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U.S. Marine Corps Injury Surveillance 2021 Summary

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



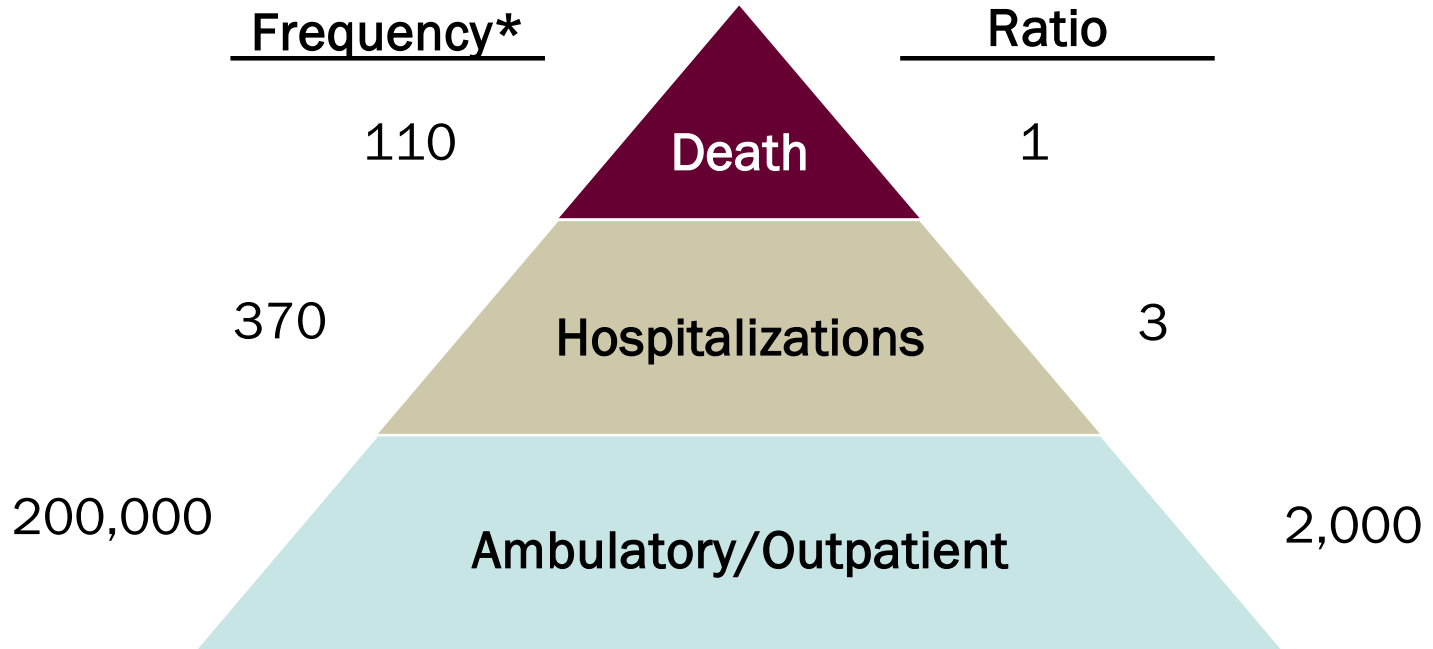
Data Summary, U.S. Marine Corps Active Duty, 2021

- Injuries accounted for 48.8% of all medical encounters (n=707,343), 3.1 times more encounters than the second leading cause.
- Injuries affected 99,356 individuals (55.2%), 1.9 times more individuals than the second leading diagnosis group.
- A high proportion (68%) of new (incident) injury diagnoses were due to cumulative microtrauma to the musculoskeletal system.
- Most injuries were to the lower extremities (42.1%); followed by spine & back (25.3%).
- Among outpatient injury encounters with a cause code in 2021, leading injury mechanisms were falls (19.6%) and struck by/against (17.9%).





