

**US DEPARTMENT OF  
DEFENSE (DoD) COMBINED  
ACTIVE DUTY  
EYE INJURY SUMMARY  
CALENDAR YEAR 2019**

Approved for public release, distribution unlimited

2019



**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](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>

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## CY 2019 US DoD COMBINED ACTIVE DUTY (AD) EYE INJURY SUMMARY

INJURY CODE GROUP DETAILS: The following code groupings were used to develop the summary. ICD-10 coding has been included since 2016. This report represents the combination of both ICD-9 and ICD-10 codes. 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.

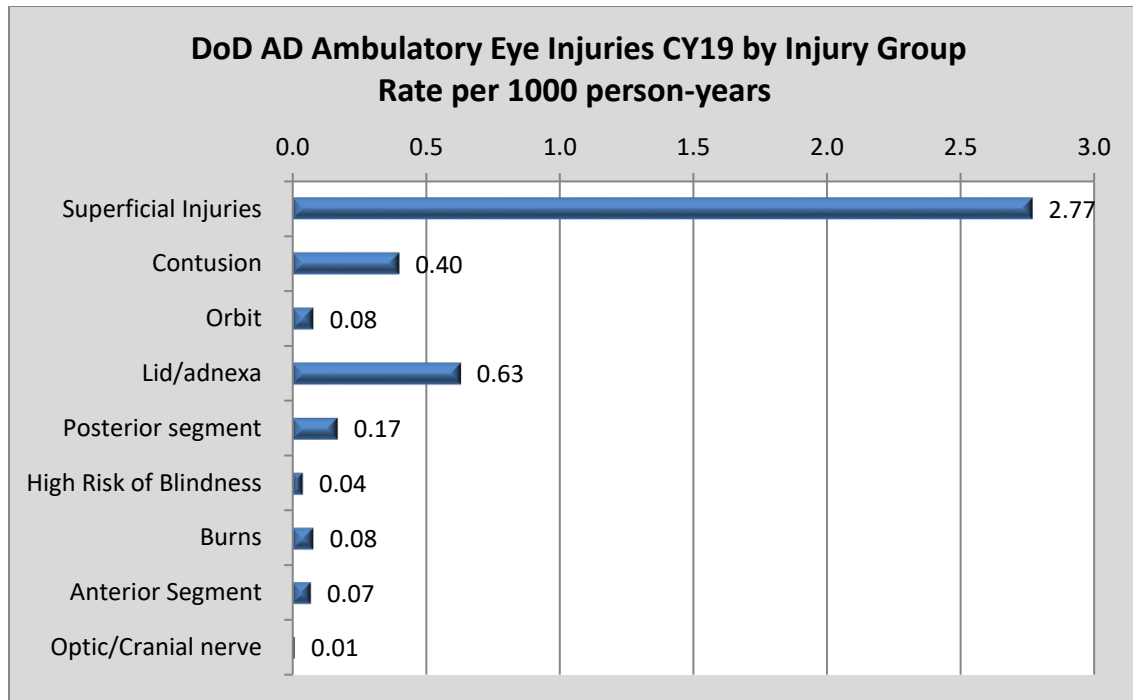
**Disclaimer for Report:** \*Medical data from Military Treatment Facilities that were using MHS GENESIS before October 1, 2019 are not available in the Defense Medical Surveillance System (DMSS) database. This includes NH Oak Harbor, NH Bremerton, AFMS Fairchild, Madigan AMC, Travis AFB, Presidio of Monterey AB, NAS Lemoore, and Mountain Home AFB. MHS Genesis data were included on and after October 1, 2019. Therefore, individuals who sought care at one of these facilities before October 1, 2019 were not included in the study population as we did not capture their medical encounters. Use of ICD-9-CM E-codes for "cause of injury" was incomplete for theater healthcare records and therefore omitted in this report.

