

**US ARMY  
ACTIVE DUTY  
EYE INJURY SUMMARY  
CALENDAR YEAR 2016**

Approved for public release, distribution unlimited

2016



**INTRODUCTION:** In 2010 the Armed Forces Health Surveillance Center (AFHSC) 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 AFHSC 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 AFHSC website: <http://afhsc.army.mil/home>.

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](mailto: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) [2016 Army Eye Injury complete statistics](#)



## CY 2016 US ARMY 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: <http://afhsc.army.mil/home>.

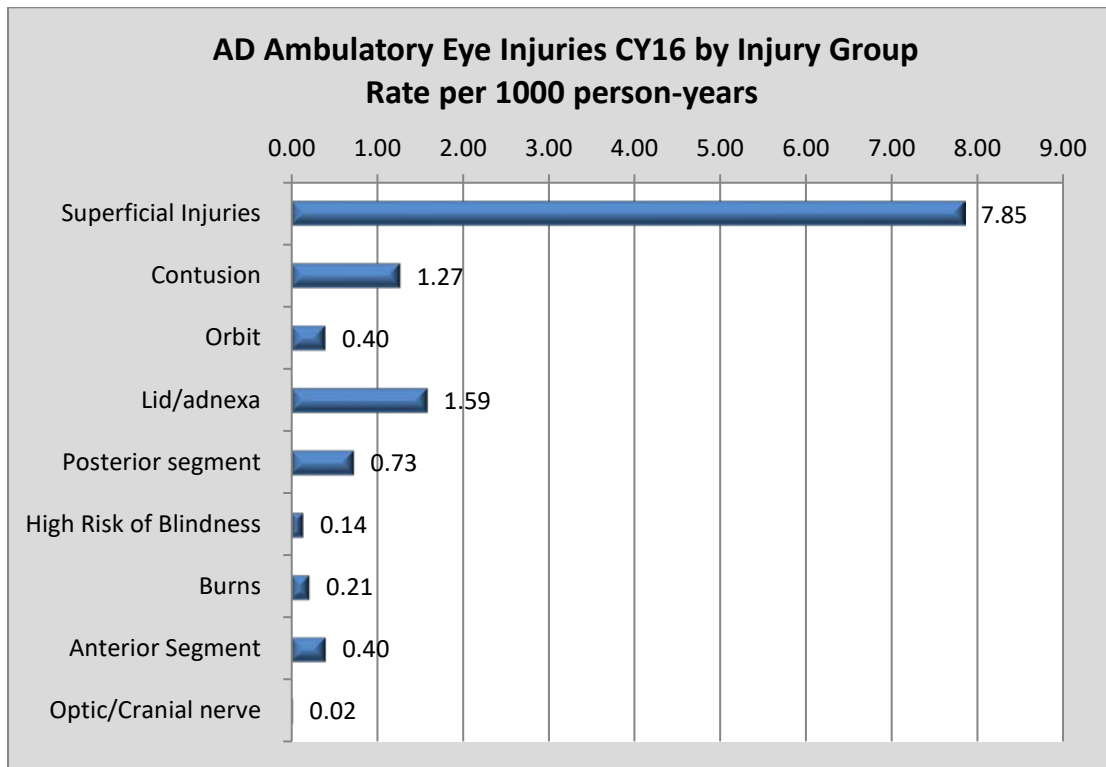
- 1) **Superficial:** ICD-9: all 918 series codes (superficial injury of eye and adnexa) and all 930 series codes (foreign body on external eye). ICD-10: S00.2xx series codes (abrasions, blisters, bites, and injury to the conjunctiva, eyelid, or periorcular area)
- 2) **Contusion:** ICD-9: all 921 series 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.

