [All diagrams by Cause of Injury](#)
- 4) [All diagrams by Occupational Group](#)
- 5) [Deployment-Associated Eye Injury diagrams \(by Injury and Occupational Group\)](#)
- 6) [2017 DoD Combined Eye Injury complete statistics](#)



CY 2017 US DoD COMBINED ACTIVE DUTY (AD) EYE INJURY SUMMARY

INJURY CODE GROUP DETAILS: The following code groupings were used to develop the summary. ICD-9 coding was replaced by ICD-10 in October and this report represents the combination of both. Additional details may be found in the AFHSC Case Definition available at: <https://health.mil/afhsb>

- 1) **Superficial:** ICD-9: all 918 series codes (superficial injury of eye and adnexa) and all 930 series codes (foreign body on external eye). ICD-10: S00.2xx series codes (abrasions, blisters, bites, and injury to the conjunctiva, eyelid, or periorcular area)
- 2) **Contusion:** ICD-9: all 921 series codes (contusion of eye and adnexa). ICD-10: S00.1xx series codes (contusion of the eyelids) and S05.1xx series (contusion of the eyeball and orbital tissues)
- 3) **Orbit:** ICD-9: All 802 series codes (fracture of face bones), 870.3 and 870.4 (penetrating wound of orbit without and with foreign body) and 376.32 (orbital hemorrhage). ICD-10: S02.3xx/S02.9xx series codes (fracture of orbital floor) and S05.4xx series (penetrating wound of orbit)
- 4) **Lid/adnexa:** ICD-9: all 870 series codes (open wound of ocular adnexa) with the exception of 870.3 and 870.4 (see orbit above). ICD-10: S01.1xx series codes (laceration, puncture, and bite of the eyelid or periorcular area)
- 5) **Posterior segment:** ICD-9: 362.81 (retinal hemorrhage), all 361.0x series codes (retinal detachment with retinal defect), 363.61 (choroidal hemorrhage, unspecified), 363.63 (choroidal rupture), 379.23 (vitreous hemorrhage), 360.00 and 360.01 (purulent and acute endophthalmitis). ICD-10: H31.3xx series codes (choroidal hemorrhage/rupture), H33.0xx series (retinal detachments), H35.6x series (retinal hemorrhage), H43.1x series (vitreous hemorrhage), H44.00x series (purulent enophthalmitis)
- 6) **High risk of blindness:** ICD-9: all 871 series codes (open wound of eyeball). ICD-10: S05.xxx series codes (ocular laceration, penetrating wound, and avulsion of the eye)
- 7) **Burns:** ICD-9: all 940 series codes (burn confined to eye and adnexa) as well as all 940.x2 codes (burns to eye with other parts of face, head and neck). ICD-10: S05.xxx series codes (ocular laceration, penetrating wound, and avulsion of the eye)
- 8) **Anterior segment:** ICD-9: 364.41 (hyphema), 366.21 and 366.22 (localized and total traumatic cataract), and 364.76 (iridodialysis). ICD-10: H21.xxx series codes (hyphema and iridodialysis) and H26.1xx series (traumatic cataract)
- 9) **Optic/cranial nerve:** ICD-9: 950.0 (optic nerve injury), 950.1 (injury to optic chiasm), 950.9 (injury to optic nerve and pathways, unspecified), 951.0 (injury to oculomotor nerve), 951.1 (injury to trochlear nerve) and 951.3 (injury to abducens nerve). ICD-10: S04.xxx series codes (injury of the optic, oculomotor, trochlear, and abducent nerves)

