

**US AIR FORCE
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 Air Force Eye Injury complete statistics](#)



CY 2017 US AIR FORCE 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)

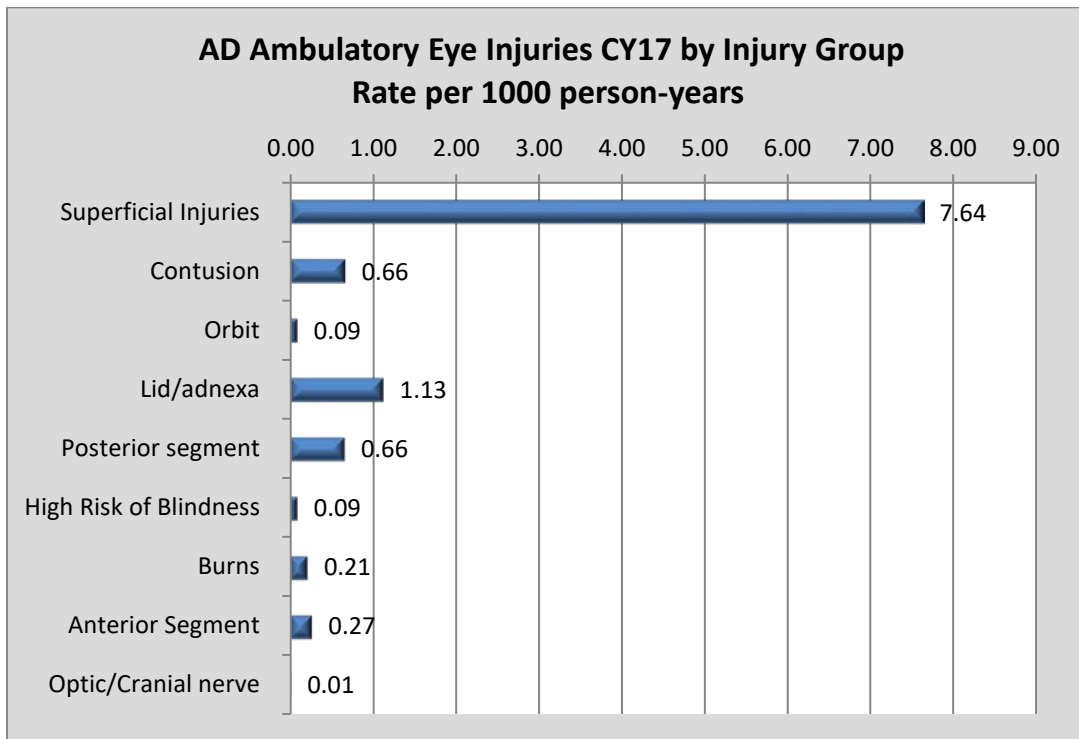
DETAILS FOR TOTAL NUMBERS: Because patients may have been coded with more than one injury group or cause of injury, the sum of cases by injury group and the sum of cases by causes of injury will be greater than the total number of patients.

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)

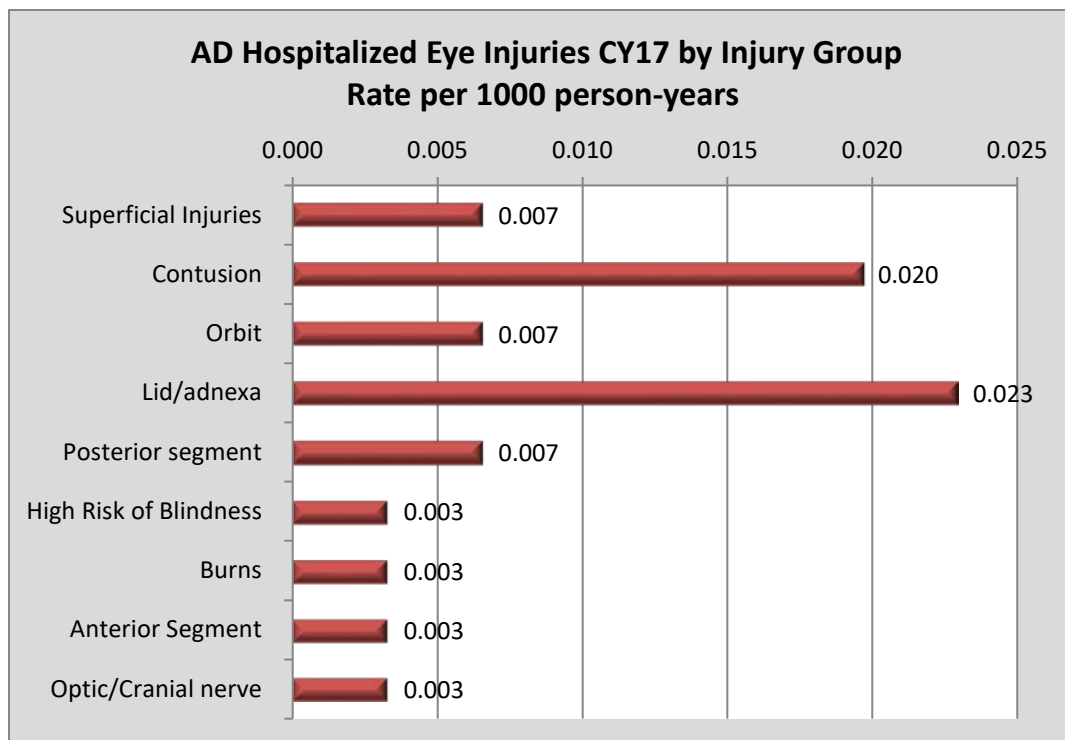
[Return to Introduction Page](#)



