

## EYE INJURIES

### Background

This case definition was developed by the Armed Forces Health Surveillance Branch (AFHSB) and the Tri-Service Vision Conservation and Readiness Program (TSVCRP) at the Army Public Health Center (APHC) in an effort to improve eye injury surveillance in the U.S. Armed Forces. The definition is used in an annual MSMR report and a quarterly AFHSB report for the TSVCRP.<sup>1,2</sup>

### Clinical Description

Eye injuries range in severity from minor scratches and bruises to serious trauma resulting in blindness. The nature and severity of eye injuries depend on the physical characteristics of impacting objects (e.g., mass, size, speed, hardness, sharpness), the location of the impact, and the predispositions of the eye to various injuries. Corneal abrasion, a scratch to the cornea that occurs when small foreign objects (e.g., sand, twigs, wood shavings, metal particles) scratch the cornea, is the most common eye injury.<sup>3</sup> A significant proportion of the eye injuries sustained during military service are likely preventable through the use of protective eyewear.<sup>4</sup>

#### Case Definition and Incidence Rules

For surveillance purposes, a case of “eye injury” is defined as:

- *One hospitalization or outpatient medical encounter* with any of the defining diagnoses of an eye injury (see ICD9 and ICD10 code lists below) in *any* diagnostic position.

#### *Incidence rules:*

For individuals who meet the case definition:

- For *non-superficial* eye injuries an individual may be considered an incident case only *once per lifetime*.
- For *superficial* eye injuries an individual may be considered an incident case only *once every 60 days*.
- The incidence date is considered the date of the first hospitalization or outpatient medical encounter that includes a defining diagnosis of eye injury.
- If more than one ocular injury diagnosis is reported during a single hospitalization or outpatient encounter, only the first listed of the diagnoses is included.

*(continued on next page)*

<sup>1</sup> Armed Forces Health Surveillance Center. Eye Injuries, Active Component, U.S. Armed Forces, 2000-2010. *Medical Surveillance Monthly Report (MSMR)*. 2011 May; Vol. 18(5), 2-7.

<sup>2</sup> Armed Forces Health Surveillance Center. Eye Injuries Among Members of Active Components, U.S. Armed Forces, 1998-2007. *Medical Surveillance Monthly Report (MSMR)*. 2008 Nov; Vol. 18(9), 2-5.

<sup>3</sup> Army Medical Surveillance Activity. Eye Injuries, Active Duty Soldiers, 1993- 1998. *Medical Surveillance Monthly Report (MSMR)*. 1999 Aug/Sept; Vol. 5(6), 2-11.

<sup>4</sup> Thomas R, McManus Jr JG, Eastridge B. Scientific abstract no. 184: Ocular injury reduction from ocular protection use in current combat operations. *Ann Emerg Med*. 2008 4 Apr; Vol. 51(4):526.



### Case Definition and Incidence Rules *(continued)*

#### Exclusions:

- None

### Codes

The following ICD9 and ICD10 codes are included in the case definition:

#### Non-Superficial Injuries

Condition	ICD-10-CM Codes	ICD-9-CM Codes
High risk of blindness <sup>5</sup>	<i>S05.2 (ocular laceration and rupture with prolapse or loss of intraocular tissue)</i>	- 871.1 (ocular laceration with prolapse of intraocular tissue) - 871.2 (rupture of eye with partial loss of intraocular tissue)
	- S05.20XA (ocular laceration and rupture with prolapse or loss of intraocular tissue, <i>unspecified</i> eye, initial encounter.	
	- S05.21XA (ocular laceration and rupture with prolapse or loss of intraocular tissue, <i>right</i> eye, initial encounter.	
	- S05.22XA (ocular laceration and rupture with prolapse or loss of intraocular tissue, <i>left</i> eye, initial encounter.	
	<i>S05.3 (ocular laceration without prolapse or loss of intraocular tissue)</i>	- 871.0 (ocular laceration without prolapse of intraocular tissue) - 871.4 (unspecified laceration of eye)
	- S05.30XA (ocular laceration <i>without</i> prolapse or loss of intraocular tissue, <i>unspecified</i> eye, initial encounter.	
	- S05.31XA (ocular laceration without prolapse or loss of intraocular tissue, <i>right</i> eye, initial encounter.	
	- S05.32XA (ocular laceration without prolapse or loss of intraocular tissue, <i>left</i> eye, initial encounter.	
	<i>S05.5 (penetrating wound with foreign body of eyeball)</i>	- 871.5 (penetration of eye with magnetic foreign body) - 871.6 (penetration of eye with nonmagnetic foreign body)
	- S05.50XA (penetrating wound with foreign body of <i>unspecified</i> eyeball, initial encounter)	

<sup>5</sup> High risk of blindness category based on a 2006 study of United States Eye Injury Registry data. See Kuhn F, Morris R, Witherspoon CD, Mann L. Epidemiology of blinding trauma in the United States Eye Injury Registry. *Ophthalmic Epidemiology*. 2006; 13:209-16.