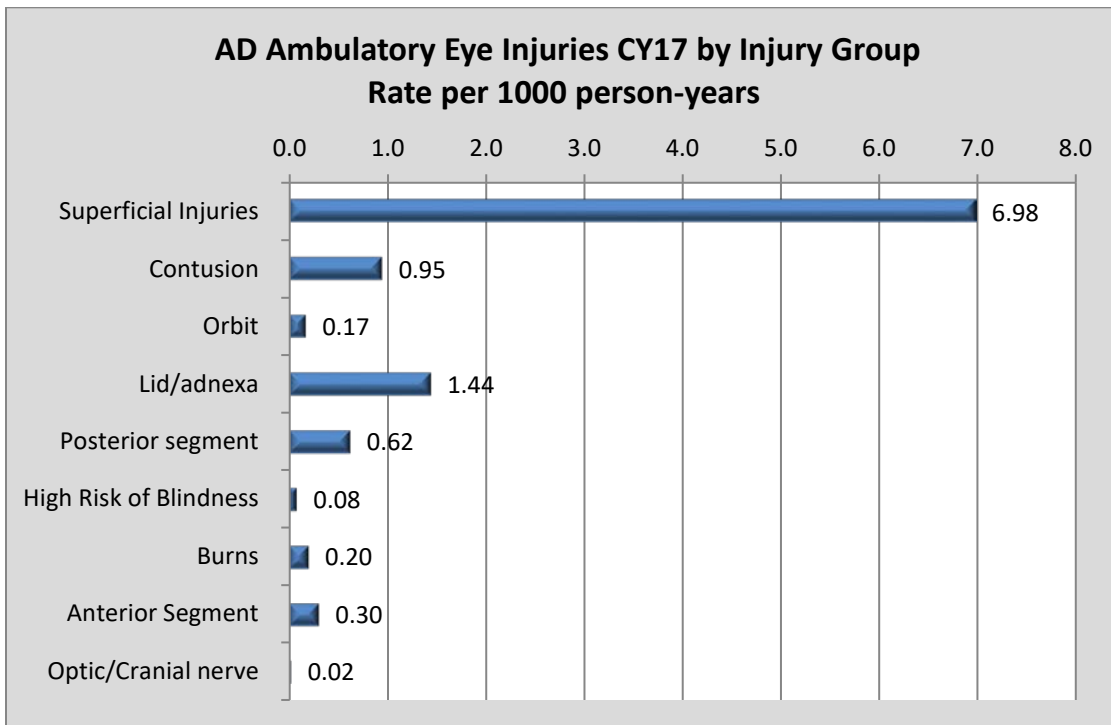
DETAILS FOR TOTAL NUMBERS: Because patients may have been coded with more than one injury group or cause of injury, the sum of cases by injury group and the sum of cases by causes of injury will be greater than the total number of patients.

Disclaimer for Report: * Medical data from Military Treatment Facilities that are using MHS GENESIS are not available in DMSS. This includes Naval Hospital Oak Harbor, Naval Hospital Bremerton, Air Force Medical Services Fairchild, and Madigan Army Medical Center. Therefore, individuals who are expected to seek care at one of these facilities are currently being removed from the study population as we will not capture their medical encounters. Naval Hospital Oak Harbor (15JUL2017), Naval Hospital Bremerton (23SEP2017), Air Force Medical Services Fairchild (07FEB2017), Madigan Army Medical Center (21OCT2017)

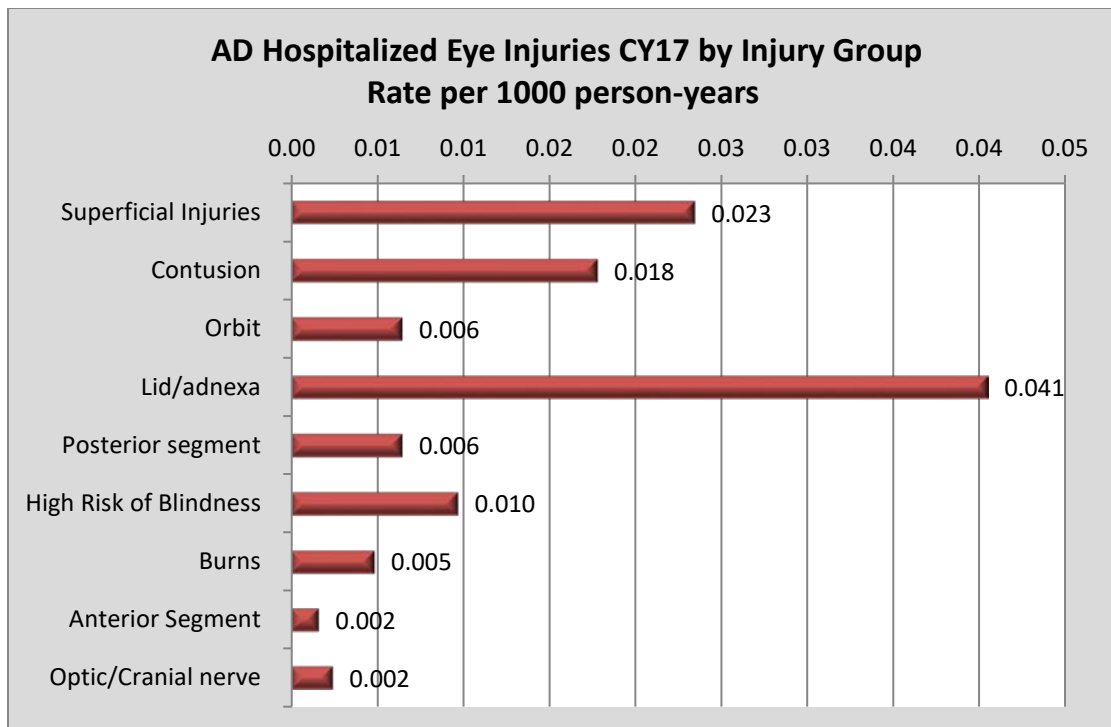
[Return to Introduction Page](#)