CY 2017 US AIR FORCE ACTIVE DUTY (AD) EYE INJURY SUMMARY



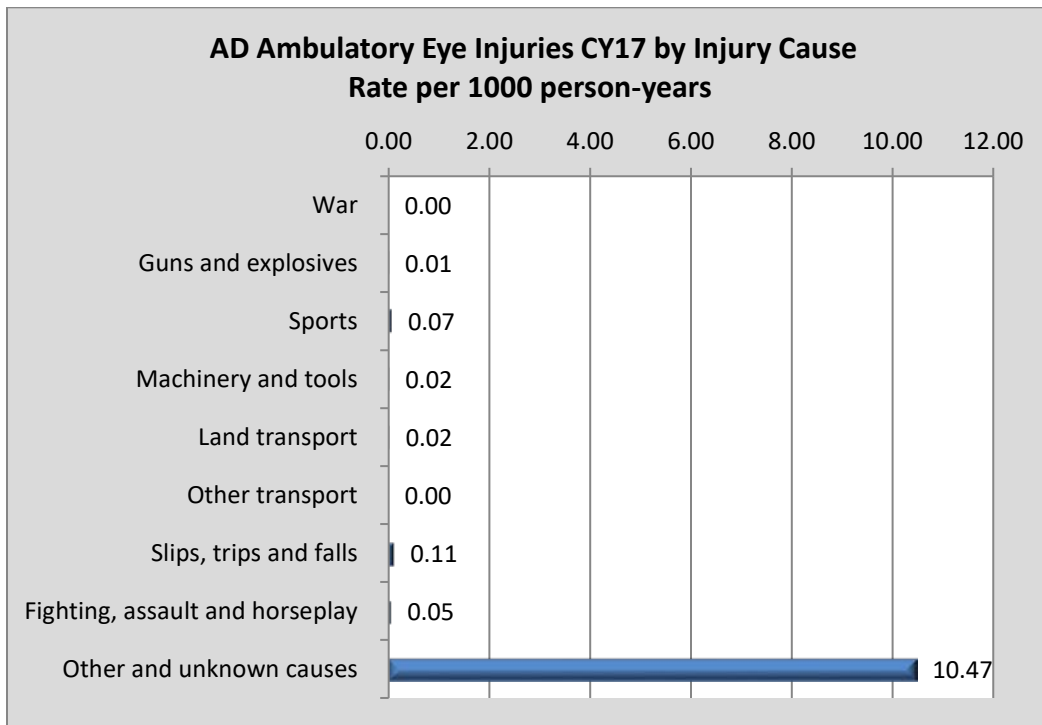
Please note the difference in scale between Ambulatory and Hospitalized graphs



