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U.S. All Services Injury Surveillance 2021 Summary

Prepared for the Defense Safety Oversight Council (DSOC)
Military Injuries Working Group (MIWG)
February 2024

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Background

- This document provides a summary of injury medical encounter surveillance data for Active Duty Personnel in Calendar Year (CY) 2021.
- Rates and distribution of injuries are presented by leading injury types, injured body regions, injury mechanisms, activities and places.



Data Sources and Injury Definition

- Prepared for the Defense Safety Oversight Council (DSOC) Military Injuries Working Group (MIWG)
- Prepared by DCPH-A Injury Prevention, email: dha.apg.Pub-Health-A.mbx.injuryprevention@health.mil
- Data source: Defense Casualty Analysis System and Defense Medical Surveillance System (DMSS)
- Injuries defined and classified using the Taxonomy of Injuries¹

¹U.S. Army Public Health Center. 2017. Public Health Information Paper (PHIP) No. 12-01-0717, *A Taxonomy of Injuries for Public Health Monitoring & Reporting*. December 2017. <http://www.dtic.mil/docs/citations/AD1039481>



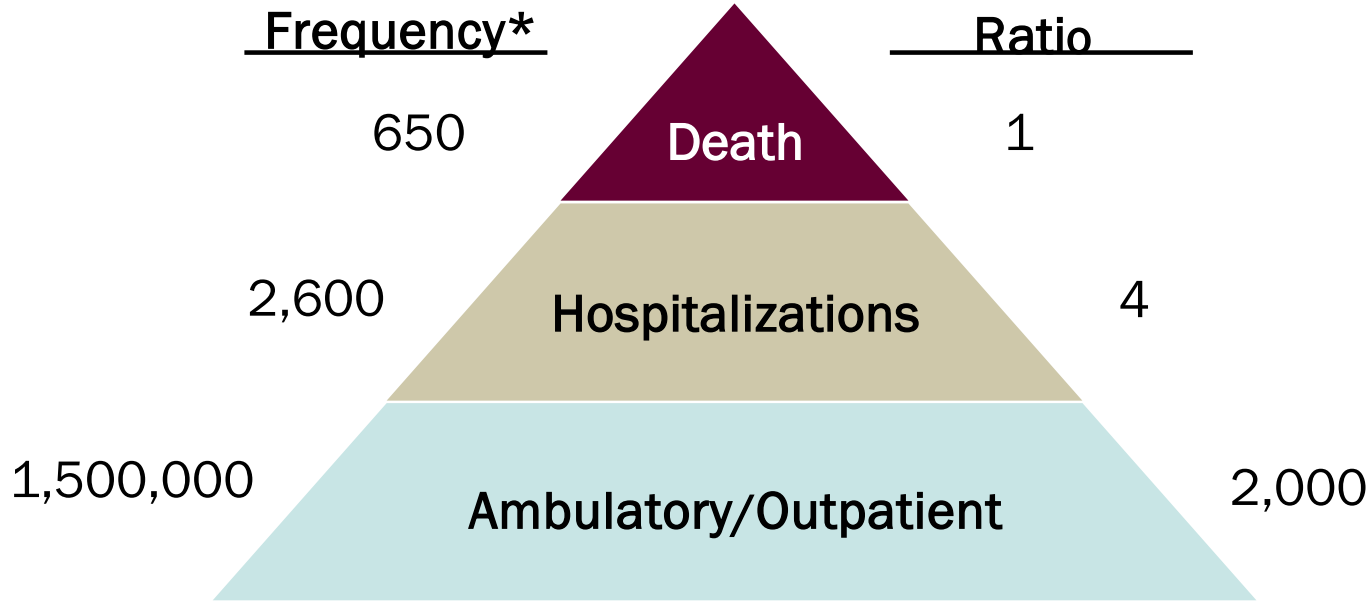
Data Summary, U.S. All Services Active Duty, 2021

- Injuries accounted for 39.3% of all medical encounters (n=4,921,642), 2.2 times more encounters than the second leading cause.
- Injuries affected 693,278 individuals (52.0%), 1.4 times more individuals than the second leading diagnosis group.
- A high proportion (69%) of new (incident) injury diagnoses were due to cumulative microtrauma to the musculoskeletal system.
- Most injuries were to the lower extremities (39.2%); followed by spine & back (28.8%).
- Among outpatient injury encounters with a cause code in 2021, leading injury mechanisms were overexertion (21.4%) and falls (19.5%).