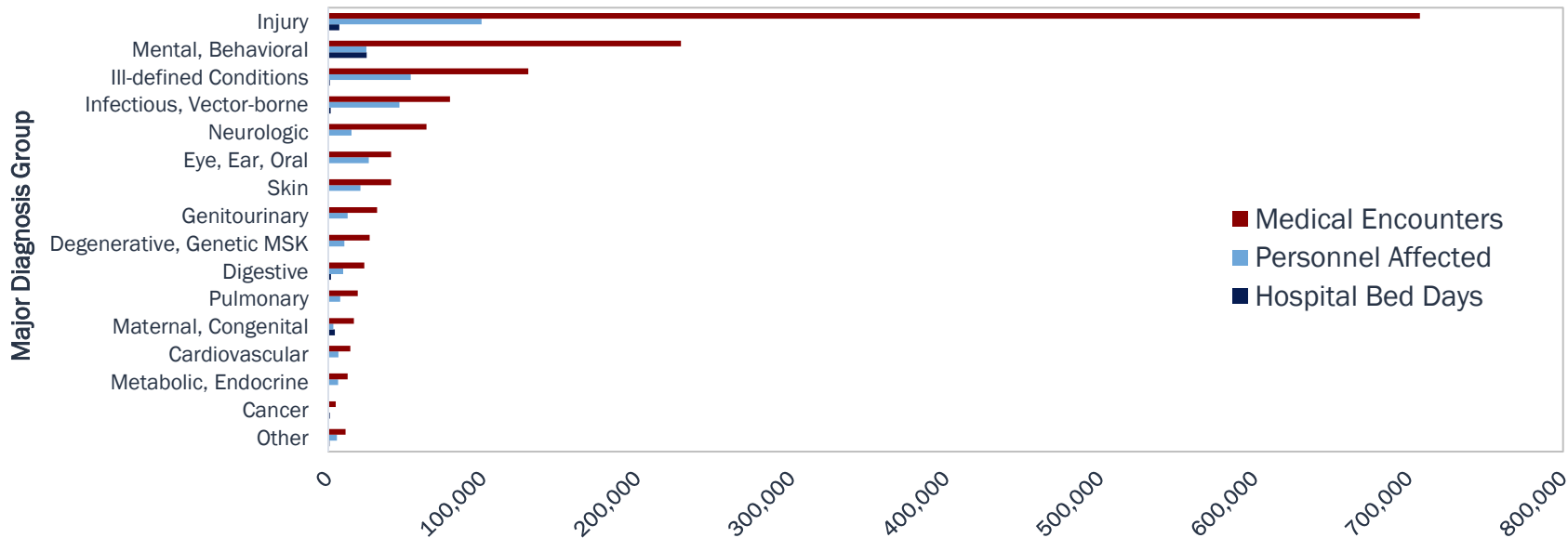
Injury Pyramid U.S. Marine Corps Active Duty, 2021