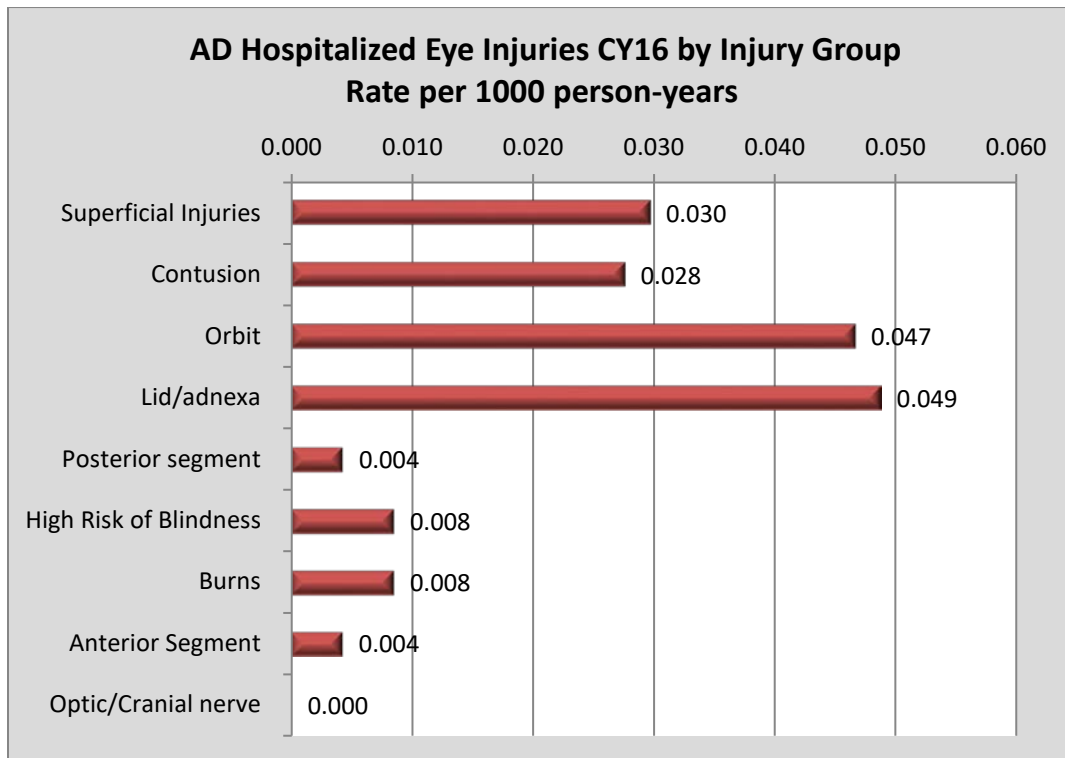
[Return to Introduction Page](#)



## CY 2016 US ARMY ACTIVE DUTY (AD) EYE INJURY SUMMARY



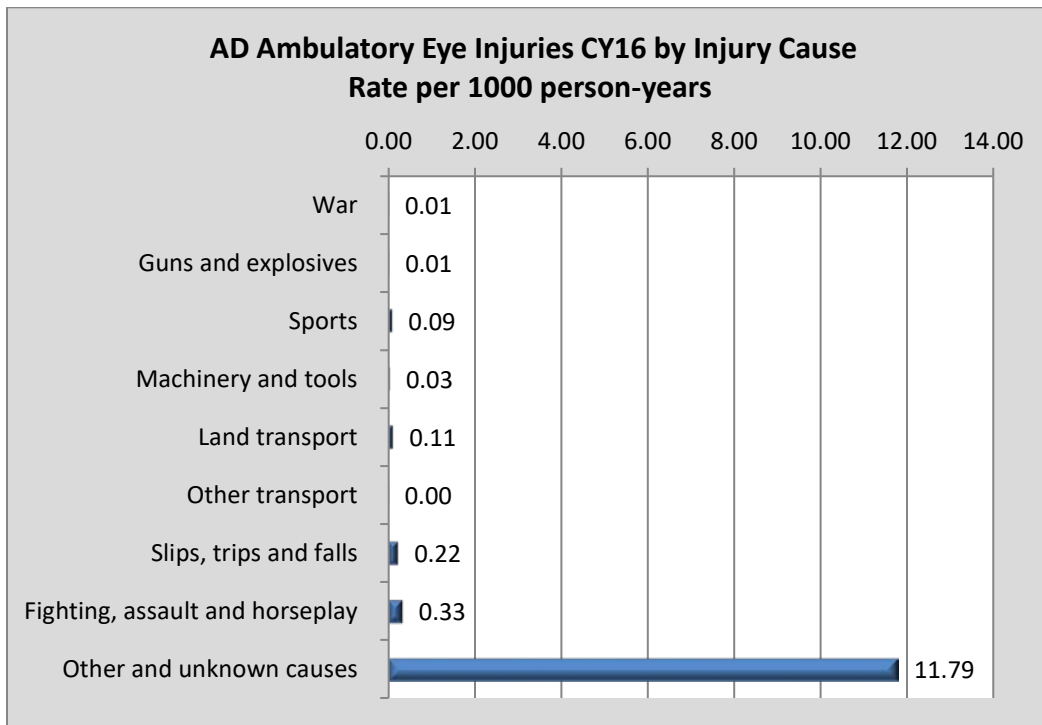
Please note the difference in scale between Ambulatory and Hospitalized graphs