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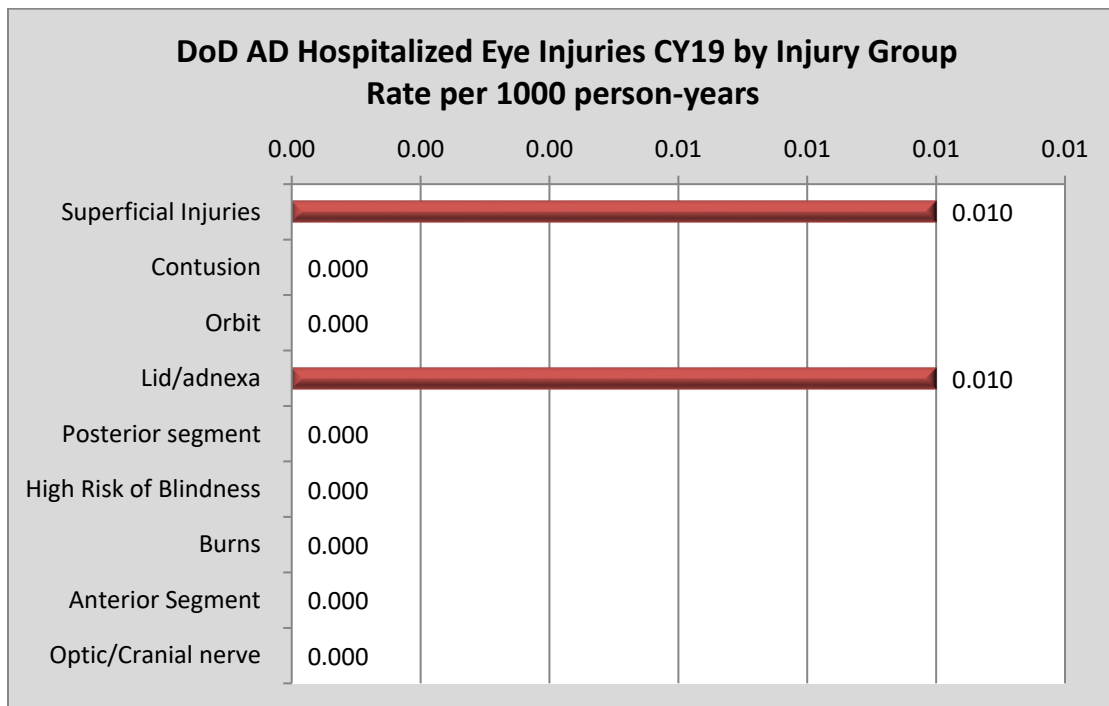