CY 2017 US DoD COMBINED ACTIVE DUTY (AD) EYE INJURY SUMMARY



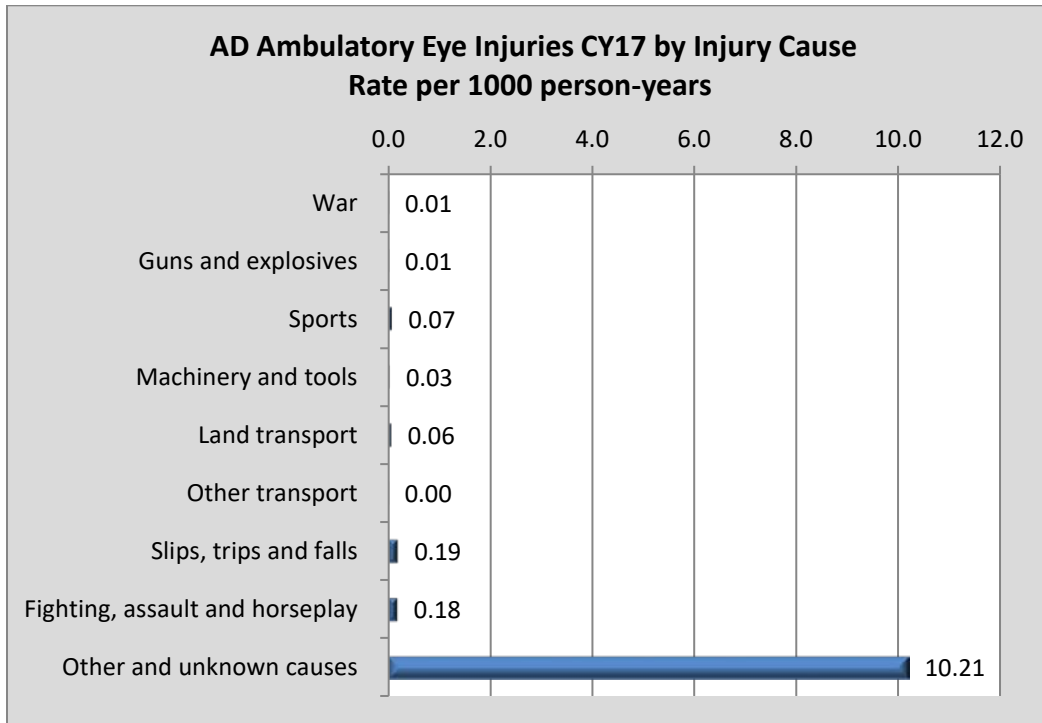
Please note the difference in scale between Ambulatory and Hospitalized graphs