Injury Pyramid U.S. All Services Active Duty, 2021

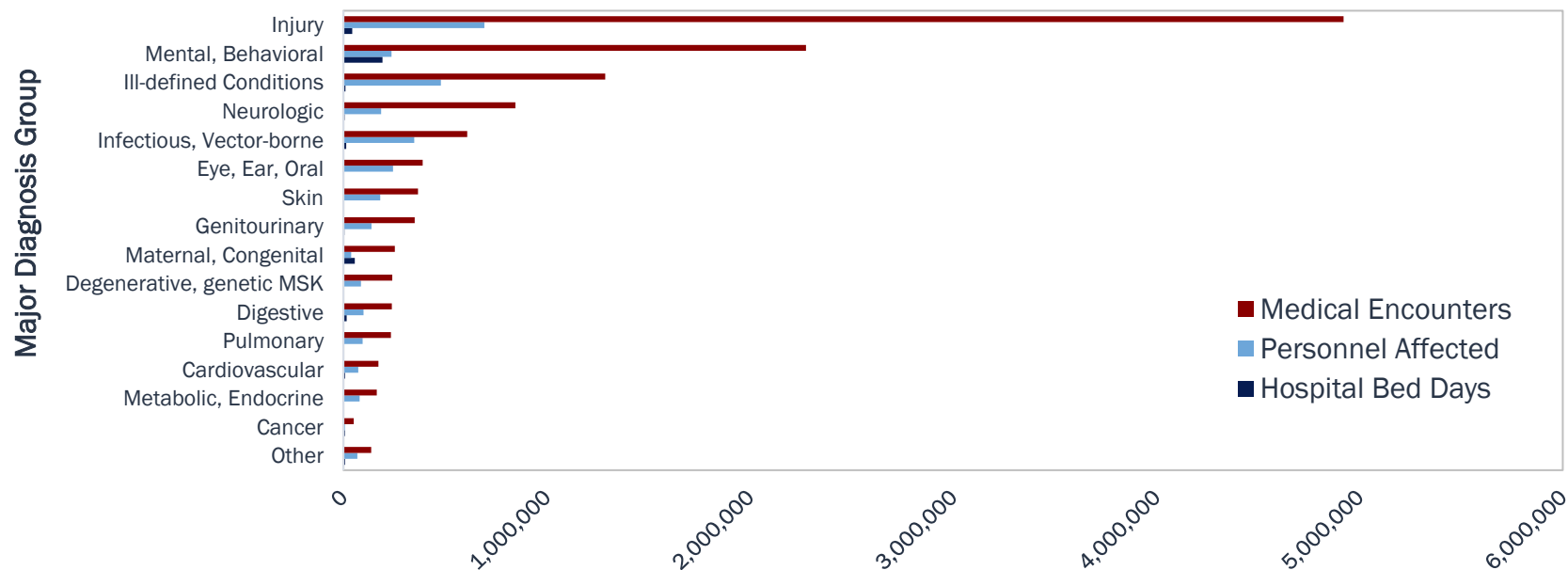


*Frequencies are rounded and represent incident injury encounters



Relative Burden of Illnesses and Injuries

U.S. All Services Active Duty, 2021



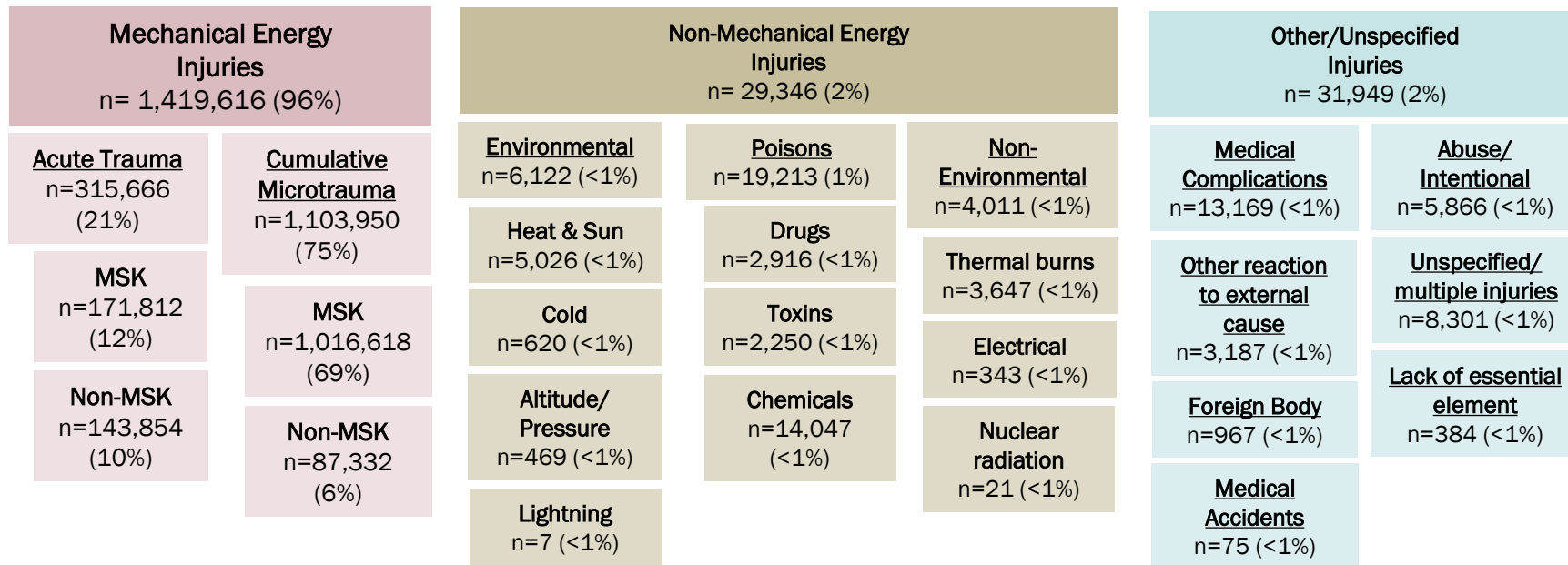
*MSK = damage to tissue(s) of the musculoskeletal system (i.e., bone, cartilage, muscle, tendon, fascia, joint, ligament, bursa, or synovium). Diagnosis group “Other” includes adverse effects of drugs, blood disorders, and other neoplasms (not cancer).