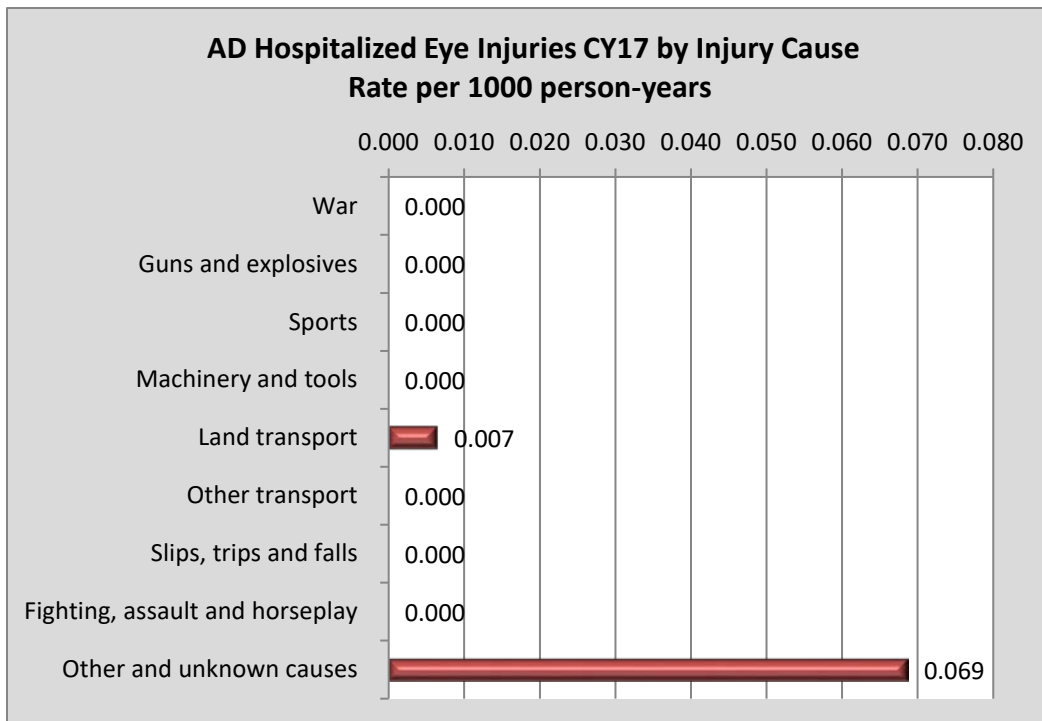
[Return to Introduction Page](#)



CY 2017 US AIR FORCE ACTIVE DUTY (AD) EYE INJURY SUMMARY



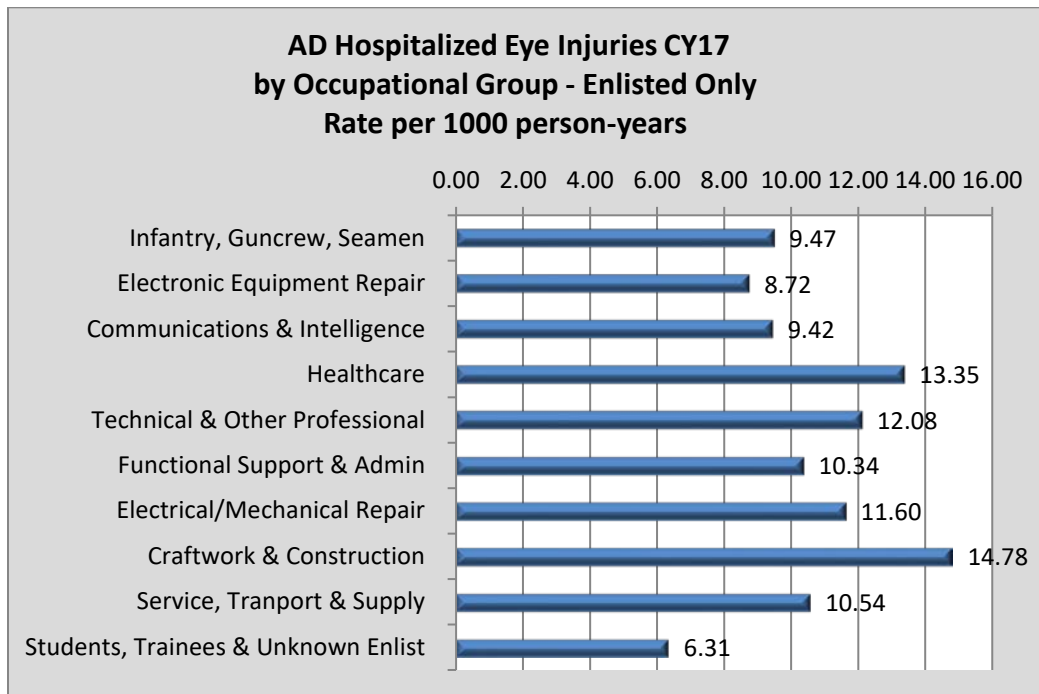
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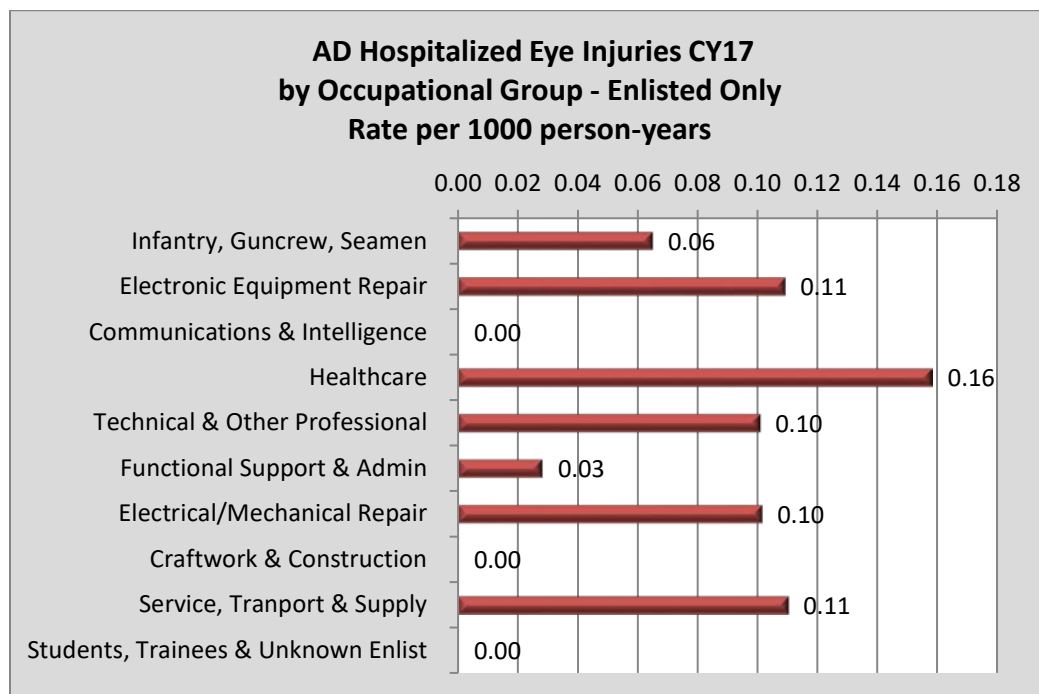
[Return to Introduction Page](#)