# CY 2019 US DoD COMBINED ACTIVE DUTY (AD) EYE INJURY SUMMARY

Please note the difference in scale between Ambulatory and Hospitalized graphs



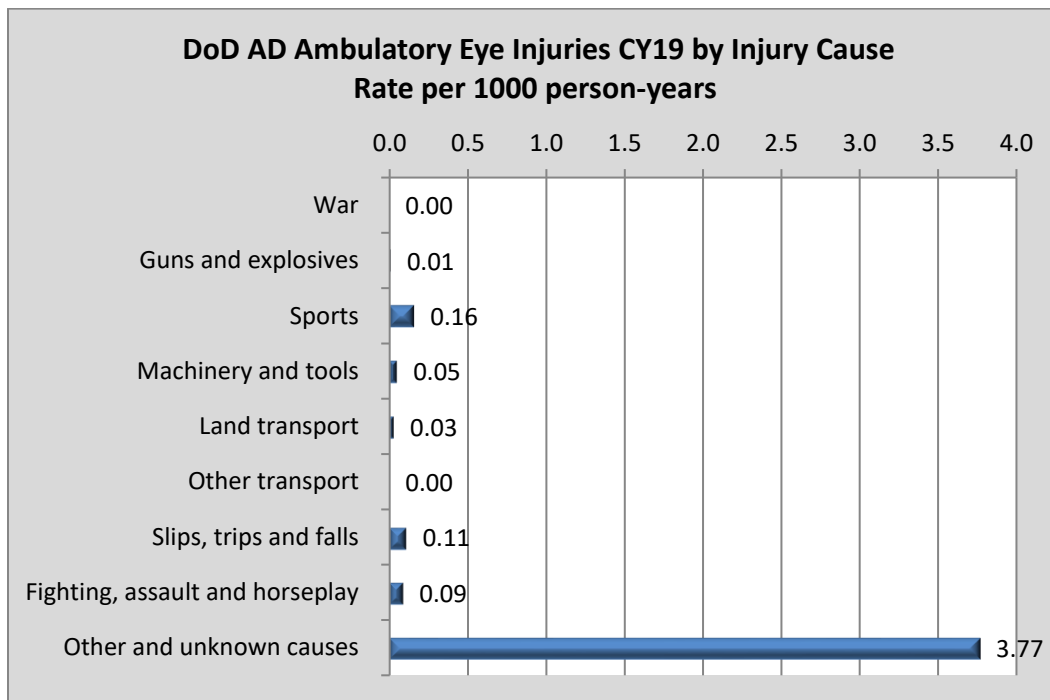
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