Taxonomy Distribution of Injuries

U.S. All Services Active Duty, 2021

Incident Injuries, N = 1,480,911



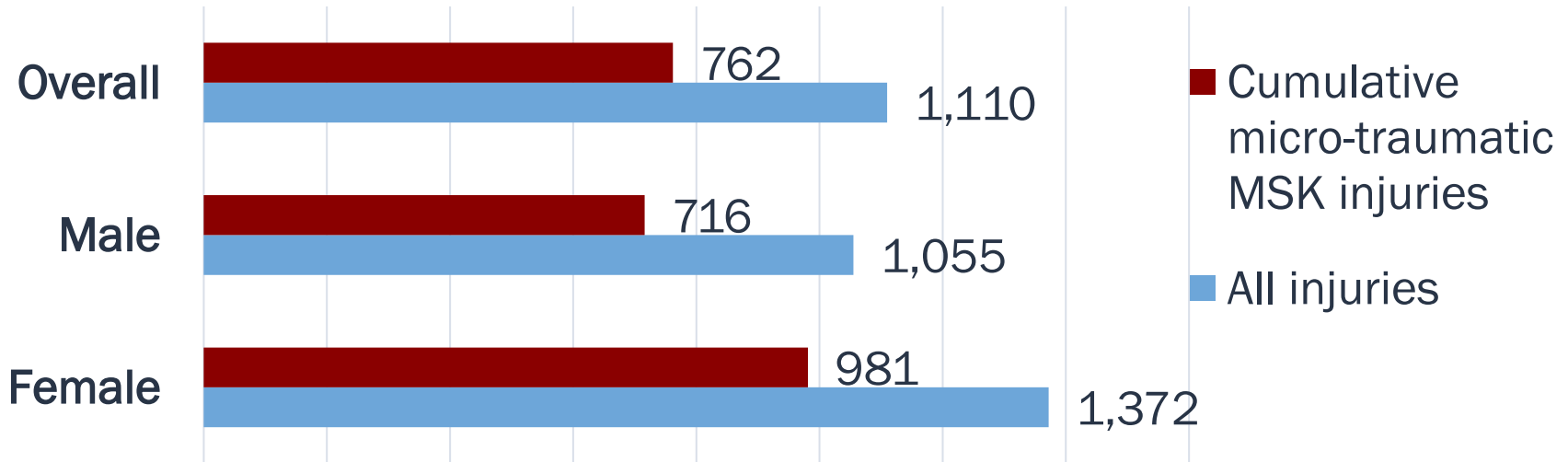


Incident Injury Encounter Rates by Sex

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All Injury and Cumulative Micro-traumatic Musculoskeletal (MSK)

U.S. All Services Active Duty, 2021



Incidence Rate per 1,000 person-years

Rates for all injuries and cumulative micro-traumatic MSK injuries were both significantly higher among females ($p < 0.001$).