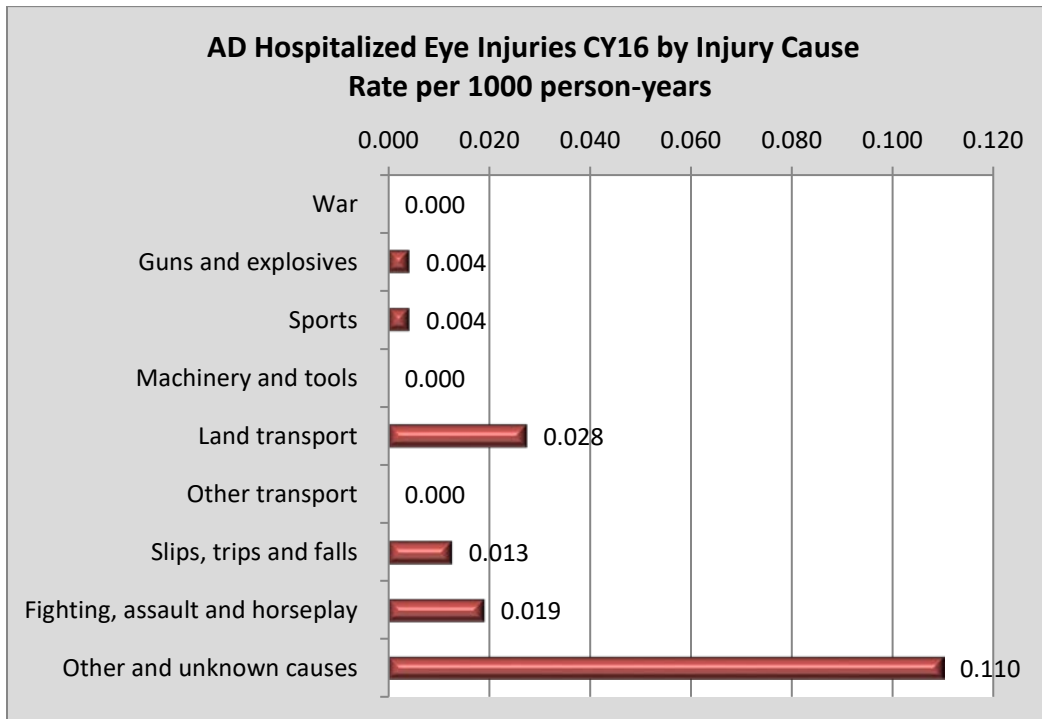
[Return to Introduction Page](#)