	- S05.51XA (penetrating wound with foreign body of <i>right</i> eyeball, initial encounter)	- 871.9 (unspecified open wound of eyeball)
	- S05.52XA (penetrating wound with foreign body of <i>left</i> eyeball, initial encounter)	
	<i>S05.6 (penetrating wound without foreign body of eyeball)</i>	- 871.7 (unspecified ocular penetration)
	- S05.60XA (penetrating wound without foreign body of <i>unspecified</i> eyeball, initial encounter)	
	- S05.61XA (penetrating wound without foreign body of <i>right</i> eyeball, initial encounter)	
	- S05.62XA (penetrating wound without foreign body of <i>left</i> eyeball, initial encounter)	
	<i>S05.7 (avulsion of eye)</i>	- 871.3 (avulsion of eye)
	- S05.70XA (avulsion of <i>unspecified</i> eye, initial encounter)	
	- S05.71XA (avulsion of <i>right</i> eye, initial encounter)	
	- S05.72XA (avulsion of <i>unspecified left</i> eye, initial encounter)	
	<i>Translated code S05.8^ (other injuries of eye and orbit) lacks specificity and is not included in the code set. See Comment below.</i>	- 871.9 (unspecified open wound of eyeball)
Anterior segment	<i>H21.0 (hyphema)</i>	- 364.41 (hyphema)
	- H21.00 (hyphema, <i>unspecified</i> eye)	
	- H21.01 (hyphema, <i>right</i> eye)	
	- H21.02 (hyphema, <i>left</i> eye)	
	- H21.03 (hyphema, <i>bilateral</i> eye)	
	<i>H21.53 (iridodialysis)</i>	- 364.76 (iridodialysis)
	- H21.531 (iridodialysis, <i>right</i> eye)	
	- H21.532 (iridodialysis, <i>left</i> eye)	
	- H21.533 (iridodialysis, <i>bilateral</i> )	
	- H21.539 (iridodialysis, <i>unspecified</i> eye)	
	<i>H26.10 (unspecified traumatic cataract)</i>	- 366.20 (traumatic cataract, unspecified)



	- H26.101 (unspecified traumatic cataract, <i>right</i> eye)	
	- H26.102 (unspecified traumatic cataract, <i>left</i> eye)	
	- H26.103 (unspecified traumatic cataract, <i>bilateral</i> )	
	- H26.109 (unspecified traumatic cataract, <i>unspecified</i> eye)	
	<i>H26.11 (localized traumatic opacities)</i>	- 366.21 (localized traumatic opacities)
	- H26.111 (localized traumatic opacities, <i>right</i> eye)	
	- H26.112 (localized traumatic opacities, <i>left</i> eye)	
	- H26.113 (localized traumatic opacities, <i>bilateral</i> )	
	- H26.119 (localized traumatic opacities, <i>unspecified</i> eye)	
	<i>H26.13 (total traumatic cataract)</i>	- 366.22 (total traumatic cataract)
	- H26.131 (total traumatic cataract, <i>right</i> eye)	
	- H26.132 (total traumatic cataract, <i>left</i> eye)	
	- H26.133 (total traumatic cataract, <i>bilateral</i> )	
	- H26.139 (total traumatic cataract, <i>unspecified</i> eye)	
<b>Burns</b>	<i>T26.0 (burn of eyelid and periocular area)</i>	- 940.1 (other burns of eyelids and periocular area)
	- T26.00XA (burn of <i>unspecified</i> eyelid and periocular area, initial encounter)	
	- T26.01XA (burn of <i>right</i> eyelid and periocular area, initial encounter)	
	- T26.02XA (burn of <i>left</i> eyelid and periocular area, initial encounter)	
	<i>T26.1 (burn of cornea and conjunctival sac)</i>	- 940.4 (other burn of cornea and conjunctival sac)
	- T26.10XA (burn of cornea and conjunctival sac, <i>unspecified</i> eye, initial encounter)	
	- T26.11XA (burn of cornea and conjunctival sac, <i>right</i> eye, initial encounter)	