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Incident Mechanical Injuries by Body Region

U.S. All Services Active Duty, 2021

Body Region	Acute Traumatic n (%)	Cumulative Micro-traumatic (Overuse) n (%)	All n (%)
Lower Extremity	116,923 (8.2)	439,349 (30.9)	556,272 (39.2)
Spine & Back	20,081 (1.4)	389,383 (27.4)	409,464 (28.8)
Upper Extremity	98,885 (7.0)	203,564 (14.3)	302,449 (21.3)
Head, Face, & Neck	58,420 (4.1)	39,652 (2.8)	98,072 (6.9)
Torso	19,683 (1.4)	1,496 (<1.0)	21,179 (1.5)
Other	1,674 (<1.0)	30,506 (2.1)	32,180 (2.3)
Total	315,666 (22.2)	1,103,950 (77.8)	1,419,616 (100)

*In order of most frequently injured body region for All



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Incident Mechanical Injury Diagnoses by Injury Type and Body Region, U.S. All Services Active Duty, 2021

Diagnosis	Head, Face, and Neck		Spine and Back		Torso		Upper Extremity		Lower Extremity		Other		Total	Percent Total (%)
	Acute (ACT)*	Cumulative (CMT)*	ACT	CMT	ACT	CMT	ACT	CMT	ACT	CMT	ACT	CMT		
MSK Tissue Damage	65	627	4,162	356,833	461	5	9,140	186,944	16,546	423,243	359	30,067	1,028,452	72.4
Other Tissue Damage	20,968	38,972	2,449	0	5,020	0	9,611	0	6,544	0	1,137	0	84,701	6.0
Sprain/Joint Damage	30	0	3,450	2	1,217	0	11,789	1,004	41,762	4,290	101	183	63,828	4.5
Nerve	85	0	73	32,497	27	1,193	7,476	8,773	2,544	1,891	0	0	54,559	3.8
Strain/Tear	4,873	0	8,221	0	4,902	0	9,844	6,631	15,263	12	77	49	49,872	3.5
Contusion/Superficial	10,985	53	0	0	4,286	35	11,991	189	14,016	3,729	0	0	45,284	3.2
Fracture	2,592	0	1,289	51	1,440	263	13,792	23	12,333	6,184	0	207	38,174	2.7
Open Wound	8,948	0	0	0	872	0	19,263	0	5,952	0	0	0	35,035	2.5
Internal Organ and Blood Vessel	9,734	0	351	0	1,297	0	148	0	56	0	0	0	11,586	<1.0
Dislocation	115	0	86	0	135	0	4,333	0	1,390	0	0	0	6,059	<1.0
Crush	18	0	0	0	24	0	1,239	0	479	0	0	0	1,760	<1.0
Amputation	7	0	0	0	2	0	259	0	38	0	0	0	306	<1.0
Total	58,420	39,652	20,081	389,383	19,683	1,496	98,885	203,564	116,923	439,349	1,674	30,506	1,419,616	100.0
Percent Total (%)	4.1	2.8	1.4	27.4	1.3	<1.0	7.0	14.3	8.2	30.9	<1.0	2.1	100.0	