*Frequencies are rounded and represent incident injury encounters



Relative Burden of Illnesses and Injuries U.S. Marine Corps Active Duty, 2021



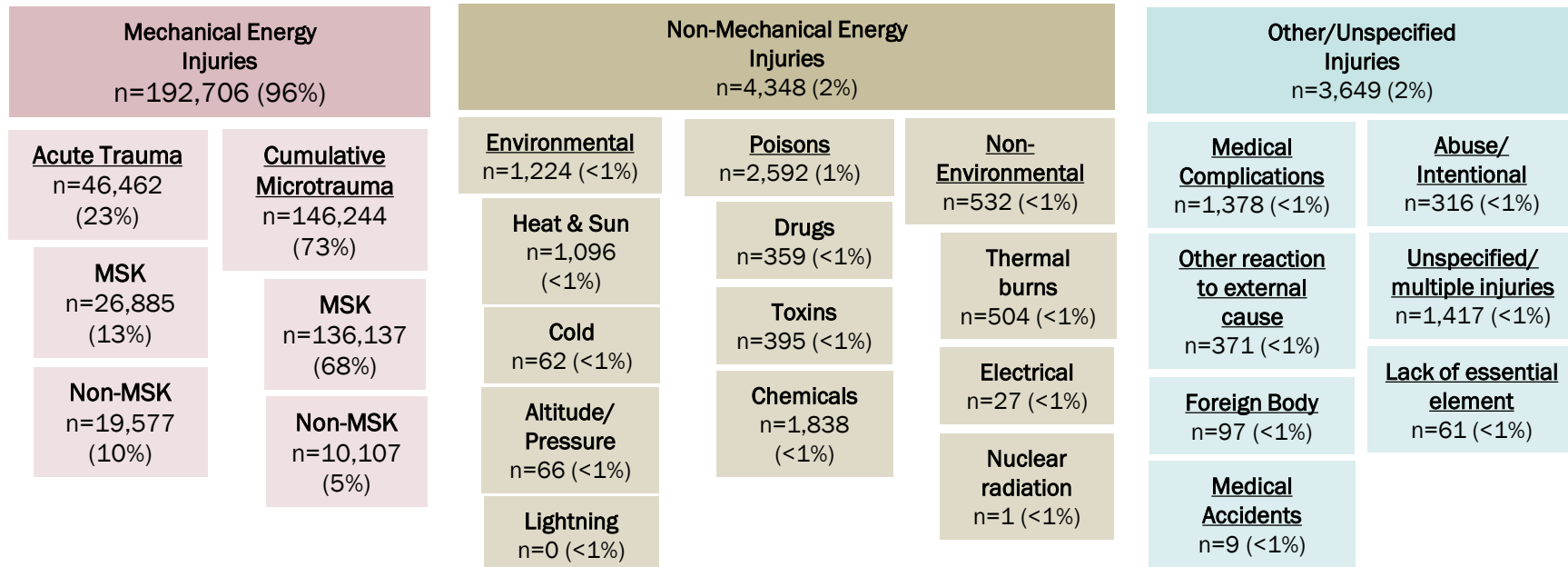
*MSK = damage to tissue(s) of the musculoskeletal system (i.e., bone, cartilage, muscle, tendon, fascia, joint, ligament, bursa, or synovium). Diagnosis group “Other” includes adverse effects of drugs, blood disorders, and other neoplasms (not cancer).



Taxonomy Distribution of Injuries

U.S. Marine Corps Active Duty, 2021

Incident Injuries, N = 200,703

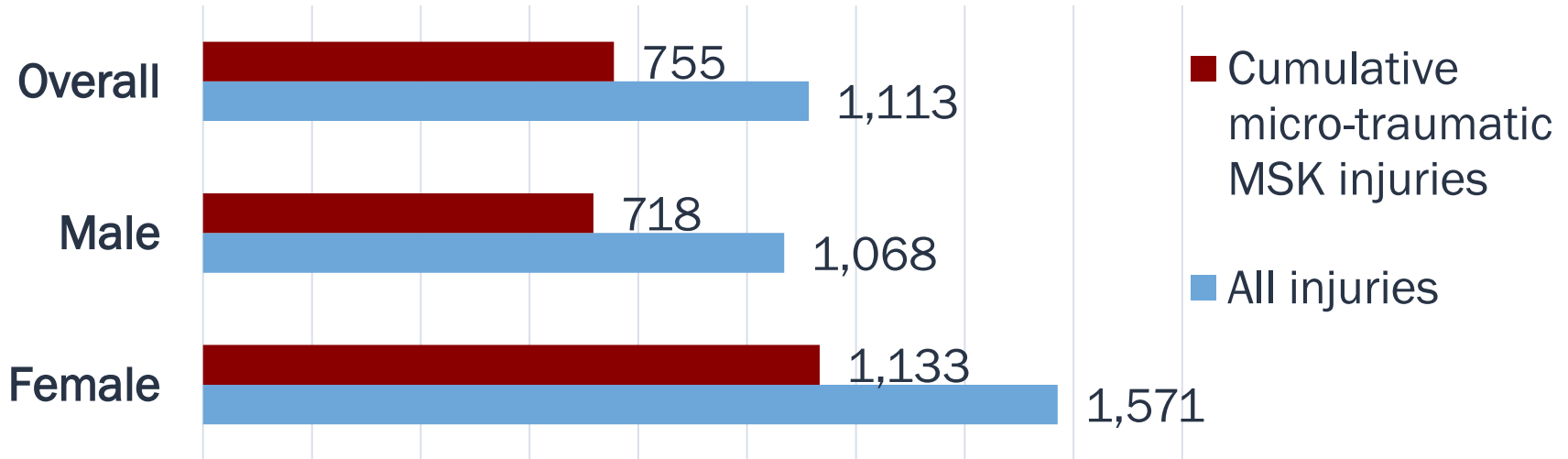




Incident Injury Encounter Rates by Sex

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All Injury and Cumulative Micro-traumatic Musculoskeletal (MSK) U.S. Marine Corps 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. Marine Corps Active Duty, 2021