- T26.12XA (burn of cornea and conjunctival sac, <i>left</i> eye, initial encounter)	
<i>T26.2 (burn with resulting rupture and destruction of eyeball)</i>	- 940.5 (burn with resulting rupture and destruction of eyeball)
- T26.20XA (burn with resulting rupture and destruction of <i>unspecified</i> eyeball, initial encounter)	- 941.52 (deep necrosis of underlying tissues due to burn, deep third degree, of eye; with other parts of face head and neck, with loss of body part)
- T26.21XA (burn with resulting rupture and destruction of <i>right</i> eyeball, initial encounter)	
- T26.22XA (burn with resulting rupture and destruction of <i>left</i> eyeball, initial encounter)	
<i>T26.3 (burns of other specified parts of eye and adnexa)</i>	- 940.9 (unspecified burn of eye and adnexa)
- T26.30XA (burn of other specified parts of <i>unspecified</i> eye and adnexa, initial encounter)	
- T26.31XA (burn of other specified parts of <i>right</i> eye and adnexa, initial encounter)	
- T26.32XA (burn of other specified parts of <i>left</i> eye and adnexa, initial encounter)	
<i>T26.4 (burn of eye and adnexa, part unspecified)</i>	- 940.9 (above)
- T26.40XA (burn of <i>unspecified</i> eye and adnexa, part unspecified, initial encounter)	- 941.02 (burn of unspecified degree of eye; with other parts of face head and neck)
- T26.41XA (burn of <i>right</i> eye and adnexa, part unspecified,, initial encounter)	- 941.12 (erythema due to burn, first degree, of eye; with other parts of face head and neck)
- T26.42XA (burn of <i>left</i> eye and adnexa, part unspecified,, initial encounter)	- 941.22 (blisters with epidermal loss due to burn, second degree, of eye; with other parts of face head and neck)
	- 941.32 (full thickness skin loss due to burn, third degree NOS, of eye; with other parts of face head and neck)
	- 941.42 (deep necrosis of underlying tissues due to burn, deep third degree, of eye; with other parts of face head and neck, without loss of body part)
<i>T26.5 (corrosion of eyelid and periocular area)</i>	- 940.0 (chemical burn of eyelids and periocular area)
- T26.50XA (corrosion of <i>unspecified</i> eyelid and periocular area, initial encounter)	



- T26.51XA (corrosion of <i>right</i> eyelid and periocular area, initial encounter)	
- T26.52XA (corrosion of <i>left</i> eyelid and periocular area, initial encounter)	
<i>T26.6 (corrosion of cornea and conjunctival sac)</i>	- 940.2 (alkaline chemical burn of cornea and conjunctival sac)
- T26.60XA (corrosion of cornea and conjunctival sac, <i>unspecified</i> eye, initial encounter)	- 940.3 (acid chemical burn of cornea and conjunctival sac)
- T26.61XA (corrosion of cornea and conjunctival sac, <i>right</i> eye, initial encounter)	
- T26.62XA (corrosion of cornea and conjunctival sac, <i>left</i> eye, initial encounter)	
<i>T26.7 (corrosion with resulting rupture and destruction of eyeball)</i>	- 940.5 (above)
- T26.70XA (corrosion with resulting rupture and destruction of <i>unspecified</i> eyeball, initial encounter)	
- T26.71XA (corrosion with resulting rupture and destruction of <i>right</i> eyeball, initial encounter)	
- T26.72XA (corrosion with resulting rupture and destruction of <i>left</i> eyeball, initial encounter)	
<i>T26.8 (corrosion of other specified parts of eye and adnexa)</i>	- 940.9 (above)
- T26.80XA (corrosion of other specified part of <i>unspecified</i> eye and adnexa, initial encounter)	
- T26.81XA (corrosion of other specified part of <i>right</i> eye and adnexa, initial encounter)	
- T26.82XA (corrosion of other specified part of <i>left</i> eye and adnexa, initial encounter)	
<i>T26.9 (corrosion of eye and adnexa, part unspecified)</i>	- 940.9 (above)
- T26.90XA (corrosion of <i>unspecified</i> eye and adnexa, part unspecified, initial encounter)	
- T26.91XA (corrosion of <i>right</i> eye and adnexa, part unspecified,, initial encounter)	



	- T26.92XA (corrosion of <i>left</i> eye and adnexa, part unspecified, initial encounter)	
Contusion	<i>S00.1 (contusion of eyelid and periocular area)</i>	- 921 (contusion of eye and adnexa) - 921.0 (black eye, NOS) - 921.1 (contusion of eyelids and periocular area)
	- S00.10XA (contusion of <i>unspecified</i> eyelid and periocular area, initial encounter)	
	- S00.11XA (contusion of <i>right</i> eyelid and periocular area, initial encounter)	
	- S00.12XA (contusion of <i>left</i> eyelid and periocular area, initial encounter)	
	<i>S05.1 (contusion of eyeball and orbital tissues)</i>	- 921.2 (contusion of orbital tissues) - 921.3 (contusion of eyeball)
	- S05.10XA (contusion of eyeball and orbital tissues, <i>unspecified</i> eye, initial encounter)	
	- S05.11XA (contusion of eyeball and orbital tissues, <i>right</i> eye, initial encounter)	
	- S05.12XA (contusion of eyeball and orbital tissues, <i>left</i> eye, initial encounter)	
	<i>Translated code S05.9^ (unspecified injury of eye and orbit)) lacks specificity and is not included in the code set. See Comments below.</i>	- 921.9 (unspecified contusion of eye)
Lid /adnexa	<i>S01.10 (unspecified open wound of eyelid and periocular area)</i>	- 870.8 (other specified open wounds of ocular adnexa) - 870.9 (unspecified open wound of ocular adnexa)
	- S01.101A (unspecified open wound of <i>right</i> eyelid and periocular area, initial encounter)	
	- S01.102A (unspecified open wound of <i>left</i> eyelid and periocular area, initial encounter)	
	- S01.109A (unspecified open wound of <i>unspecified</i> eyelid and periocular area, initial encounter)	
	<i>S01.11 (laceration without foreign body of eyelid and periocular area)</i>	- 870.0 (laceration of skin of eyelid and periocular area) - 870.1 (laceration of eyelid, full-thickness, not involving lacrimal passages) - 870.2 (laceration of eyelid involving lacrimal passages)
	- S01.111A (laceration <i>without</i> foreign body of <i>right</i> eyelid and periocular area, initial encounter)	
	- S01.112A (laceration <i>without</i> foreign body of <i>left</i> eyelid and periocular area, initial encounter)	