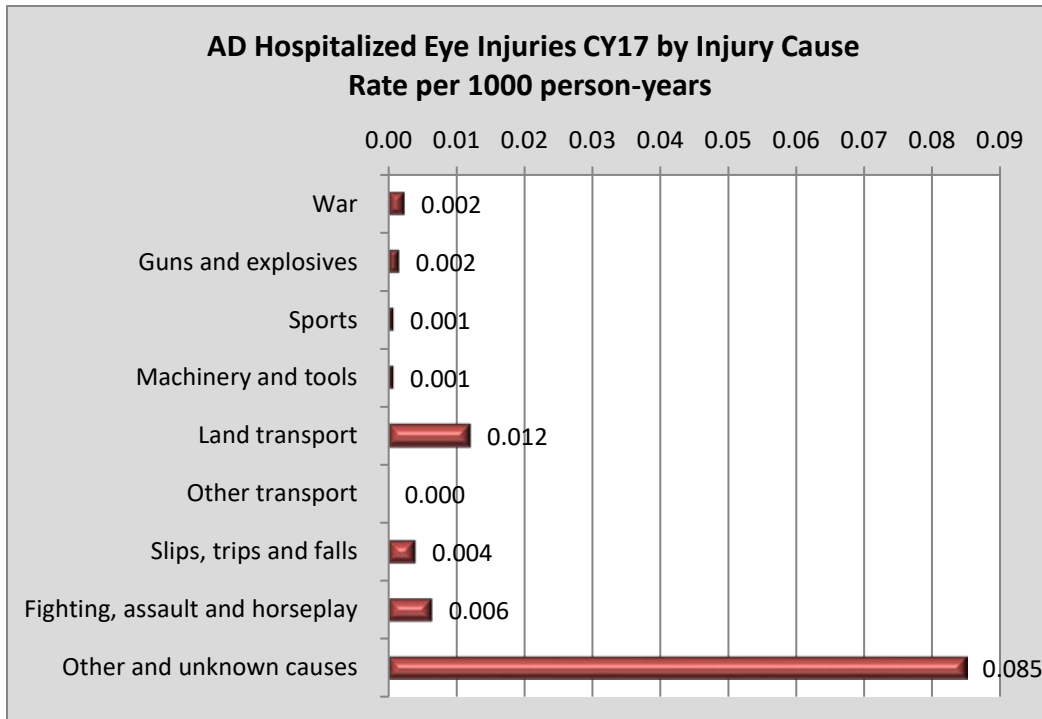
[Return to Introduction Page](#)



CY 2017 US DoD COMBINED ACTIVE DUTY (AD) EYE INJURY SUMMARY



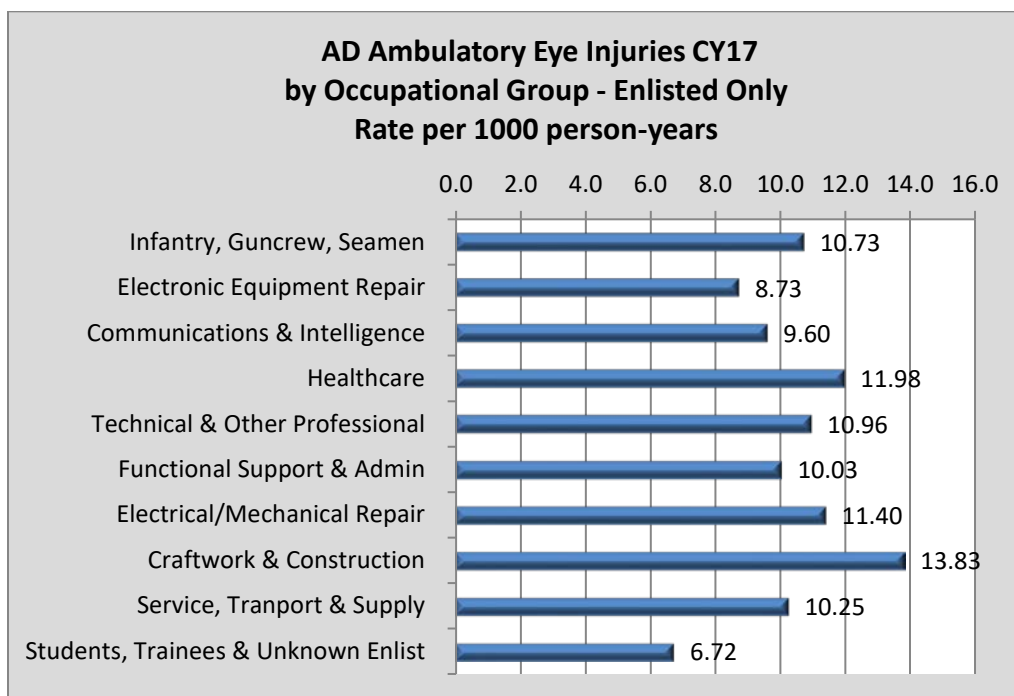
Please note the difference in scale between Ambulatory and Hospitalized graphs