## CY 2016 US ARMY ACTIVE DUTY (AD) EYE INJURY SUMMARY



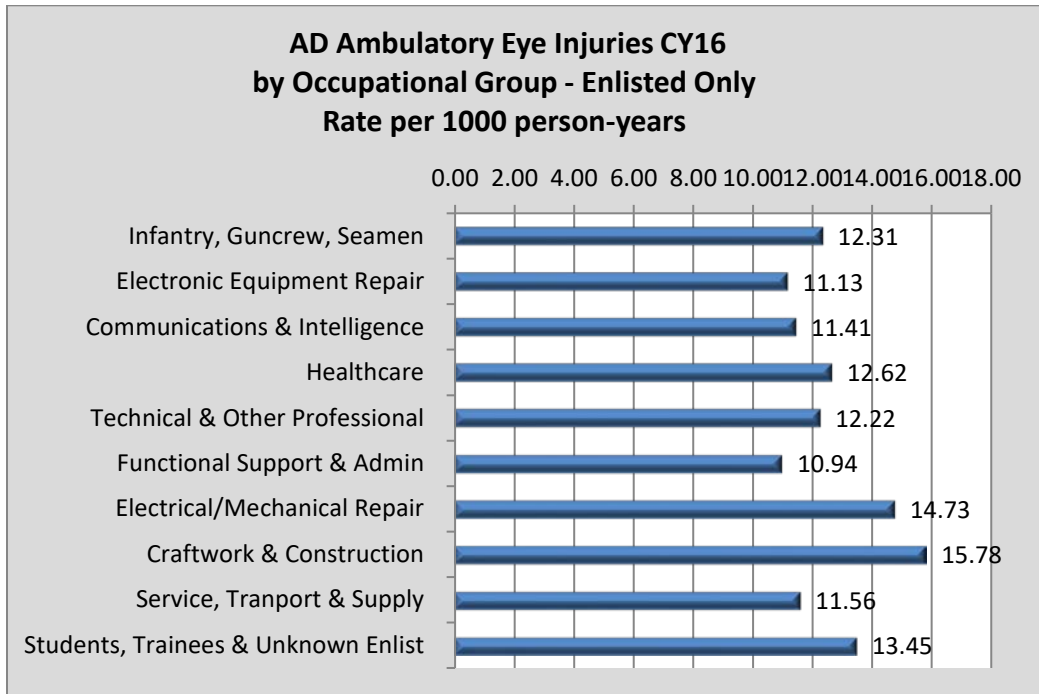
Please note the difference in scale between Ambulatory and Hospitalized graphs



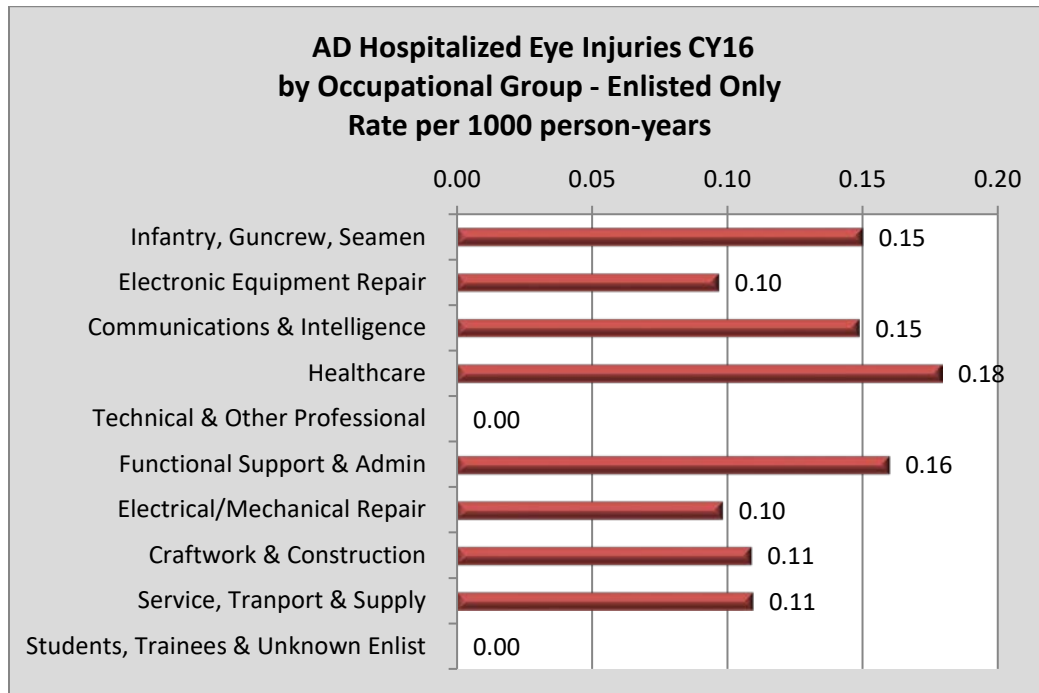
[Return to Introduction Page](#)