- S01.119A (laceration <i>without</i> foreign body of <i>unspecified</i> eyelid and periocular area, initial encounter)	
<i>S01.12 (laceration <u>with</u> foreign body of eyelid and periocular area)</i>	- 870.[0-1] (above)
- S01.121A (laceration <i>with</i> foreign body of <i>right</i> eyelid and periocular area, initial encounter)	
- S01.122A (laceration <i>with</i> foreign body of <i>left</i> eyelid and periocular area, initial encounter)	
- S01.129A (laceration <i>with</i> foreign body of <i>unspecified</i> eyelid and periocular area, initial encounter)	
<i>S01.13 (puncture wound <u>without</u> foreign body of eyelid and periocular area)</i>	- 870.[0-1] (above)
- S01.131A (puncture wound <i>without</i> foreign body of <i>right</i> eyelid and periocular area, initial encounter)	
- S01.132A (puncture wound <i>without</i> foreign body of <i>left</i> eyelid and periocular area, initial encounter)	
- S01.139A (puncture wound <i>without</i> foreign body of <i>unspecified</i> eyelid and periocular area, initial encounter)	
<i>S01.14 (puncture wound <u>with</u> foreign body of eyelid and periocular area)</i>	- 870.[0-1] (above)
- S01.141A (puncture wound <i>with</i> foreign body of <i>right</i> eyelid and periocular area, initial encounter)	
- S01.142A (puncture wound <i>with</i> foreign body of <i>left</i> eyelid and periocular area, initial encounter)	
- S01.149A (puncture wound <i>with</i> foreign body of <i>unspecified</i> eyelid and periocular area, initial encounter)	
<i>S01.15 (open bite of eyelid and periocular area)</i>	- 870.[0-1] (above)
- S01.151A (open bite of <i>right</i> eyelid and periocular area, initial encounter)	
- S01.152A (open bite of <i>left</i> eyelid and periocular area, initial encounter)	
- S01.159A (open bite of <i>unspecified</i> eyelid and periocular area, initial encounter)	





Optical/cranial nerve	<i>S04.01A (injury of optic nerve)</i>	- 950.0 (optic nerve injury)
	- S04.011A (injury of optic nerve, <i>right</i> eye, initial encounter)	- 950.9 (injury to optic nerve and pathways, unspecified)
	- S04.012A (injury of optic nerve, <i>left</i> eye, initial encounter)	
	- S04.019A (injury of optic nerve, <i>unspecified</i> eye, initial encounter)	
	<i>S04.1 (injury of oculomotor nerve)</i>	- 951.0 (injury to oculomotor nerve)
	- S04.10XA (injury of oculomotor nerve, <i>unspecified</i> side, initial encounter)	
	- S04.11XA (injury of oculomotor nerve, <i>right</i> side, initial encounter)	
	- S04.12XA (injury of oculomotor nerve, <i>left</i> side, initial encounter)	
	<i>S04.2 (injury of trochlear nerve)</i>	- 951.1 (injury to trochlear nerve)
	- S04.20XA (injury of trochlear nerve, <i>unspecified</i> side, initial encounter)	
	- S04.21XA (injury of trochlear nerve, <i>right</i> side, initial encounter)	
	- S04.22XA (injury of trochlear nerve, <i>left</i> side, initial encounter)	
	<i>S04.4 (injury of abducent nerve)</i>	- 951.3 (injury to abducens nerve)
	- S04.40XA (injury of abducent nerve, <i>unspecified</i> side, initial encounter)	
	- S04.41XA (injury of abducent nerve, <i>right</i> side, initial encounter)	
	- S04.42XA (injury of abducent nerve, <i>left</i> side, initial encounter)	
Orbit	<i>S02.3 (fracture of orbital floor)</i>	--
	- S02.3XXA (fracture of orbital floor, initial encounter for <i>closed</i> fracture)	- 802.6 (orbital floor, blow-out, closed)
	- S02.3XXB (fracture of orbital floor, initial encounter for <i>open</i> fracture)	- 802.7 (orbital floor, blow-out, open)
	<i>S02.92 (unspecified fracture of facial bones)</i>	- 802.8 (fracture of face bones; other facial bones, closed)
	- S02.92XA (unspecified fracture of facial bones, initial encounter for closed fracture)	
	<i>S05.4 (penetrating wound of orbit with or without foreign body)</i>	- 870.3 (penetrating wound of orbit,