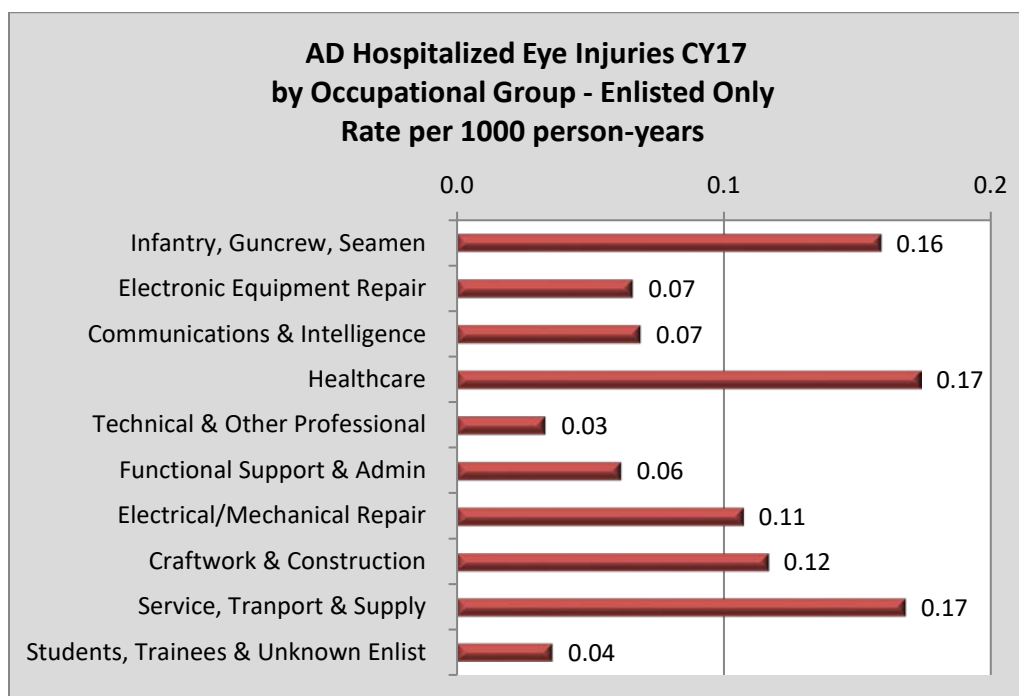
[Return to Introduction Page](#)