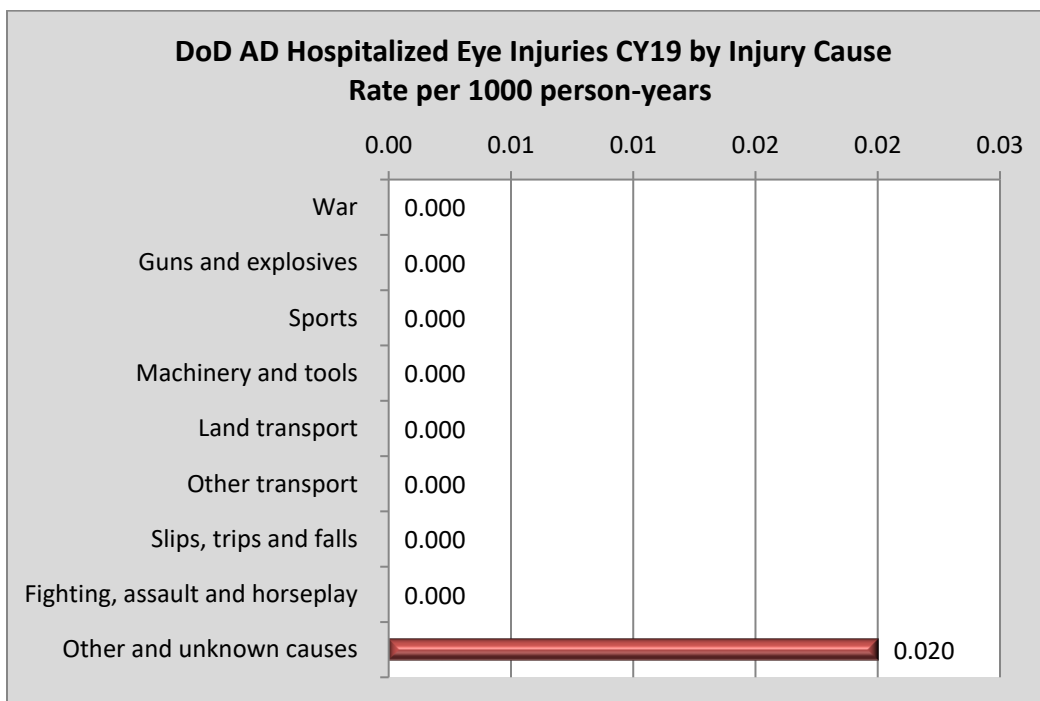
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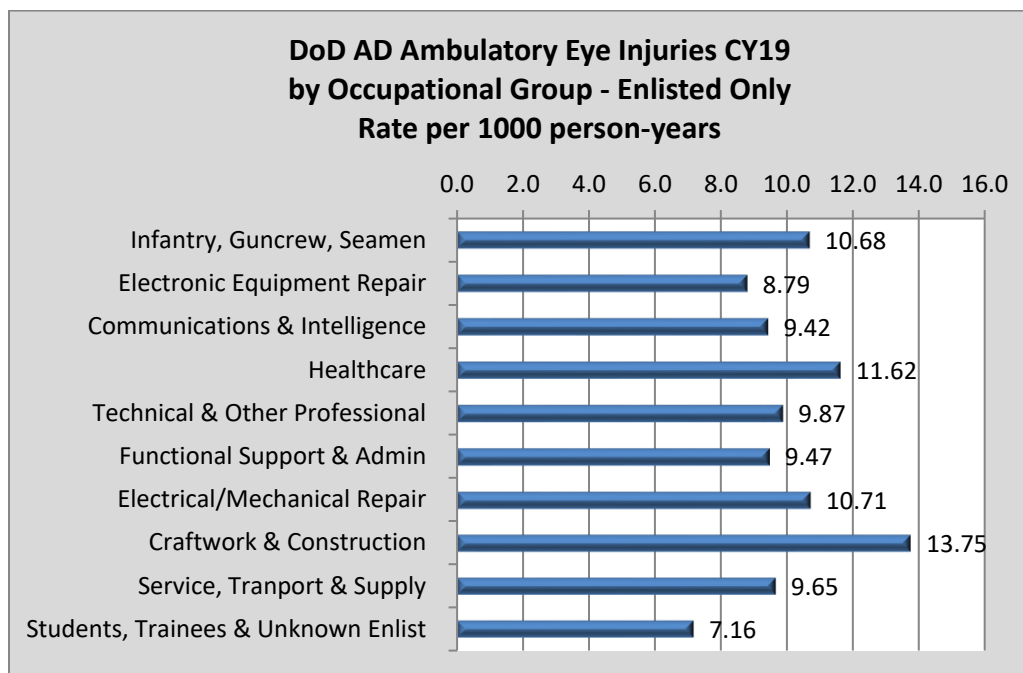
Please note the difference in scale between Ambulatory and Hospitalized graphs