	<ul style="list-style-type: none"> <li>- S05.40XA (penetrating wound of orbit <i>with or without</i> foreign body, <i>unspecified</i> eye, initial encounter)</li> </ul>	<i>without</i> mention of foreign body) <ul style="list-style-type: none"> <li>- 870.4 (penetrating wound of orbit with foreign body)</li> </ul>
	<ul style="list-style-type: none"> <li>- S05.41XA (penetrating wound of orbit <i>with or without</i> foreign body, <i>right</i> eye, initial encounter)</li> </ul>	
	<ul style="list-style-type: none"> <li>- S05.42XA (penetrating wound of orbit <i>with or without</i> foreign body, <i>left</i> eye, initial encounter)</li> </ul>	
	<i>H05.23 (hemorrhage of orbit)</i>	<ul style="list-style-type: none"> <li>- 376.32 (orbital hemorrhage)</li> </ul>
	<ul style="list-style-type: none"> <li>- H05.231 (hemorrhage of <i>right</i> orbit)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H05.232 (hemorrhage of <i>left</i> orbit)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H05.233 (hemorrhage of <i>bilateral</i> orbit)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H05.239 (hemorrhage of <i>unspecified</i> orbit)</li> </ul>	
Posterior segment	<i>H31.30 (unspecified choroidal hemorrhage)</i>	<ul style="list-style-type: none"> <li>- 363.61 (choroidal hemorrhage, unspecified)</li> </ul>
	<ul style="list-style-type: none"> <li>- H31.301 (unspecified choroidal hemorrhage, <i>right</i> eye)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H31.302 (unspecified choroidal hemorrhage, <i>left</i> eye)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H31.303 (unspecified choroidal hemorrhage, <i>bilateral</i> eye)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H31.309 (unspecified choroidal hemorrhage, <i>unspecified</i> eye)</li> </ul>	
	<i>H31.31 (expulsive choroidal hemorrhage)</i>	<ul style="list-style-type: none"> <li>- 363.62 (expulsive choroidal hemorrhage)</li> </ul>
	<ul style="list-style-type: none"> <li>- H31.311 (expulsive choroidal hemorrhage, <i>right</i> eye)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H31.312 (unspecified choroidal hemorrhage, <i>left</i> eye)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H31.313 (unspecified choroidal hemorrhage, <i>bilateral</i> eye)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H31.319 (unspecified choroidal hemorrhage, <i>unspecified</i> eye)</li> </ul>	
	<i>H31.32 (choroidal rupture)</i>	<ul style="list-style-type: none"> <li>- 363.63 (choroidal rupture)</li> </ul>
	<ul style="list-style-type: none"> <li>- H31.321 (choroidal rupture, <i>right</i> eye)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H31.322 (choroidal rupture, <i>left</i> eye)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H31.323 (choroidal rupture, <i>bilateral</i> eye)</li> </ul>	
	<ul style="list-style-type: none"> <li>- H31.329 (choroidal rupture, <i>unspecified</i>)</li> </ul>	



	eye)	
	<i>H33.0 (retinal detachments and breaks)</i>	- 361.0 (retinal detachment and defects)
	<i>H33.00 (retinal detachment with retinal break)</i>	- 361.00 (retinal detachment with retinal defect, unspecified)
	- H33.001 (unspecified retinal detachment with retinal break, <i>right eye</i> )	
	- H33.002 (unspecified retinal detachment with retinal break, <i>left eye</i> )	
	- H33.003 (unspecified retinal detachment with retinal break, <i>bilateral eye</i> )	
	- H33.009 (unspecified retinal detachment with retinal break, <i>unspecified eye</i> )	
	<i>H33.01 (retinal detachment with single break)</i>	- 361.01 (recent detachment, partial, with single defect)
	- H33.011 (retinal detachment with single break, <i>right eye</i> )	
	- H33.012 (retinal detachment with single break, <i>left eye</i> )	
	- H33.013 (retinal detachment with single break, <i>bilateral eye</i> )	
	- H33.019 (retinal detachment with single break, <i>unspecified eye</i> )	
	<i>H33.02 (retinal detachment with multiple breaks)</i>	- 361.02 (recent detachment, partial, with multiple defects)
	- H33.021 (retinal detachment with multiple breaks, <i>right eye</i> )	
	- H33.022 (retinal detachment with multiple breaks, <i>left eye</i> )	
	- H33.023 (retinal detachment with multiple breaks, <i>bilateral eye</i> )	
	- H33.029 (retinal detachment with multiple breaks, <i>unspecified eye</i> )	
	<i>H33.03 (retinal detachment with giant retinal tear)</i>	- 361.03 (recent detachment, partial, with giant tear)
	- H33.031 (retinal detachment with giant retinal tear, <i>right eye</i> )	
	- H33.032 (retinal detachment with giant retinal tear, <i>left eye</i> )	
	- H33.033 (retinal detachment with giant retinal tear, <i>bilateral eye</i> )	
	- H33.039 (retinal detachment with giant	