CY 2017 US DoD COMBINED ACTIVE DUTY (AD) EYE INJURY SUMMARY



Please note the difference in scale between Ambulatory and Hospitalized graphs

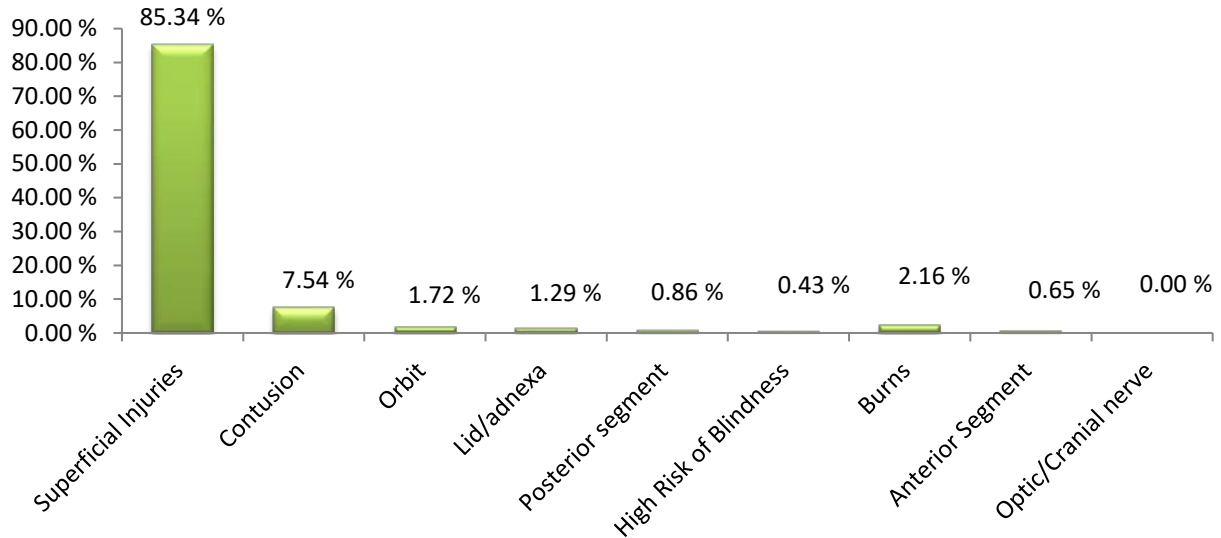


[Return to Introduction Page](#)

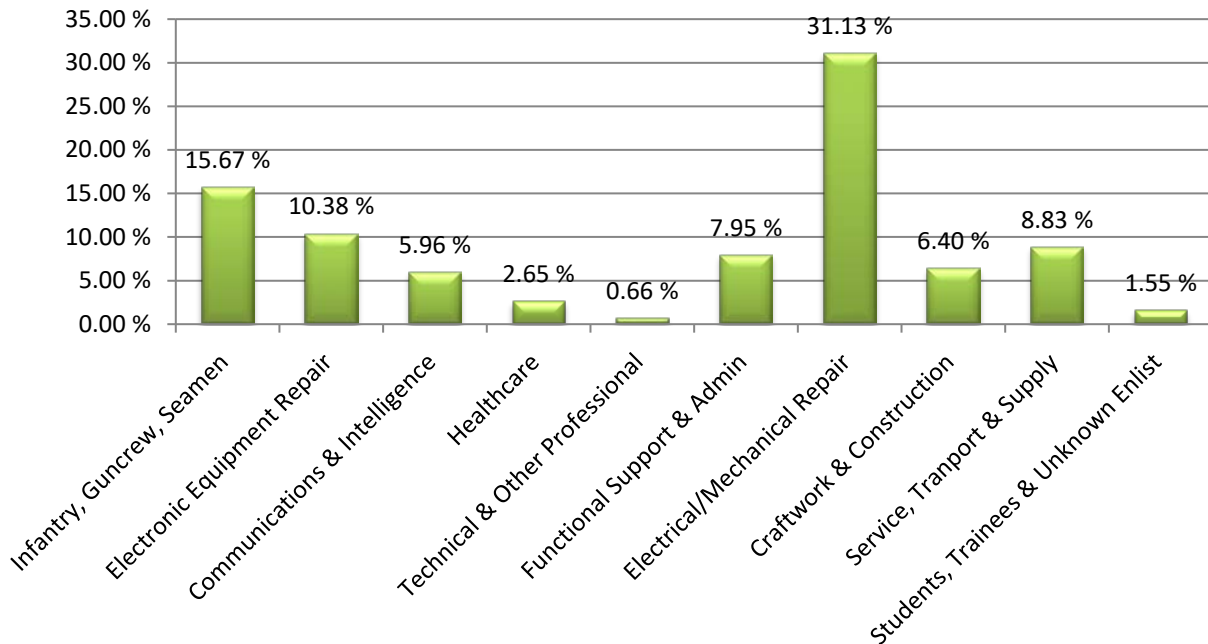


CY 2017 US DoD COMBINED ACTIVE DUTY (AD) EYE INJURY SUMMARY

**AD Deployment Associated Eye Injuries CY17
By Injury Group
Percent of Total**



**AD Deployment Associated Eye Injuries CY17
by Occupational Group- Enlisted Only
Percent of Total**



[Return to Introduction Page](#)