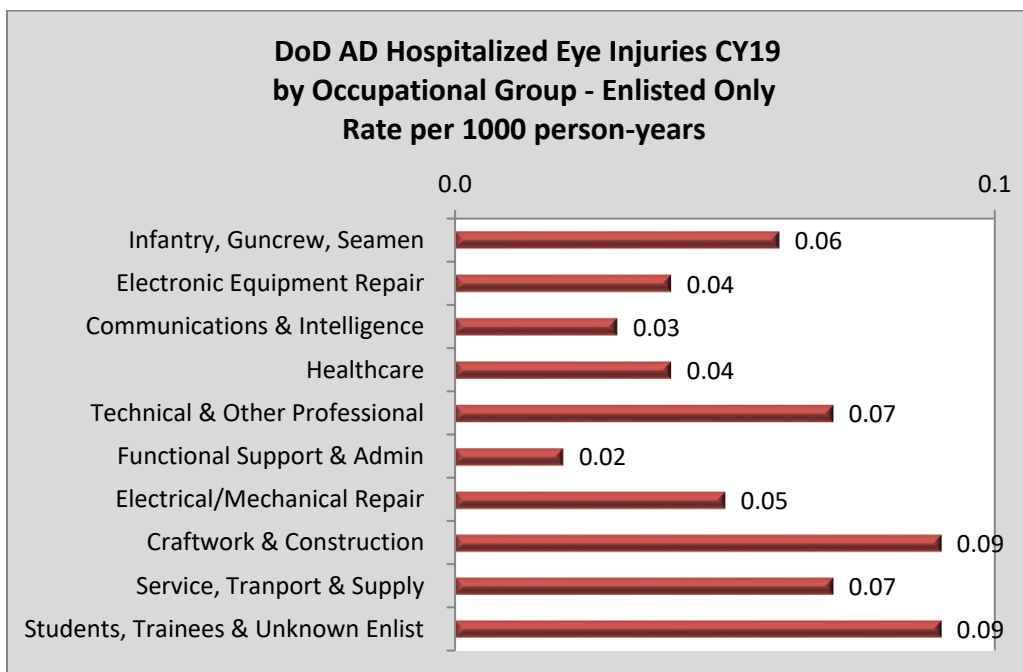
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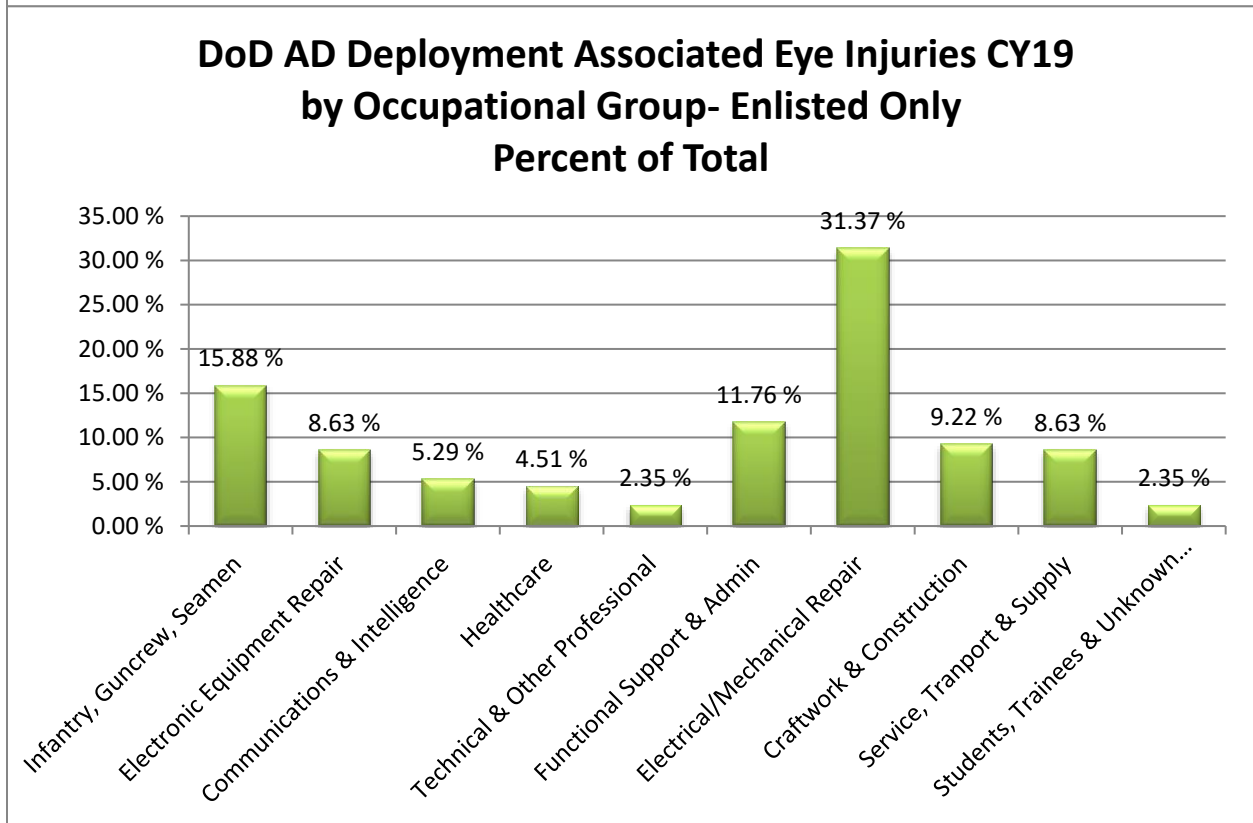