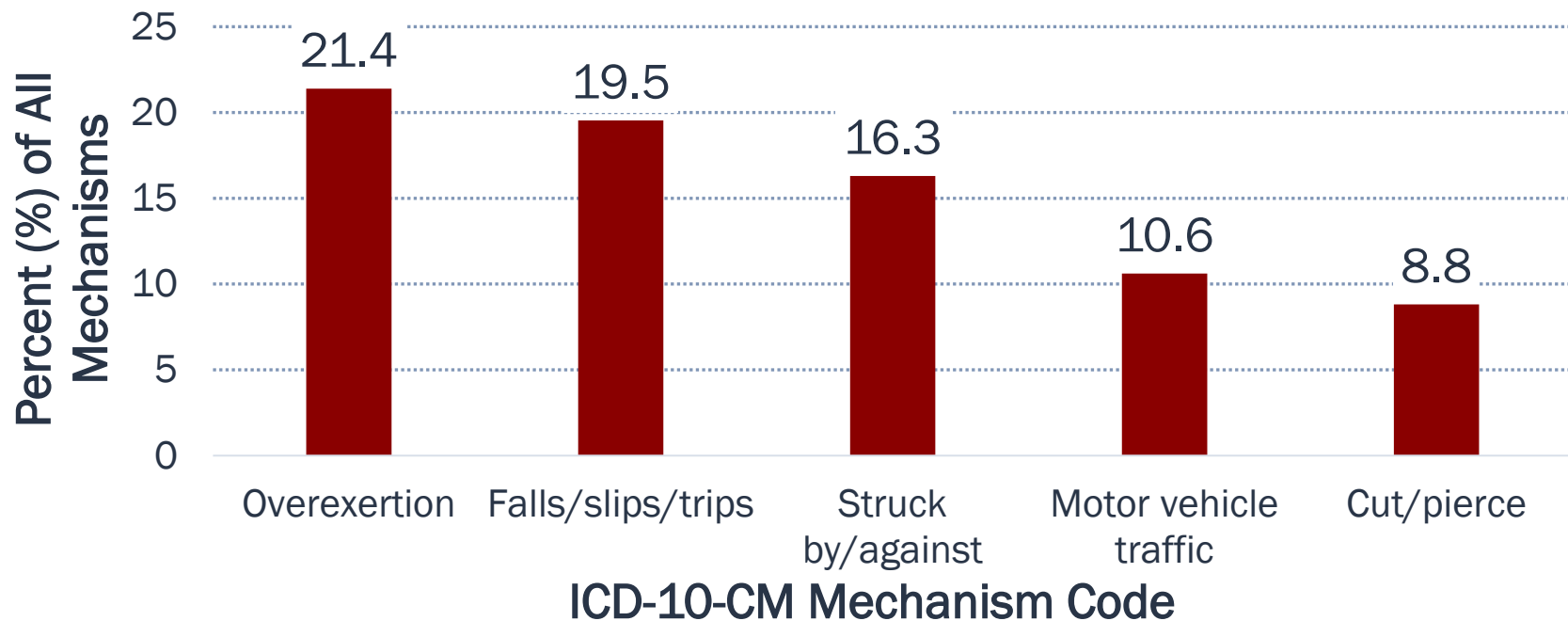
Legend: ACT = Acute trauma, CMT = Cumulative microtrauma



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Leading Mechanisms of Unintentional Injury Outpatient Encounters, U.S. All Services Active Duty, 2021



Total number of unintentional incident injury outpatient encounters with activity codes = 103,466 (7%); may not be representative of the distribution of mechanisms for all incident injuries.



Leading Activities Associated with Unintentional Injury Outpatient Encounters, U.S. All Services Active Duty, 2021