## CY 2016 US ARMY ACTIVE DUTY (AD) EYE INJURY SUMMARY



Please note the difference in scale between Ambulatory and Hospitalized graphs

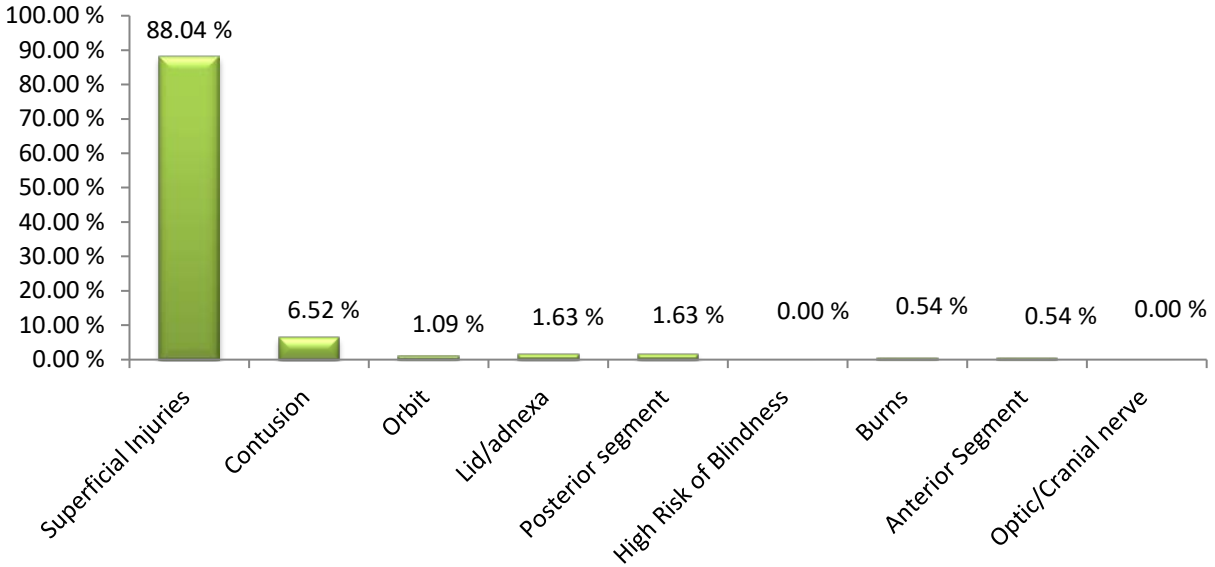


[Return to Introduction Page](#)