Body Region	Acute Traumatic n (%)	Cumulative Micro-traumatic (Overuse) n (%)	All n (%)
Lower Extremity	17,991 (9.3)	63,125 (32.8)	81,116 (42.1)
Spine & Back	2,233 (1.2)	46,604 (24.2)	48,837 (25.3)
Upper Extremity	14,427 (7.5)	27,520 (14.3)	41,947 (21.8)
Head, Face, & Neck	8,715 (4.5)	5,028 (2.6)	13,743 (7.1)
Torso	2,857 (1.5)	218 (<1.0)	3,075 (1.6)
Other	239 (<1.0)	3,749 (1.9)	3,988 (2.1)
Total	46,462 (24.1)	146,244 (75.9)	192,706 (100)

*In order of most frequently injured body region for All



Incident Mechanical Injury Diagnoses by Injury Type and Body Region, U.S. Marine Corps 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	9	55	238	43,020	58	0	1,369	26,059	2,325	61,116	64	3,665	137,978	71.6
Other Tissue Damage	2,857	4,968	194	0	720	0	1,114	0	682	0	148	0	10,683	5.5
Sprain/Joint Damage	4	0	479	0	202	0	1,813	130	7,015	444	16	33	10,136	5.3
Strain/Tear	599	0	1,056	0	659	0	1,685	671	2,568	3	11	7	7,259	3.8
Contusion/Superficial	1,451	5	0	0	570	4	1,697	31	1,968	495	0	0	6,221	3.2
Fracture	541	0	188	6	295	42	2,329	4	1,930	838	0	44	6,217	3.2
Nerve	8	0	8	3,578	6	172	729	625	278	229	0	0	5,633	2.9
Open Wound	1,751	0	0	0	118	0	2,617	0	889	0	0	0	5,375	2.8
Internal Organ and Blood Vessel	1,471	0	60	0	205	0	18	0	10	0	0	0	1,764	<1.0
Dislocation	17	0	10	0	18	0	834	0	235	0	0	0	1,114	<1.0
Crush	5	0	0	0	5	0	168	0	87	0	0	0	265	<1.0
Amputation	2	0	0	0	1	0	54	0	4	0	0	0	61	<1.0
Total	8,715	5,028	2,233	46,604	2,857	218	14,427	27,520	17,991	63,125	239	3,749	192,706	100.0
Percent Total (%)	4.5	2.6	1.2	24.2	1.5	<1.0	7.5	14.3	9.3	32.8	<1.0	1.9	100.0	