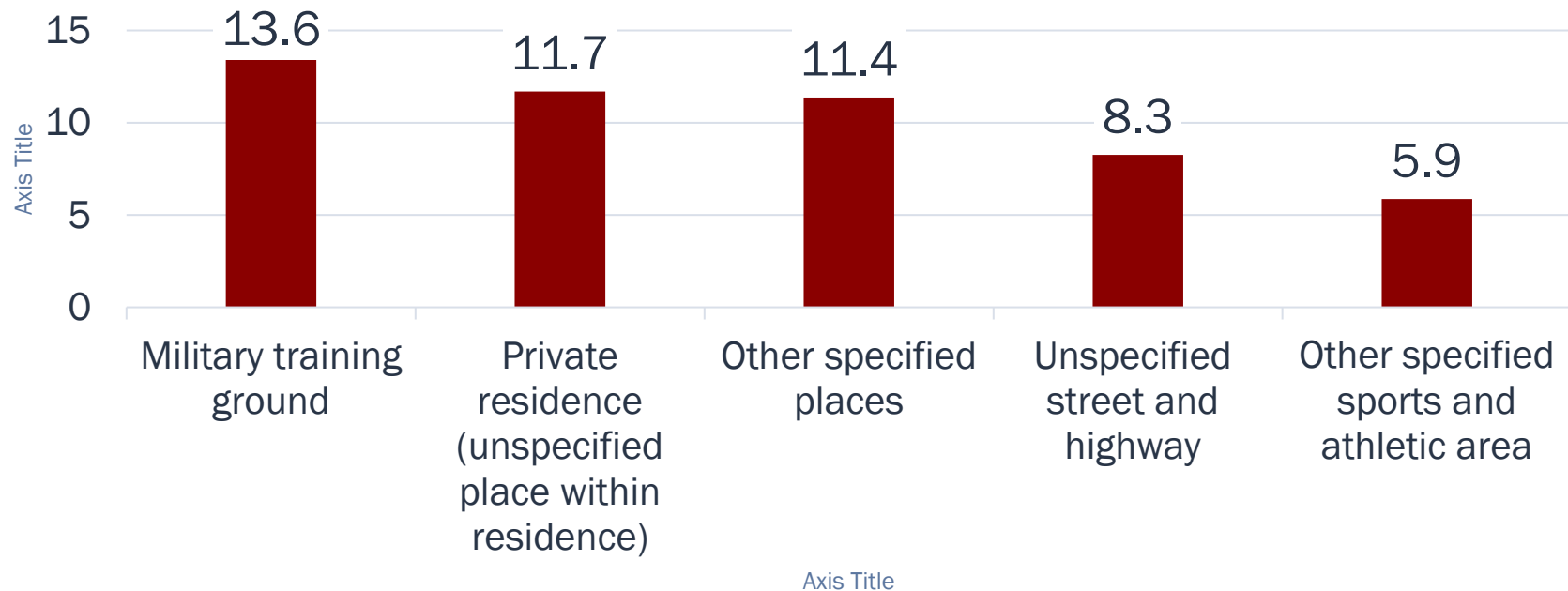


ICD-10-CM Activity Code

Total number of unintentional incident injury encounters with activity codes = 41,753 (3%); may not be representative of the distribution of activities for all incident injuries.



Leading Places Associated with Unintentional Injury Outpatient Encounters, U.S. All Services Active Duty, 2021



Total number of unintentional outpatient incident injury encounters with activity codes = 25,523 (2%); may not be representative of the distribution of locations for all incident injuries.



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Website: <https://phc.amedd.Army.mil/topics/discond/ptsaip/Pages/default.aspx>

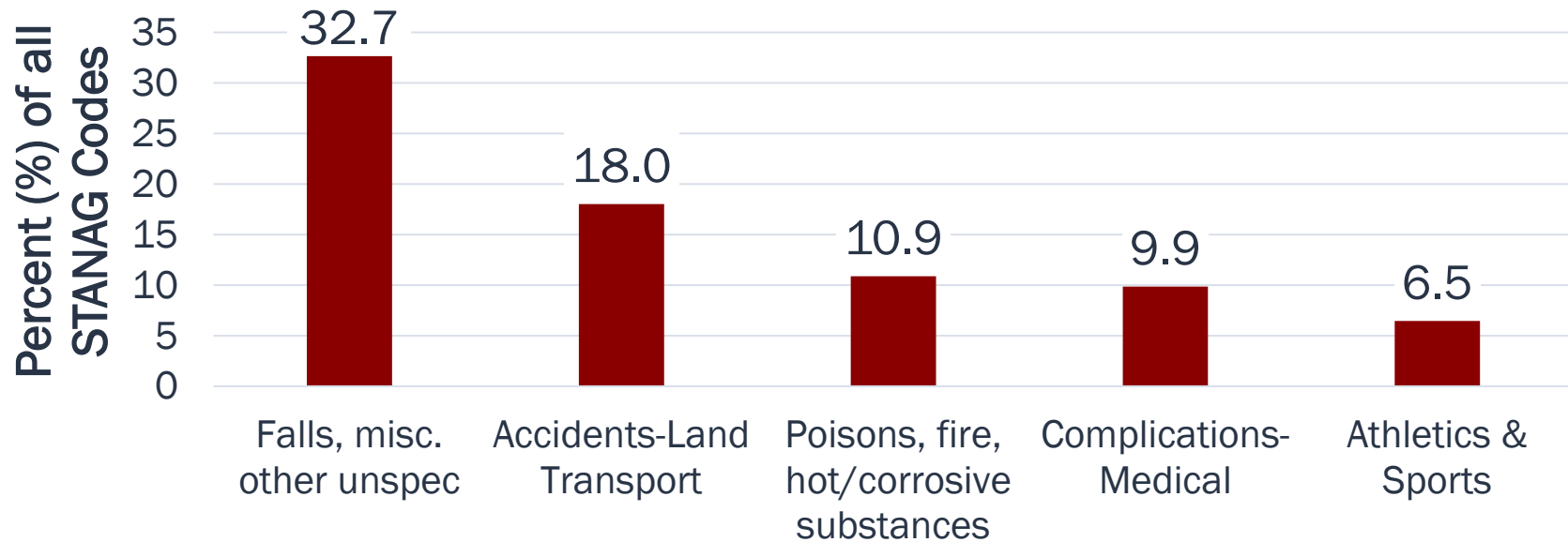
Email: dha.apg.Pub-Health-A.mbx.injuryprevention@health.mil