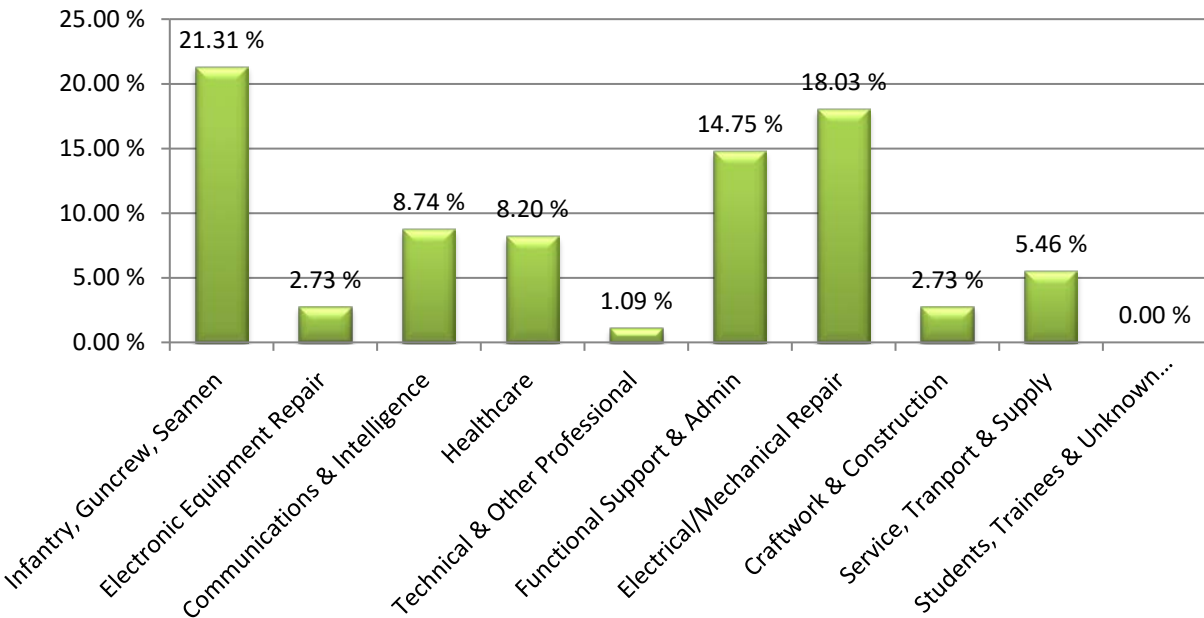


**CY 2016 US ARMY ACTIVE DUTY (AD) EYE INJURY SUMMARY**

**AD Deployment Associated Eye Injuries CY16  
by Injury Group  
Percent of Total**



**AD Deployment Associated Eye Injuries CY16  
by Occupational Group- Enlisted Only  
Percent of Total**



[Return to Introduction Page](#)