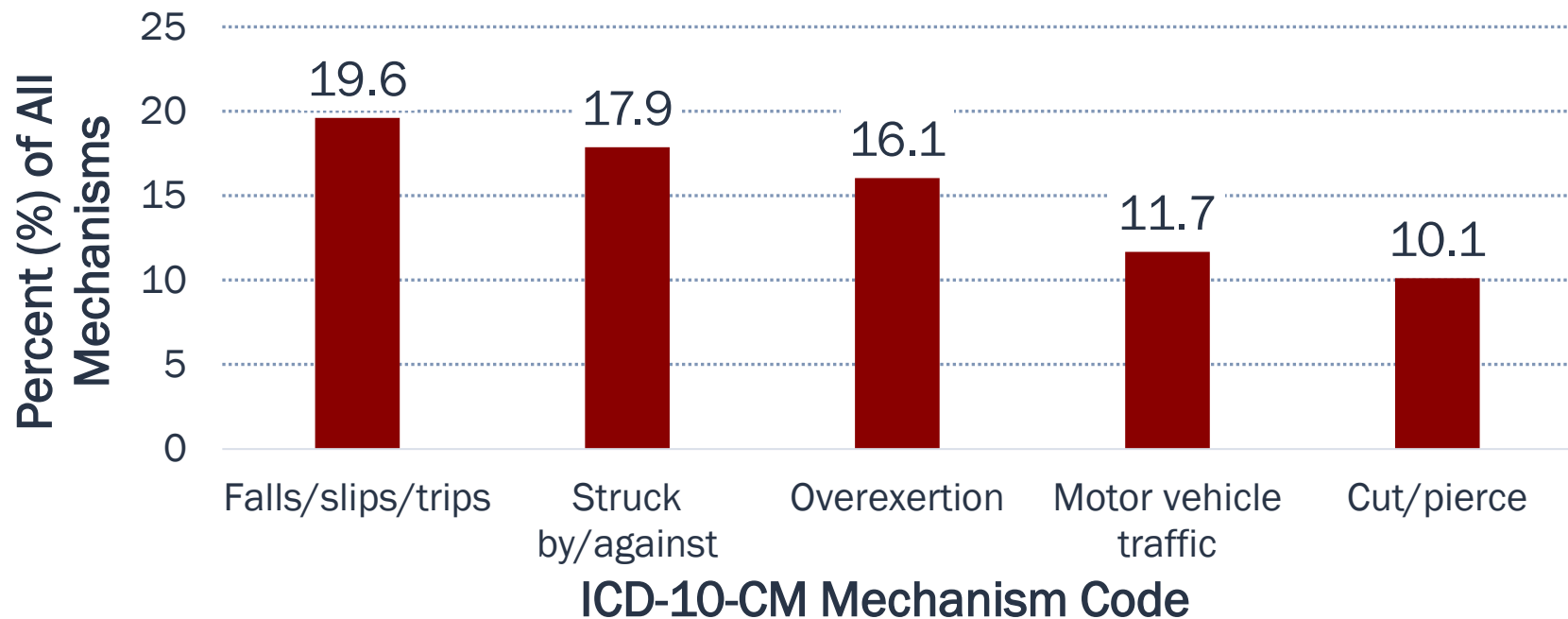
Legend: ACT = Acute trauma, CMT = Cumulative microtrauma



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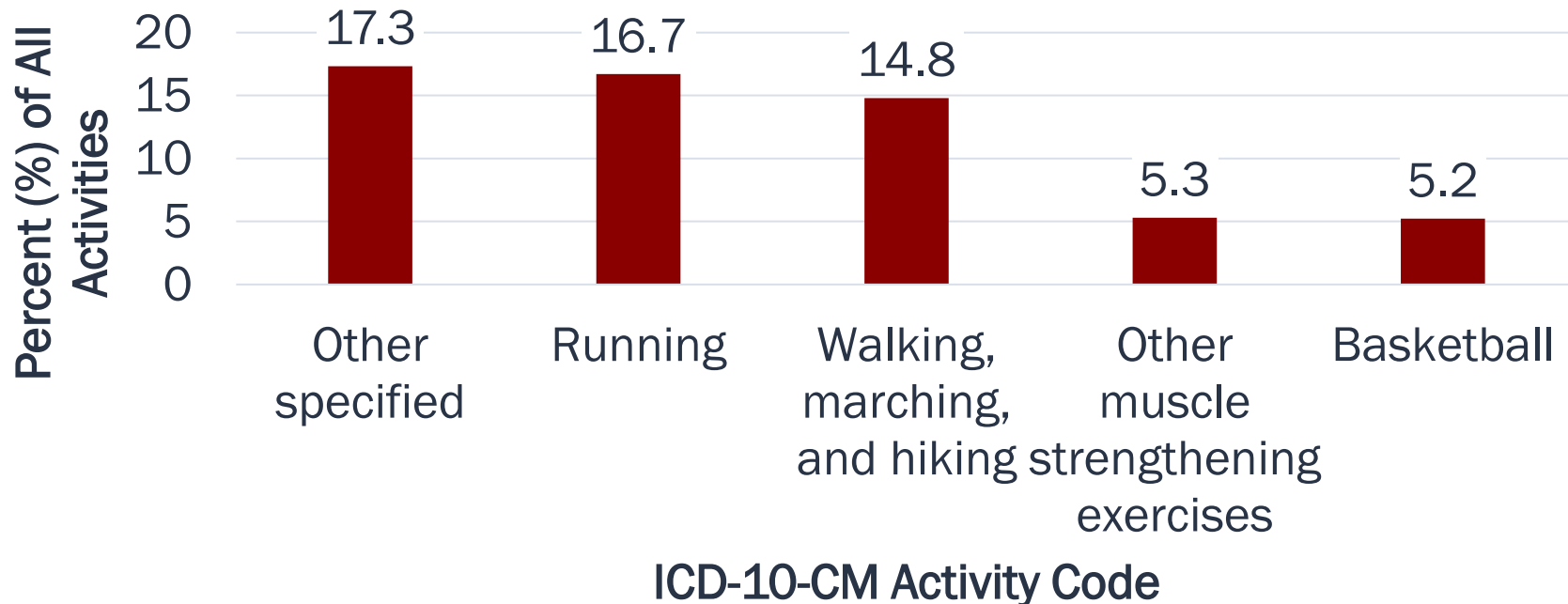
Leading Mechanisms of Unintentional Injury Outpatient Encounters, U.S. Marine Corps Active Duty, 2021