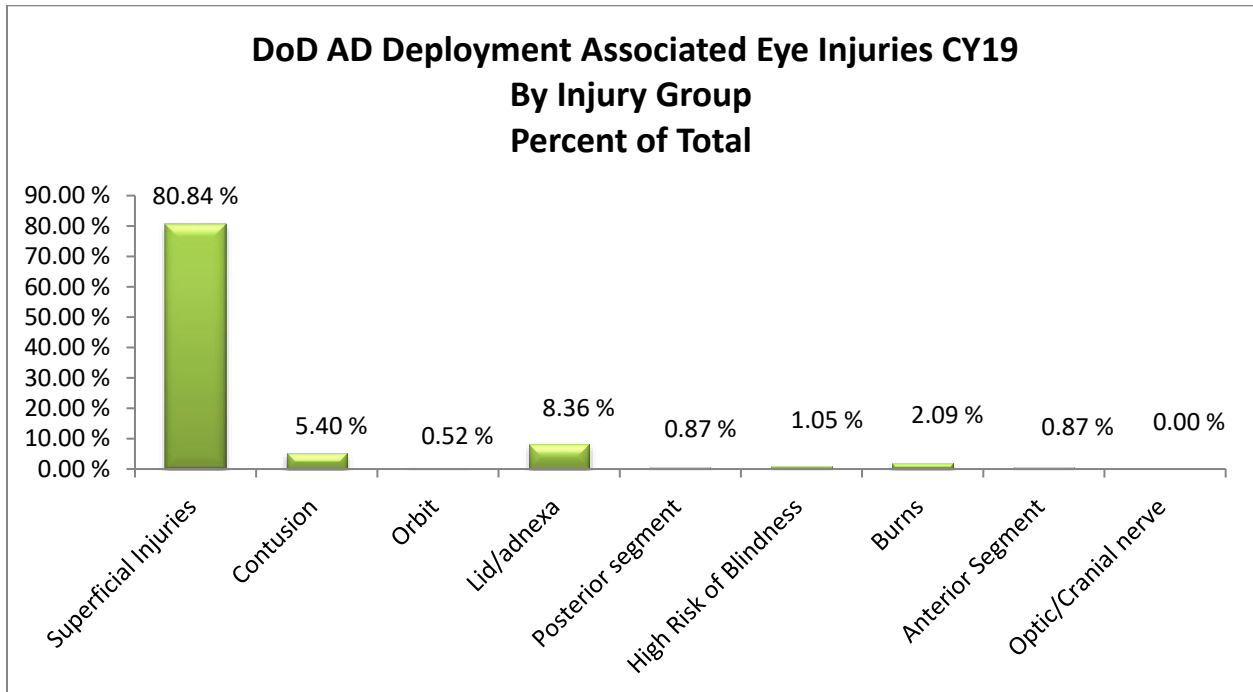
Please note the difference in scale between Ambulatory and Hospitalized graphs