CY 2017 US DoD COMBINED ACTIVE DUTY (AD) EYE INJURY SUMMARY

	2017											
	Ambulatory MTF Visits				Deployment-Associated Healthcare				Hospitalizations			
	Primary		All Diagnoses		Primary		All Diagnoses		Primary		All Diagnoses	
	Count	Rate ¹	Count	Rate	Count	% total ¹	Count	% total ¹	Count	Rate	Count	Rate
ALL ACTIVE COMPONENT												
Total	10,608	8.59	12,694	10.28	431	100.00	453	100.00	22	0.02	122	0.10
Superficial Injuries	7,738	6.27	8,620	6.98	379	85.94	396	85.34	4	0.00	29	0.02
Contusion	808	0.66	1,167	0.95	32	7.26	35	7.54	2	0.00	22	0.02
Orbit	144	0.12	210	0.17	8	1.81	8	1.72	3	0.00	8	0.01
Lid/Adnexa	1,509	1.22	1,779	1.44	6	1.36	6	1.29	7	0.01	50	0.04
Posterior segment	400	0.32	768	0.62	3	0.68	4	0.86	3	0.00	8	0.01
High Risk of Blindness	88	0.07	98	0.08	2	0.45	2	0.43	9	0.01	12	0.01
Burns	207	0.17	245	0.20	9	2.04	10	2.16	0	0.00	6	0.00
Anterior Segment	161	0.13	375	0.30	2	0.45	3	0.65	2	0.00	2	0.00
Optic/Cranial nerve	18	0.01	24	0.02	0	0.00	0	0.00	0	0.00	3	0.00
Male	8,906	8.60	10,651	10.29	358	83.06	377	83.22	21	0.02	102	0.10
Female	1,702	8.54	2,043	10.25	73	16.94	76	16.78	1	0.01	20	0.10
War	10	0.01	10	0.01					0	0.00	3	0.002
Guns and explosives	12	0.01	14	0.01					1	0.00	2	0.002
Sports	76	0.06	91	0.07					0	0.00	1	0.001
Machinery and tools	27	0.02	32	0.03					0	0.00	1	0.001
Land transport	43	0.03	75	0.06					4	0.00	15	0.012
Other transport	1	0.00	3	0.00					0	0.00	0	0.000
Slips, trips and falls	174	0.14	234	0.19					0	0.00	5	0.004
Fighting, assault and horseplay	156	0.13	225	0.18					1	0.00	8	0.006
Other and unknown causes	10,574	8.57	12,602	10.21					24	0.02	105	0.085
ENLISTED (all diagnoses combined)												
Enlisted	8,837	8.71	10,564	10.41	396	91.88	413	91.17	19	0.02	110	0.11
<20	601	4.95	720	5.93	15	3.48	16	3.53	2	0.02	9	0.07
20-24	3,335	8.79	3,985	10.50	183	42.46	193	42.60	6	0.02	53	0.14
25-29	2,172	9.71	2,593	11.60	107	24.83	110	24.28	6	0.03	27	0.12
30-34	1,333	9.19	1,562	10.77	49	11.37	50	11.04	2	0.01	13	0.09
35-39	870	9.33	1,027	11.01	21	4.87	22	4.86	1	0.01	4	0.04
>=40	526	10.06	677	12.95	21	4.87	22	4.86	2	0.04	4	0.08
E0-E4	4,708	8.73	5,673	10.52	246	57.08	255	56.29	11	0.02	68	0.13
E5-E9	4,129	8.68	4,891	10.29	150	34.80	158	34.88	8	0.02	42	0.09
Infantry, Guncrew, Seamen	1,513	8.89	1,826	10.73	66	15.31	71	15.67	4	0.02	27	0.16
Electronic Equipment Repair	650	7.11	798	8.73	44	10.21	47	10.38	0	0.00	6	0.07
Communications & Intelligence	824	8.06	982	9.60	25	5.80	27	5.96	0	0.00	7	0.07
Healthcare	725	9.68	897	11.98	12	2.78	12	2.65	3	0.04	13	0.17
Technical & Other Professional	272	8.98	332	10.96	3	0.70	3	0.66	0	0.00	1	0.03
Functional Support & Admin	1,072	8.21	1,311	10.03	34	7.89	36	7.95	3	0.02	8	0.06
Electrical/Mechanical Repair	2,019	9.82	2,343	11.40	138	32.02	141	31.13	3	0.01	22	0.11
Craftwork & Construction	415	12.08	475	13.83	29	6.73	29	6.40	1	0.03	4	0.12
Service, Transport & Supply	1,033	8.67	1,222	10.25	38	8.82	40	8.83	5	0.04	20	0.17