Total number of unintentional incident injury outpatient encounters with activity codes = 10,947 (5%); may not be representative of the distribution of mechanisms for all incident injuries



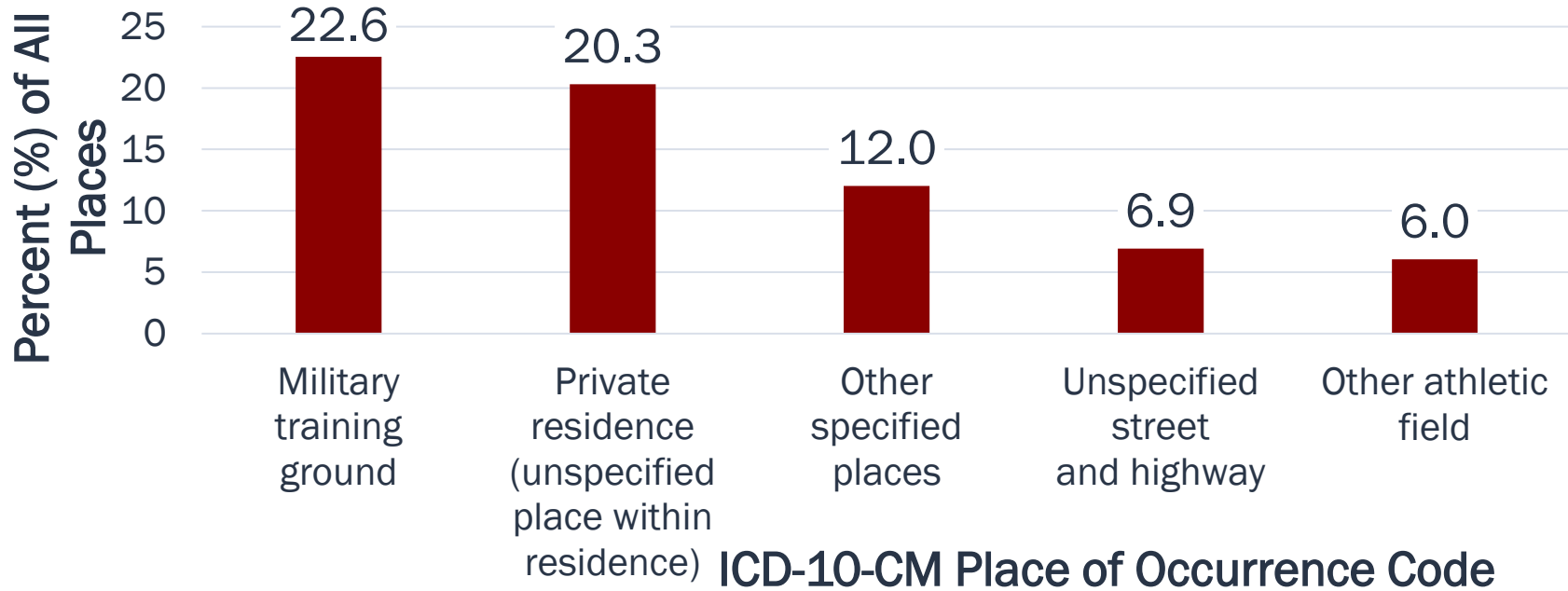
Leading Activities Associated with Unintentional Injury Outpatient Encounters, U.S. Marine Corps Active Duty, 2021