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# CY 2019 US DoD COMBINED ACTIVE DUTY (AD) EYE INJURY SUMMARY

## 5 Armed Forces Annual Eye Injury Report, Active Component, 2019

	2019											
	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>9,702</b>	<b>7.93</b>	<b>12,105</b>	<b>9.89</b>	<b>545</b>	<b>100.00</b>	<b>574</b>	<b>100.00</b>	<b>8</b>	<b>0.01</b>	<b>65</b>	<b>0.05</b>
Superficial Injuries	6,849	2.40	7,887	2.77	447	82.02	464	80.84	-	-	16	0.01
Contusion	719	0.25	1,149	0.40	26	4.77	31	5.40	1	0.00	11	0.00
Orbit	149	0.05	221	0.08	2	0.37	3	0.52	1	0.00	5	0.00
Lid/adnexa	1,440	0.50	1,792	0.63	47	8.62	48	8.36	2	0.00	22	0.01
Posterior segment	195	0.07	486	0.17	4	0.73	5	0.87	3	0.00	7	0.00
High Risk of Blindness	88	0.03	111	0.04	4	0.73	6	1.05	-	-	1	0.00
Burns	164	0.06	234	0.08	10	1.83	12	2.09	-	-	1	0.00
Anterior Segment	84	0.03	204	0.07	5	0.92	5	0.87	1	0.00	1	0.00
Optic/Cranial nerve	14	0.00	21	0.01	-	-	-	-	-	-	1	0.00
Male	8,119	7.97	10,123	9.94	437	80.18	462	80.49	7	0.01	57	0.06
Female	1,583	7.71	1,982	9.65	108	19.82	112	19.51	1	0.00	8	0.04
War	11	0.00	12	0.00	-	-	-	-	-	-	1	0.000
Guns and explosives	11	0.00	17	0.01	-	-	-	-	-	-	3	0.000
Sports	418	0.15	465	0.16	-	-	-	-	-	-	-	-
Machinery and tools	129	0.05	141	0.05	-	-	-	-	-	-	1	0.000
Land transport	57	0.02	95	0.03	-	-	-	-	1	0.00	4	0.000
Other transport	9	0.00	11	0.00	-	-	-	-	-	-	1	0.000
Slips, trips and falls	236	0.08	317	0.11	-	-	-	-	1	0.00	8	0.000
Fighting, assault and horseplay	161	0.06	255	0.09	-	-	-	-	-	-	3	0.000
Other and unknown causes	8,670	3.03	10,792	3.77	-	-	-	-	6	0.00	44	0.020
<b>ENLISTED (all diagnoses combined)</b>												
<b>Enlisted</b>	<b>8,058</b>	<b>8.02</b>	<b>10,076</b>	<b>10.03</b>	<b>482</b>	<b>88.44</b>	<b>510</b>	<b>88.85</b>	<b>7</b>	<b>0.01</b>	<b>53</b>	<b>0.05</b>
<20	688	5.85	869	7.39	22	4.56	24	4.71	-	-	6	0.05
20-24	2,939	7.93	3,772	10.18	228	47.30	240	47.06	4	0.01	27	0.07
25-29	1,925	8.61	2,381	10.65	121	25.10	126	24.71	3	0.01	9	0.04
30-34	1,240	8.77	1,490	10.54	62	12.86	67	13.14	-	-	5	0.04
35-39	819	8.30	983	9.96	38	7.88	42	8.24	-	-	4	0.04
>=40	447	8.43	581	10.96	11	2.28	11	2.16	-	-	2	0.04
E0-E4	4,151	7.89	5,294	10.07	271	56.22	286	56.08	7	0.01	38	0.07
E5-E9	3,907	8.16	4,782	9.99	211	43.78	224	43.92	-	-	15	0.03
Infantry, Guncrew, Seamen	1,319	8.26	1,705	10.68	76	15.77	81	15.88	1	0.01	10	0.06
Electronic Equipment Repair	621	6.98	782	8.79	39	8.09	44	8.63	-	-	4	0.04
Communications & Intelligence	771	7.50	968	9.42	24	4.98	27	5.29	-	-	3	0.03
Healthcare	705	9.49	863	11.62	22	4.56	23	4.51	1	0.01	3	0.04
Technical & Other Professional	228	7.95	283	9.87	11	2.28	12	2.35	-	-	2	0.07
Functional Support & Admin	1,011	7.54	1,269	9.47	58	12.03	60	11.76	-	-	3	0.02