CY 2017 US AIR FORCE ACTIVE DUTY (AD) EYE INJURY SUMMARY



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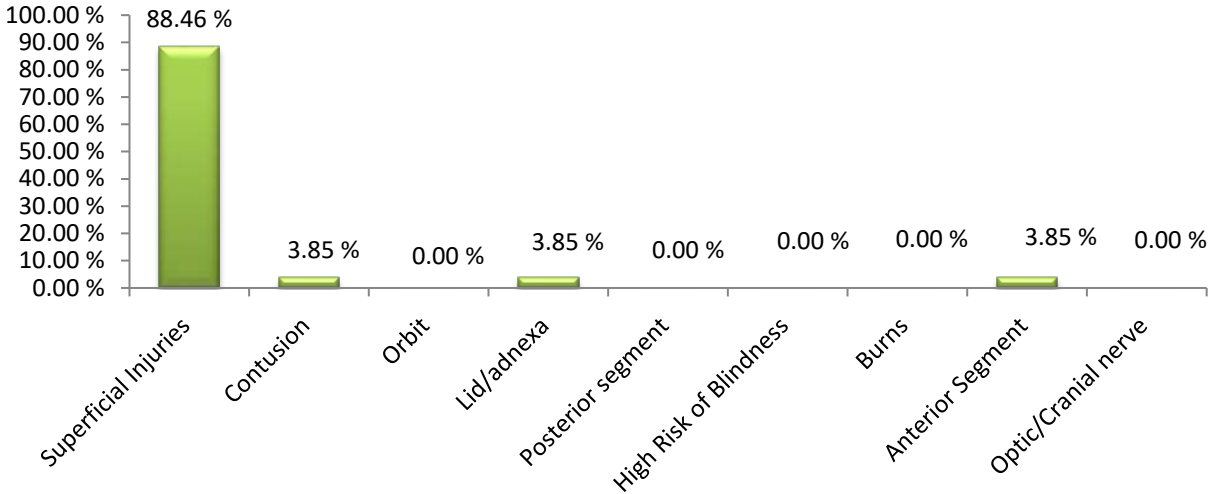


[Return to Introduction Page](#)