Total number of unintentional incident injury encounters with activity codes = 5,333 (3%); may not be representative of the distribution of activities for all incident injuries



Leading Places Associated with Unintentional Injury Outpatient Encounters, U.S. Marine Corps Active Duty, 2021



Total number of unintentional outpatient incident injury encounters with activity codes = 4,399 (2%); may not be representative of the distribution of places for all incident injuries.



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

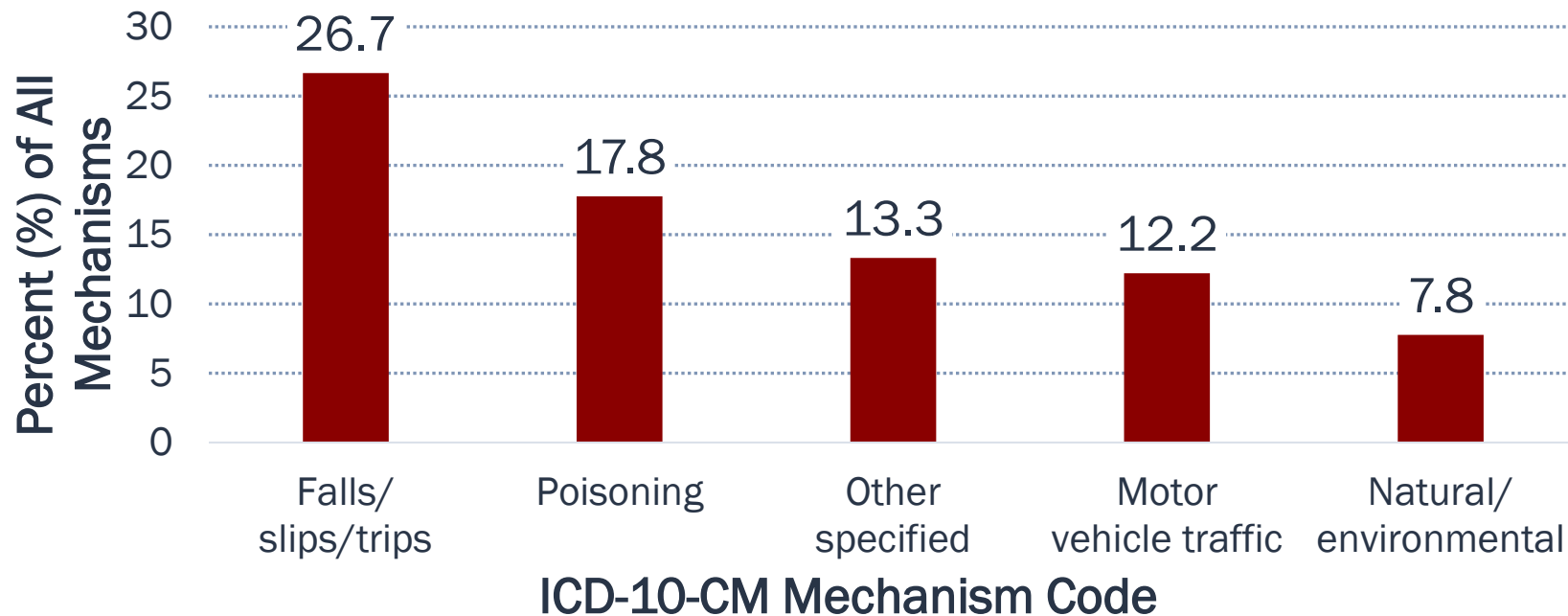
Email: dha.apg.Pub-Health-A.mbx.injuryprevention@health.mil



Additional Injury Hospitalization Cause Information



Leading Mechanisms of Unintentional Injury Hospitalizations, U.S. Marine Corps Active Duty, 2021



Total number of cause-coded unintentional injury hospitalizations = 90 (25%); may not be representative of the distribution of causes for all incident injury hospitalizations.