Electrical/Mechanical Repair	1,764	8.74	2,160	10.71	156	32.37	160	31.37	2	0.01	11	0.05
Craftwork & Construction	389	11.53	464	13.75	44	9.13	47	9.22	1	0.03	3	0.09
Service, Transport & Supply	883	7.63	1,116	9.65	41	8.51	44	8.63	1	0.01	8	0.07
Students, Trainees & Unknown Enlist	367	5.64	466	7.16	11	2.28	12	2.35	1	0.02	6	0.09
Army	3,217	8.99	4,090	11.43	137	28.42	152	29.80	3	0.01	24	0.07
Navy	1,515	6.53	1,898	8.18	198	41.08	207	40.59	2	0.01	8	0.03
Air Force	1,985	7.91	2,402	9.57	115	23.86	118	23.14	1	0.00	12	0.05
Marine Corps	1,341	8.19	1,686	10.30	32	6.64	33	6.47	1	0.01	9	0.05
<b>OFFICER (all diagnoses combined)</b>												
<b>Officer</b>	<b>1,644</b>	<b>7.49</b>	<b>2,029</b>	<b>9.25</b>	<b>63</b>	<b>11.56</b>	<b>64</b>	<b>11.15</b>	<b>1</b>	<b>0.00</b>	<b>12</b>	<b>0.05</b>
<20	-	-	-	-	-	-	-	-	-	-	-	-
20-24	146	5.96	173	7.07	4	6.35	4	6.25	-	-	1	0.04
25-29	355	7.00	431	8.50	17	26.98	17	26.56	-	-	1	0.02
30-34	366	7.83	441	9.43	17	26.98	17	26.56	-	-	4	0.09
35-39	326	8.05	397	9.80	7	11.11	8	12.50	-	-	1	0.02
>=40	451	7.92	587	10.30	18	28.57	18	28.13	1	0.02	5	0.09
O0-O3,W0-W3	1,030	7.54	1,247	9.12	46	73.02	47	73.44	1	0.01	8	0.06
O4-O10,W4-W5	614	7.42	782	9.45	17	26.98	17	26.56	-	-	4	0.05
General/Flag Ofc & Executives	12	7.14	15	8.93	-	-	-	-	-	-	-	-
Tactical Operations Off.	543	7.07	669	8.71	24	38.10	24	37.50	-	-	2	0.03
Intelligence Off.	108	7.11	135	8.89	4	6.35	4	6.25	-	-	2	0.13
Engineering & Maintenance Off.	206	7.87	267	10.20	8	12.70	8	12.50	1	0.04	4	0.15
Healthcare Off.	287	8.45	355	10.45	7	11.11	7	10.94	-	-	-	-
Scientists & Professional Off.	102	7.62	127	9.49	1	1.59	1	1.56	-	-	1	0.07
Administrative Off.	99	7.07	123	8.79	9	14.29	9	14.06	-	-	1	0.07
Supply & Logistics Off.	151	8.22	180	9.80	6	9.52	7	10.94	-	-	1	0.05
Students, Trainees & Unknown Off.	136	6.86	158	7.97	4	6.35	4	6.25	-	-	1	0.05
Army	678	7.71	855	9.72	29	46.03	30	46.88	1	0.01	9	0.10
Navy	317	6.46	390	7.95	16	25.40	16	25.00	-	-	2	0.04
Air Force	479	7.83	589	9.63	14	22.22	14	21.88	-	-	1	0.02
Marine Corps	170	7.99	195	9.17	4	6.35	4	6.25	-	-	-	-

<sup>1</sup>Rates are per 1,000 person-years.

<sup>2</sup>Use of ICD-9-CM E-codes for "cause of injury" is largely incomplete for theater healthcare records and therefore omitted.

<sup>3</sup>Person-time is not available for deployers so the proportion of the total number of diagnoses is shown.

<sup>4</sup>Genesis data were included on and after October 1, 2019

Source: Defense Medical Surveillance System (DMSS) as of 2020-10-09

Prepared by the Armed Forces Health Surveillance Branch, Public Health Division, Defense Health Agency

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