	retinal tear, <i>unspecified</i> eye)	
	<i>H33.04 (retinal detachment with retinal dialysis)</i>	- 361.04 (recent detachment, partial, with retinal dialysis)
	- H33.041 (retinal detachment with retinal dialysis, <i>right</i> eye)	
	- H33.042 (retinal detachment with retinal dialysis, <i>left</i> eye)	
	- H33.043 (retinal detachment with retinal dialysis, <i>bilateral</i> eye)	
	- H33.049 (retinal detachment with retinal dialysis, <i>unspecified</i> eye)	
	<i>H33.05 (total retinal detachment)</i>	- 361.05 (recent detachment, total or subtotal)
	- H33.051 (total retinal detachment, <i>right</i> eye)	- 361.07 (old detachment, total or subtotal)
	- H33.052 (total retinal detachment, <i>left</i> eye)	
	- H33.053 (total retinal detachment, <i>bilateral</i> eye)	
	- H33.059 (total retinal detachment, <i>unspecified</i> eye)	
	<i>H33.8 (other retinal detachments)</i>	- 361.06 (old detachment, partial)
	<i>H35.6 (retinal hemorrhage)</i>	- 362.81 (retinal hemorrhage)
	- H35.60 (retinal hemorrhage, <i>unspecified</i> eye)	
	- H35.61 (retinal hemorrhage, <i>right</i> eye)	
	- H35.62 (retinal hemorrhage, <i>left</i> eye)	
	- H35.69 (retinal hemorrhage, <i>bilateral</i> eye)	
	<i>H43.1 (vitreous hemorrhage)</i>	- 379.23 (vitreous hemorrhage)
	- H43.10 (vitreous hemorrhage, <i>right</i> eye)	
	- H43.11 (vitreous hemorrhage, <i>left</i> eye)	
	- H43.12 (vitreous hemorrhage, <i>bilateral</i> eye)	
	- H43.13 (vitreous hemorrhage, <i>unspecified</i> eye)	
	<i>H44.00 (unspecified purulent enophthalmitis)</i>	- 360.00 (purulent endophthalmitis)
	- H44.001 (unspecified purulent enophthalmitis, <i>right</i> eye)	- 360.01 (acute endophthalmitis)
	- H44.002 (unspecified purulent	



	enophthalmitis, <i>left eye</i> )	
	- H44.003 (unspecified purulent enophthalmitis, <i>bilateral</i> )	
	- H44.009 (unspecified purulent enophthalmitis, <i>unspecified eye</i> )	

### Superficial Injuries

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Superficial Eye Injuries	<i>S00.2 (other and unspecified superficial injuries of eyelid and periocular area)</i>	--
	<i>S00.20 (unspecified superficial injuries of eyelid and periocular area)</i>	918.0 (superficial injury of eye and adnexa; eyelids and periocular area) –
	- S00.201A (other and unspecified superficial injuries of <i>right</i> eyelid and periocular area, initial encounter)	
	- S00.202A (other and unspecified superficial injuries of <i>left</i> eyelid and periocular area, initial encounter)	
	- S00.209A (other and unspecified superficial injuries of <i>unspecified</i> eyelid and periocular area)	
	<i>S00.21 (abrasion of eyelid and periocular area)</i>	918.0 (above)
	- S00.211A (abrasion of <i>right</i> eyelid and periocular area, initial encounter)	
	- S00.212A (abrasion of <i>left</i> eyelid and periocular area, initial encounter)	
	- S00.219A (abrasion of <i>unspecified</i> eyelid and periocular area, initial encounter)	
	<i>S00.22 (blister (nonthermal) of eyelid and periocular area)</i>	918.0 (above)
	- S00.221A (blister (nonthermal) of <i>right</i> eyelid and periocular area, initial encounter)	
	- S00.222A (blister (nonthermal) of <i>left</i> eyelid and periocular area, initial encounter)	
	- S00.229A (blister (nonthermal) of <i>unspecified</i> eyelid and periocular area, initial encounter)	
	<i>S00.25 (superficial foreign body of eyelid and periocular area)</i>	918.0 (above)