Additional Injury Hospitalization Cause Information



Leading Standardized Agreement (STANAG) Cause Codes for Injury Hospitalizations, U.S. All Services Active-Duty, 2021

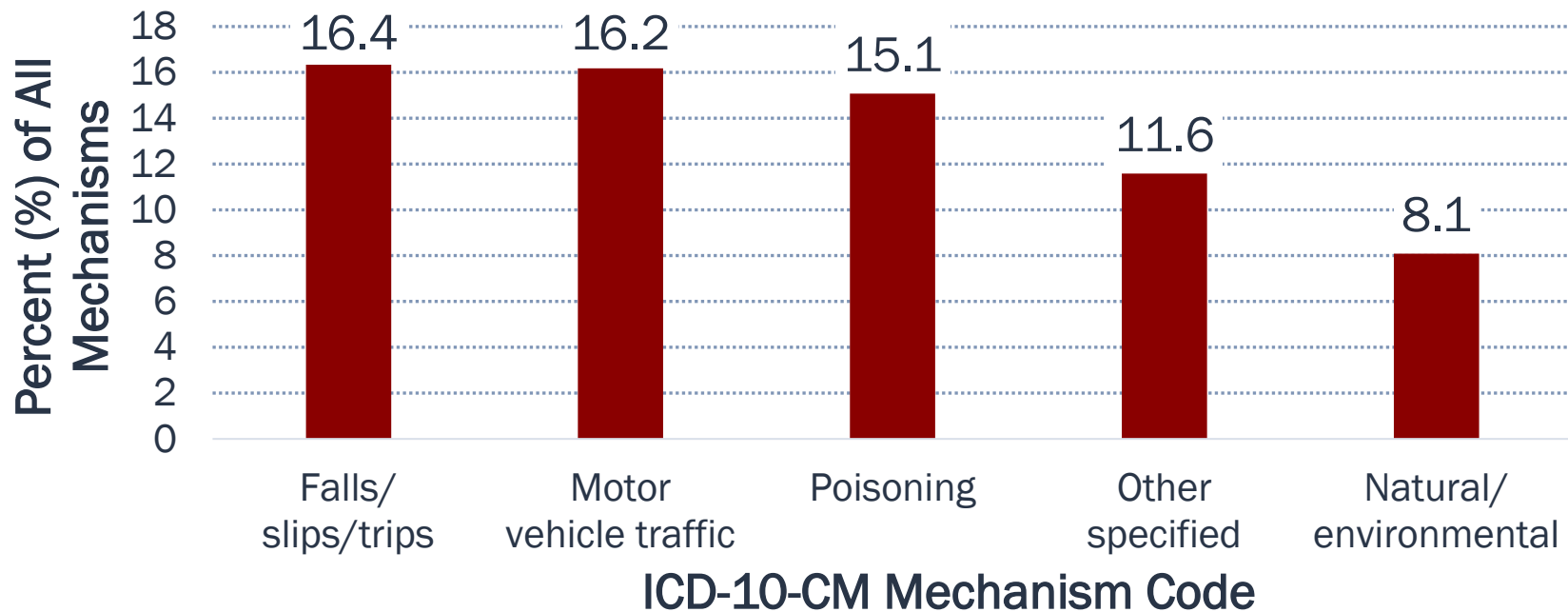


STANAG Code Category

Total number of STANAG-coded injury hospitalizations = 294 (11%); may not be representative of the distribution of causes for all incident injury hospitalizations.



Leading Mechanisms of Unintentional Injury Hospitalizations, U.S. All Services Active Duty, 2021



Total number of cause-coded unintentional injury hospitalizations = 544 (21%); may not be representative of the distribution of causes for all incident injury hospitalizations.