Students, Trainees & Unknown Enlist	314	5.59	378	6.72	7	1.62	7	1.55	0	0.00	2	0.04
Army	3,541	9.79	4,297	11.87	109	25.29	119	26.27	11	0.03	56	0.15
Navy	1,895	6.91	2,025	8.26	237	54.99	242	53.42	6	0.02	23	0.09
Air Force	2,212	8.95	2,611	10.56	22	5.10	23	5.08	2	0.01	18	0.07
Marine Corps	1,389	8.65	1,631	10.15	28	6.50	29	6.40	0	0.00	13	0.08
OFFICER (all diagnoses combined)												
Officer	1,771	8.07	2,130	9.71	35	8.12	40	8.83	3	0.01	12	0.05
<20	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
20-24	137	5.46	161	6.42	2	0.46	2	0.44	1	0.04	2	0.08
25-29	373	7.28	444	8.67	11	2.55	12	2.65	1	0.02	3	0.06
30-34	351	7.46	405	8.61	7	1.62	8	1.77	0	0.00	6	0.13
35-39	341	8.54	408	10.21	5	1.16	6	1.32	0	0.00	0	0.00
>=40	569	10.16	712	12.71	10	2.32	12	2.65	1	0.02	1	0.02
O0-O3,W0-W3	1,041	7.61	1,225	8.96	25	5.80	28	6.18	3	0.02	12	0.09
O4-O10,W4-W5	730	8.84	905	10.96	10	2.32	12	2.65	0	0.00	0	0.00
General/Flag Ofc & Executives	16	9.38	18	10.56	0	0.00	0	0.00	0	0.00	0	0.00
Tactical Operations Off.	622	7.83	728	9.17	13	3.02	16	3.53	0	0.00	2	0.03
Intelligence Off.	123	8.14	140	9.26	3	0.70	3	0.66	1	0.07	2	0.13
Engineering & Maintenance Off.	227	8.27	274	9.98	2	0.46	3	0.66	0	0.00	3	0.11
Healthcare Off.	328	9.21	392	11.00	3	0.70	4	0.88	1	0.03	1	0.03
Scientists & Professional Off.	114	8.47	148	11.00	2	0.46	2	0.44	0	0.00	0	0.00
Administrative Off.	97	7.11	117	8.58	3	0.70	3	0.66	0	0.00	1	0.07
Supply & Logistics Off.	142	7.79	187	10.26	3	0.70	3	0.66	0	0.00	1	0.05
Students, Trainees & Unknown Off.	102	6.90	126	8.53	6	1.39	6	1.32	1	0.07	2	0.14
Army	727	8.24	889	10.08	14	3.25	17	3.75	1	0.01	5	0.06
Navy	402	7.74	479	9.22	14	3.25	16	3.53	1	0.02	2	0.04
Air Force	464	7.96	556	9.54	3	0.70	3	0.66	1	0.02	1	0.02
Marine Corps	178	8.50	206	9.84	4	0.93	4	0.88	0	0.00	4	0.19

1. Rates are per 1,000 person-years.
 2. Use of ICD-9-CM E-codes for "cause of injury" is largely incomplete for theater healthcare records and therefore omitted.
 3. Person-time is not available for deployers so the proportion of the total number of diagnoses is shown.

Disclaimer for Reports:
 * Medical data from Military Treatment Facilities that are using MHS GENESIS are not available in DMSS. This includes Naval Hospital Oak Harbor, Naval Hospital Bremerton, Air Force Medical Services Fairchild, and Madigan Army Medical Center. Therefore, individuals who are expected to seek care at one of these facilities are currently being removed from the study population as we will not capture their medical encounters.

Naval Hospital Oak Harbor (15JUL2017)
 Naval Hospital Bremerton (23SEP2017)
 Air Force Medical Services Fairchild (07FEB2017)
 Madigan Army Medical Center (21OCT2017)

Source: Defense Medical Surveillance System (DMSS) as of 04 APR 2018
 Prepared by the Armed Forces Health Surveillance Branch, Public Health Division, Defense Health Agency