- S00.251A (superficial foreign body of <i>right</i> eyelid and periocular area, initial encounter)	
- S00.252A (superficial foreign body of <i>left</i> eyelid and periocular area, initial encounter)	
- S00.259A (superficial foreign body of <i>unspecified</i> eyelid and periocular area, initial encounter)	
<i>S00.26 (insect bite (nonvenomous) of eyelid and periocular area)</i>	918.0 (above)
- S00.261A (insect bite (nonvenomous) of <i>right</i> eyelid and periocular area, initial encounter)	
- S00.262A (insect bite (nonvenomous) of <i>left</i> eyelid and periocular area, initial encounter)	
- S00.269A (insect bite (nonvenomous) of <i>unspecified</i> eyelid and periocular area, initial encounter)	
<i>S00.27 (other superficial bite of eyelid and periocular area)</i>	918.0 (above)
- S00.271A (other superficial bite of <i>right</i> eyelid and periocular area, initial encounter)	
- S00.272A (other superficial bite of <i>left</i> eyelid and periocular area, initial encounter)	
- S00.279A (other superficial bite of <i>unspecified</i> eyelid and periocular area, initial encounter)	
<i>S05.0 (injury of conjunctiva and corneal abrasion without foreign body)</i>	918.1 (superficial injury of eye and adnexa; cornea)
- S05.00XA (injury of conjunctiva and corneal abrasion <i>without</i> foreign body, <i>unspecified</i> eye, initial encounter)	918.2 (superficial injury of eye and adnexa; conjunctiva)
- S05.01XA (injury of conjunctiva and corneal abrasion <i>without</i> foreign body, <i>right</i> eye, initial encounter)	918.9 (other and unspecified superficial injuries of eye)
- S05.02XA (injury of conjunctiva and corneal abrasion <i>without</i> foreign body, <i>left</i> eye, initial encounter)	
<i>T15 (foreign body on external eye)</i>	930 (foreign body on external eye)
<i>T15.0 (foreign body in cornea)</i>	- 930.0 (corneal foreign body)
- T15.00XA (foreign body in cornea, <i>unspecified</i> eye, initial encounter)	



	<ul style="list-style-type: none"> <li>- T15.01XA (foreign body in cornea, <i>right</i> eye, initial encounter)</li> </ul>	
	<ul style="list-style-type: none"> <li>- T15.02XA (foreign body in cornea, <i>left</i> eye, initial encounter)</li> </ul>	
	<i>T15.1 (foreign body in conjunctival sac)</i>	- 930.1 (foreign body of conjunctival sac)
	<ul style="list-style-type: none"> <li>- T15.10XA (foreign body in conjunctival sac, <i>unspecified</i> eye, initial encounter)</li> </ul>	
	<ul style="list-style-type: none"> <li>- T15.11XA (foreign body in conjunctival sac, <i>right</i> eye, initial encounter)</li> </ul>	
	<ul style="list-style-type: none"> <li>- T15.12XA (foreign body in conjunctival sac, <i>left</i> eye, initial encounter)</li> </ul>	
	<i>T15.8 (foreign body in other and multiple parts of external eye)</i>	- 930.2 (foreign body of lacrimal punctum)
	<ul style="list-style-type: none"> <li>- T15.80XA (foreign body in other and multiple parts of external eye, <i>unspecified</i> eye, initial encounter)</li> </ul>	- 930.8 (foreign body of external eye; other and combined sites)
	<ul style="list-style-type: none"> <li>- T15.81XA (foreign body in other and multiple parts of external eye, <i>right</i> eye, initial encounter)</li> </ul>	
	<ul style="list-style-type: none"> <li>- T15.82XA (foreign body in other and multiple parts of external eye, <i>left</i> eye, initial encounter)</li> </ul>	
	<i>T15.9 (foreign body on external eye, unspecified eye, initial encounter)</i>	- 930.9 (foreign body of external eye; unspecified site)
	<ul style="list-style-type: none"> <li>- T15.90XA (foreign body on external eye, <i>unspecified</i> eye, initial encounter)</li> </ul>	
	<ul style="list-style-type: none"> <li>- T15.91XA (foreign body on external eye, <i>right</i> eye, initial encounter)</li> </ul>	
	<ul style="list-style-type: none"> <li>- T15.92XA (foreign body on external eye, <i>left</i> eye, initial encounter)</li> </ul>	
<p>Corneal Disorders Due to Contact Lens</p> <p><i>(Codes used for quarterly installation level reports only; see Code Set Determination and Rationale below)</i></p>	<p><i>H18.21 (corneal edema secondary to contact lens)</i></p> <ul style="list-style-type: none"> <li>- H18.211 (corneal edema secondary to contact lens, <i>right</i> eye)</li> <li>- H18.212 (corneal edema secondary to contact lens, <i>left</i> eye)</li> <li>- H18.213 (corneal edema secondary to contact lens, <i>bilateral</i> eye)</li> <li>- H18.219 (corneal edema secondary to contact lens, <i>unspecified</i> eye)</li> </ul>	371.24 (corneal edema due to wearing of contact lenses)



<i>H18.82 (corneal disorder due to contact lens)</i>	371.82 (corneal disorders due to contact lens)
- H18.821 (corneal disorder due to contact lens, <i>right eye</i> )	
- H18.822 (corneal disorder due to contact lens, <i>left eye</i> )	
- H18.823 (corneal disorder due to contact lens, <i>bilateral eye</i> )	
H18.829 (corneal disorder due to contact lens, <i>unspecified eye</i> )	

### Development and Revisions

- In January of 2016 the case definition was updated to include ICD10 codes.
- This case definition was developed in 2011 by AFHSC and senior ophthalmology and optometry subject matter experts at TSVCPR at USAPHC.
- In 2008 a case definition for a MSMR article<sup>2</sup> on eye injuries was developed at AFHSC by a resident ophthalmologist. The analyses used the same case definition and incidence rules. The ICD9 code set used for the analyses differed slightly from the one documented here. The 2008 ICD9 code set included codes 360.02 - 360.04 (panophthalmitis, chronic endophthalmitis, and vitreous abscesses) and did not include codes 941.52 (deep necrosis of underlying tissues due to burn, deep third degree, of eye; with other parts of face head and neck with loss of body part) .
- A 1999 MSMR article on eye injuries<sup>3</sup> used a case definition that differed significantly from the one used in the MSMR articles of 2008 and 2011.<sup>1,2</sup> The case definition used for the 1999 analyses did not include the codes for injuries to the anterior segment (ICD9 364.41, 364.76, and 366.22), two codes for the orbit (ICD9 802.8 and 376.32), and the numerous codes for the posterior segment.