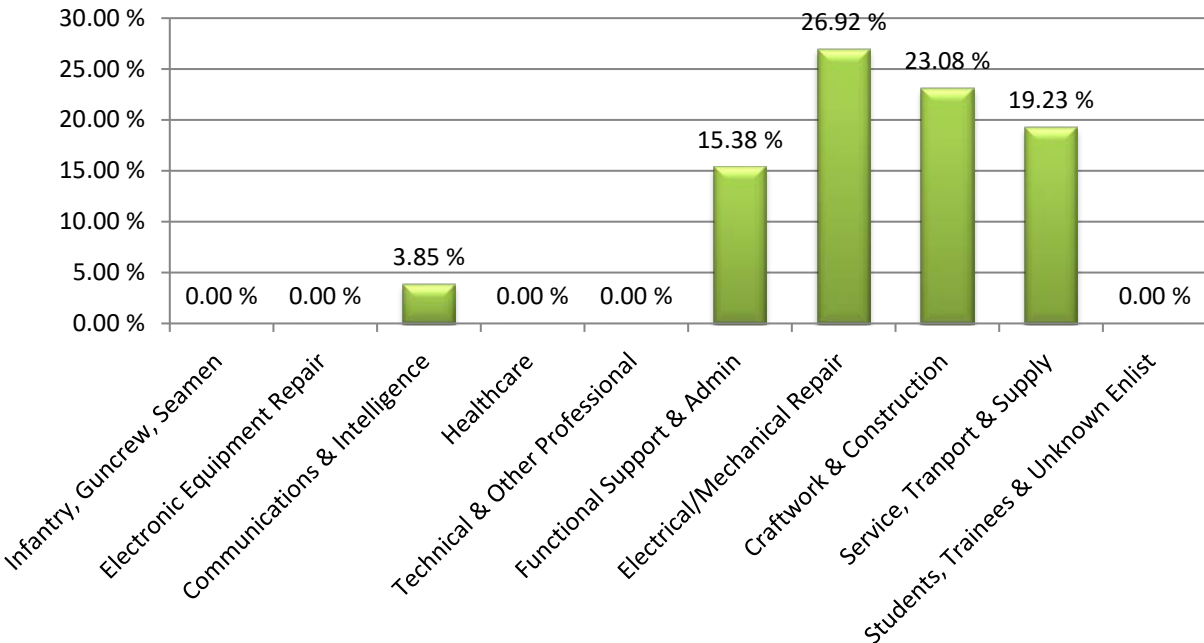


CY 2017 US AIR FORCE ACTIVE DUTY (AD) EYE INJURY SUMMARY

**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 AIR FORCE 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 ³	Count	% total ³	Count	Rate	Count	Rate
ALL ACTIVE COMPONENT												
Total	2,676	8.76	3,167	10.36	25	100.00	26	100.00	3	0.01	19	0.06
Superficial Injuries	2,079	6.80	2,335	7.64	22	88.00	23	88.46	1	0.00	2	0.01
Contusion	153	0.50	203	0.66	1	4.00	1	3.85	1	0.00	6	0.02
Orbit	21	0.07	27	0.09	0	0.00	0	0.00	1	0.00	2	0.01
Lid/adnexa	309	1.01	344	1.13	1	4.00	1	3.85	1	0.00	7	0.02
Posterior segment	97	0.32	201	0.66	0	0.00	0	0.00	1	0.00	2	0.01
High Risk of Blindness	25	0.08	27	0.09	0	0.00	0	0.00	1	0.00	1	0.00
Burns	52	0.17	64	0.21	0	0.00	0	0.00	0	0.00	1	0.00
Anterior Segment	34	0.11	81	0.27	1	4.00	1	3.85	1	0.00	1	0.00
Optic/Cranial nerve	2	0.01	3	0.01	0	0.00	0	0.00	0	0.00	1	0.00
Male	2,101	8.58	2,481	10.13	22	88.00	22	84.62	3	0.01	15	0.06
Female	575	9.48	686	11.31	3	12.00	4	15.38	0	0.00	4	0.07
War	-	0.00	-	0.00					-	0.00	-	0.00
Guns and explosives	3	0.01	3	0.01					0	0.00	0	0.00
Sports	17	0.06	20	0.07					0	0.00	0	0.00
Machinery and tools	5	0.02	5	0.02					0	0.00	0	0.00
Land transport	4	0.01	6	0.02					0	0.00	2	0.007
Other transport	-	0.00	-	0.00					-	0.00	-	0.00
Slips, trips and falls	28	0.09	35	0.11					0	0.00	0	0.00
Fighting, assault and horseplay	12	0.04	16	0.05					0	0.00	0	0.00
Other and unknown causes	2,703	8.85	3,200	10.47					7	0.02	21	0.069
ENLISTED (all diagnoses combined)												
Enlisted	2,212	8.95	2,611	10.56	22	88.00	23	88.46	2	0.01	18	0.07
<20	120	5.57	134	6.22	0	0.00	0	0.00	0	0.00	1	0.05
20-24	695	8.46	817	9.94	9	36.00	9	34.62	0	0.00	8	0.10
25-29	614	10.00	734	11.95	7	28.00	7	26.92	1	0.02	4	0.07
30-34	375	8.80	441	10.35	4	16.00	4	15.38	0	0.00	3	0.07
35-39	286	10.23	329	11.77	1	4.00	2	7.69	0	0.00	0	0.00
>=40	122	10.55	156	13.49	1	4.00	1	3.85	1	0.09	2	0.17
E0-E4	1,039	8.74	1,227	10.32	10	40.00	10	38.46	1	0.01	11	0.09
E5-E9	1,173	9.14	1,384	10.78	12	48.00	13	50.00	1	0.01	7	0.05
Infantry, Guncrew, Seamen	116	7.52	146	9.47	0	0.00	0	0.00	0	0.00	1	0.06