# CY 2016 US ARMY ACTIVE DUTY (AD) EYE INJURY SUMMARY

	2016													
	Ambulatory MTF Visits				Deployment-Associated Healthcare				Hospitalizations					
	Primary Diagnosis		All Diagnoses		Primary Diagnosis		All Diagnoses		Primary Diagnosis		All Diagnoses			
	Count	Rate <sup>1</sup>	Count	Rate	Count	% total <sup>2</sup>	Count	% total <sup>2</sup>	Count	Rate	Count	Rate		
<b>ALL ACTIVE COMPONENT</b>														
<b>Total</b>	<b>4,660</b>	<b>9.88</b>	<b>5,633</b>	<b>11.94</b>	<b>175</b>	<b>100.00</b>	<b>183</b>	<b>100.00</b>	<b>15</b>	<b>0.03</b>	<b>59</b>	<b>0.13</b>		
Superficial Injuries	3,335	7.07	3,704	7.85	157	89.71	162	88.04	3	0.01	14	0.03		
Contusion	429	0.91	598	1.27	11	6.29	12	6.52	3	0.01	13	0.03		
Orbit	148	0.31	189	0.40	2	1.14	2	1.09	14	0.03	22	0.05		
Lid/adnexa	623	1.32	748	1.59	1	0.57	3	1.63	5	0.01	23	0.05		
Posterior segment	169	0.36	345	0.73	2	1.14	3	1.63	2	0.00	2	0.00		
High Risk of Blindness	62	0.13	67	0.14	0	0.00	0	0.00	2	0.00	4	0.01		
Burns	76	0.16	101	0.21	1	0.57	1	0.54	0	0.00	4	0.01		
Anterior Segment	78	0.17	190	0.40	1	0.57	1	0.54	2	0.00	2	0.00		
Optic/Cranial nerve	6	0.01	9	0.02	0	0.00	0	0.00	0	0.00	0	0.00		
Male	4,027	9.98	4,853	12.03	151	86.29	156	85.25	14	0.03	49	0.12		
Female	633	9.24	780	11.39	24	13.71	27	14.75	1	0.01	10	0.15		
War	5	0.01	5	0.01	not assessed <sup>2</sup>				0	0.00	0	0.00		
Guns and explosives	6	0.01	7	0.01					0	0.00	2	0.00	2	0.00
Sports	37	0.08	43	0.09					0	0.00	2	0.00	2	0.00
Machinery and tools	14	0.03	16	0.03					0	0.00	0	0.00	0	0.00
Land transport	33	0.07	51	0.11					3	0.01	3	0.01	13	0.028
Other transport	2	0.00	2	0.00					0	0.00	0	0.00	0	0.00
Slips, trips and falls	70	0.15	106	0.22					1	0.00	6	0.013	6	0.013
Fighting, assault and horseplay	113	0.24	156	0.33					7	0.01	9	0.019	9	0.019
Other and unknown causes	4,646	9.85	5,565	11.79					16	0.03	52	0.110	52	0.110
<b>ENLISTED (all diagnoses combined)</b>														
<b>Enlisted</b>	<b>3,853</b>	<b>10.17</b>	<b>4,655</b>	<b>12.28</b>	<b>145</b>	<b>82.86</b>	<b>152</b>	<b>83.06</b>	<b>13</b>	<b>0.03</b>	<b>50</b>	<b>0.13</b>		
<20	257	6.49	314	7.93	7	4.00	8	4.37	0	0.00	1	0.03		
20-24	1,354	10.26	1,628	12.33	47	26.86	52	28.42	6	0.05	22	0.17		
25-29	965	11.52	1,148	13.71	38	21.71	39	21.31	4	0.05	10	0.12		
30-34	625	10.95	761	13.34	25	14.29	25	13.66	3	0.05	12	0.21		
35-39	367	9.91	442	11.93	21	12.00	21	11.48	0	0.00	3	0.08		
>=40	285	9.63	362	12.23	7	4.00	7	3.83	0	0.00	2	0.07		
E0-E4	2,161	10.37	2,617	12.55	71	40.57	77	42.08	9	0.04	31	0.15		
E5-E9	1,692	9.92	2,038	11.95	74	42.29	75	40.98	4	0.02	19	0.11		
Infantry, Guncrew, Seamen	1,020	10.20	1,231	12.31	38	21.71	39	21.31	3	0.03	15	0.15		
Electronic Equipment Repair	184	8.91	230	11.13	5	2.86	5	2.73	0	0.00	2	0.10		
Communications & Intelligence	444	9.44	537	11.41	15	8.57	16	8.74	1	0.02	7	0.15		
Healthcare	343	10.25	422	12.62	15	8.57	15	8.20	2	0.06	6	0.18		
Technical & Other Professional	139	10.49	162	12.22	2	1.14	2	1.09	0	0.00	0	0.00		
Functional Support & Admin	511	9.08	616	10.94	24	13.71	27	14.75	3	0.05	9	0.16		
Electrical/Mechanical Repair	628	12.34	750	14.73	32	18.29	33	18.03	2	0.04	5	0.10		
Craftwork & Construction	129	14.04	145	15.78	5	2.86	5	2.73	0	0.00	1	0.11		
Service, Transport & Supply	425	9.30	528	11.56	9	5.14	10	5.46	2	0.04	5	0.11		
Students, Trainees & Unknown Enlist	30	11.87	34	13.45	0	0.00	0	0.00	0	0.00	0	0.00		
<b>OFFICER (all diagnoses combined)</b>														
<b>Officer</b>	<b>807</b>	<b>8.70</b>	<b>978</b>	<b>10.54</b>	<b>30</b>	<b>17.14</b>	<b>31</b>	<b>16.94</b>	<b>2</b>	<b>0.02</b>	<b>9</b>	<b>0.10</b>		
<20	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		
20-24	90	9.18	102	10.40	2	1.14	2	1.09	1	0.10	1	0.10		
25-29	185	9.62	215	11.19	7	4.00	7	3.83	0	0.00	1	0.05		
30-34	158	8.10	184	9.43	5	2.86	6	3.28	0	0.00	3	0.15		
35-39	148	8.21	177	9.82	7	4.00	7	3.83	1	0.06	2	0.11		
>=40	226	8.61	300	11.43	9	5.14	9	4.92	0	0.00	2	0.08		
O0-O3,W0-W3	532	8.74	621	10.20	19	10.86	20	10.93	2	0.03	7	0.11		
O4-O10,W4-W5	275	8.62	357	11.19	11	6.29	11	6.01	0	0.00	2	0.06		
General/Flag Ofc & Executives	2	6.22	4	12.44	0	0.00	0	0.00	0	0.00	0	0.00		
Tactical Operations Off.	248	8.36	295	9.95	8	4.57	8	4.37	0	0.00	4	0.13		
Intelligence Off.	55	7.85	67	9.56	0	0.00	1	0.55	0	0.00	0	0.00		
Engineering & Maintenance Off.	141	9.57	159	10.79	7	4.00	7	3.83	1	0.07	1	0.07		
Healthcare Off.	152	9.43	200	12.40	6	3.43	6	3.28	1	0.06	3	0.19		
Scientists & Professional Off.	66	10.36	80	12.55	3	1.71	3	1.64	0	0.00	0	0.00		
Administrative Off.	57	8.02	71	9.99	2	1.14	2	1.09	0	0.00	1	0.14		
Supply & Logistics Off.	69	7.53	81	8.84	4	2.29	4	2.19	0	0.00	0	0.00		
Students, Trainees & Unknown Off.	17	7.35	21	9.08	0	0.00	0	0.00	0	0.00	0	0.00		

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.

Source: Defense Medical Surveillance System (DMSS) as of 03-MAY-2017  
 Prepared by the Armed Forces Health Surveillance Branch, Public Health Division, Defense Health Agency