#### Case Definition and Incidence Rule Rationale

- For superficial eye injuries, an individual is considered an incident case only *once every 60 days*. Such an individual may be recorded as having another “superficial” eye injury during the surveillance period if more than 60 days have passed since the previous such injury.

A timeframe of 60 days for superficial injuries was originally derived from analyses done by TSVCPR for the 1999 MSMR article on eye injuries.<sup>3</sup> The time period is also used to be consistent with the incidence rules used by AFHSB for a 2008 MSMR article on eye injuries.<sup>2</sup> This rationale is based upon the presumption that superficial injuries are mild in nature and complete recovery should occur within a 60 day period. During the 60 day period after the incidence date, additional encounters for superficial eye injury will be presumed to be for follow-up care of the initial, incident injury and not for care of a new superficial eye injury.

#### Code Set Determination and Rationale

- In January of 2016 the TSVCPR reviewed the ICD9 and ICD10 code sets and made the following decisions:
  - Code ICD9 366.20/ICD10 H26.10 (traumatic cataract, unspecified) was added to the code set. ICD9 366.20 was inadvertently omitted from the original code set but will be included for all future analyses.





- Code ICD9 363.62 / ICD10 H31.31 (expulsive choroidal hemorrhage) was added to the code set. ICD9 363.62 was inadvertently omitted from the original code set but will be included for all future analyses.
- ICD9 code 371.24 (corneal edema due to wearing of contact lenses) was added as a complement to code 371.82 (corneal disorders due to contact lens) to more fully represent the burden of contact lens complications in the active duty population. Both codes are used for quarterly installation level injury reports *only*.
- Code ICD9 950.1 / ICD10 S04.02 (injury to optic chiasm) was removed from the code set. Similar codes (i.e., ICD9 950.2 (injury to optic pathways) and 950.3 (injury to visual cortex) were removed in 2011. These codes refer to parts of the brain that may affect vision without injury to the eye itself.
- ICD10 codes S05.8^ (other injuries of eye and orbit) and S05.9^ (unspecified injury of eye and orbit) are too non-specific to allow inclusion in any specific injury category in this case definition. ICD10 S05.9^ maps to multiple ICD9 codes: 918.9 (other and unspecified superficial injuries of eye), 921.9 (unspecified contusion of eye) and 871.9 (unspecified open wound of eyeball) in the Superficial, Contusion and High Risk of Blindness injury categories, and, therefore, cannot be used in only one injury group. Similarly, ICD10 S05.8^ is a non-specific code that could be used in multiple injury groups.

To maintain the integrity of the data in the individual injury groups, ICD10 codes S05.8^ and S05.9^ are not included in the code set at this time. The TSVCRP recommends monitoring these codes for usage and reevaluating their proper placement when ICD10 data are available. If the codes are being used, TSVCRP will consider adding an additional code group - "Other and Unspecified Eye Injuries" - to capture the conditions reflected by the use of these codes.

- In August of 2011 the ICD9 code set was reviewed by AFHSC and TSVCRP and the following changes were made:
  - ICD9 code 371.82 (corneal disorder due to contact lens) was added as an injury group. The code is used for the DoD eye injury quarterly installation level report *only* as a means to track corneal disorders caused by contact lens use.
  - ICD9 code 367.32 (aniseikonia) was replaced with 376.32 (orbital hemorrhage) to correct a typographical error.
  - ICD9 codes 950.2 (injury to optic pathways) and 950.3 (injury to visual cortex) were removed. These codes refer to parts of the brain that may affect vision without injury to the eye itself.
  - ICD9 codes 360.00 (purulent endophthalmitis) and ICD9 code 360.01 (acute endophthalmitis) were reviewed and remain in the code set as codes that are frequently associated with traumatic and post-surgical infection.

## Reports

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AFHSC reports on eye injuries in the following reports:

- Quarterly: Eye injury reports for the DoD and TSVCRP.
- Annual: Eye injury reports for the DoD and TSVCRP.



**Review**

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Jan 2016	Case definition reviewed and updated by the TSVCRP and approved by AFHSB Surveillance Methods and Standards (SMS) working group.
Aug 2011	Case definition reviewed and adopted by Surveillance Methods and Standards (SMS) working group.
May 2011	Case definition developed and reviewed by AFHSB MSMR staff.

**Comments**

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None