Electronic Equipment Repair	132	7.19	160	8.72	0	0.00	0	0.00	0	0.00	2	0.11
Communications & Intelligence	183	8.09	213	9.42	1	4.00	1	3.85	0	0.00	0	0.00
Healthcare	208	10.97	253	13.35	0	0.00	0	0.00	0	0.00	3	0.16
Technical & Other Professional	98	9.87	120	12.08	0	0.00	0	0.00	0	0.00	1	0.10
Functional Support & Admin	315	8.83	369	10.34	3	12.00	4	15.38	0	0.00	1	0.03
Electrical/Mechanical Repair	594	10.03	687	11.60	7	28.00	7	26.92	1	0.02	6	0.10
Craftwork & Construction	135	13.30	150	14.78	6	24.00	6	23.08	0	0.00	0	0.00
Service, Transport & Supply	322	8.86	383	10.54	5	20.00	5	19.23	1	0.03	4	0.11
Students, Trainees & Unknown Enlist	109	5.29	130	6.31	0	0.00	0	0.00	0	0.00	0	0.00
OFFICER (all diagnoses combined)												
Officer	464	7.96	556	9.54	3	12.00	3	11.54	1	0.02	1	0.02
<20	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
20-24	23	3.65	30	4.76	0	0.00	0	0.00	1	0.16	1	0.16
25-29	90	5.89	113	7.40	1	4.00	1	3.85	0	0.00	0	0.00
30-34	110	8.03	126	9.20	1	4.00	1	3.85	0	0.00	0	0.00
35-39	96	9.64	115	11.55	1	4.00	1	3.85	0	0.00	0	0.00
>=40	145	11.12	172	13.19	0	0.00	0	0.00	0	0.00	0	0.00
O0-O3, W0-W3	229	7.01	278	8.51	3	12.00	3	11.54	1	0.03	1	0.03
O4-O10, W4-W5	235	9.18	278	10.85	0	0.00	0	0.00	0	0.00	0	0.00
General/Flag Ofc & Executives	2	3.88	3	5.81	0	0.00	0	0.00	0	0.00	0	0.00
Tactical Operations Off.	165	7.22	194	8.49	1	4.00	1	3.85	0	0.00	0	0.00
Intelligence Off.	28	7.13	32	8.14	1	4.00	1	3.85	0	0.00	0	0.00
Engineering & Maintenance Off.	39	7.18	49	9.02	0	0.00	0	0.00	0	0.00	0	0.00
Healthcare Off.	107	10.28	123	11.81	0	0.00	0	0.00	0	0.00	0	0.00
Scientists & Professional Off.	44	10.24	53	12.33	0	0.00	0	0.00	0	0.00	0	0.00
Administrative Off.	23	7.34	28	8.93	1	4.00	1	3.85	0	0.00	0	0.00
Supply & Logistics Off.	37	8.42	50	11.38	0	0.00	0	0.00	0	0.00	0	0.00
Students, Trainees & Unknown Off.	19	5.74	24	7.25	0	0.00	0	0.00	1	0.30	1	0.30

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.

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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

[Return to Introduction Page](#)



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