# FACT SHEET

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U.S. ARMY PUBLIC HEALTH CENTER

# Installation Injury Summaries for Active Duty Soldiers

## What are Installation Active Duty Injury Summaries?

The U.S. Army Public Health Center (APHC) Installation Active Duty Injury Summary is an analysis of military medical records for Active Duty Army personnel working on Army or Joint Base installations. Soldiers' new-onset injury rates and injury causes are described for each installation, Major Command, and Army-wide. Each installation's annual Injury Summary includes:

- Number of medical encounters (visits), Soldiers affected, and hospital bed days (current year)
- Injury and overuse injury rates (6 year period)
- Injury rates by age and year (6 year period)
- Injury rates by sex and age (current year)
- Top 5 outpatient injury causes (current year)
- Quarterly injury rates (medical encounters, 4 years)
- Red/amber/green injury rate thresholds[1-3] (see *Figure*)

**Figure. Example-Installation Active Duty Injury Rates with Red/Amber/Green Thresholds**[1-3]

**Summaries are updated quarterly and available online on three CAC-enabled dashboards:**

- *Health of the Force Online*[1]
- *Public Health Management System (PHMS)*[2]
- *Army Strategic Management System (SMS)*[3]

**Can't access your installation injury summary?**
Contact APHC Injury Prevention

## Why are Active Duty injury summaries created and how can they be used by installations?

Over half of Active Duty Soldiers experience new injuries annually, resulting in over 2 million medical encounters (more than any other medical condition).[4,5] The use of medical record diagnoses (International Classification of Disease (ICD)), TRICARE® claims, and other Active Duty injury data (e.g., safety reports) provides installation personnel with a comprehensive awareness of their injury problem.

Installation-specific summaries help leadership prioritize prevention efforts to focus scarce resources on the leading injury causes, activities, and/or hazards. To complete the overall installation "injury picture," annual installation summaries of *civilian* injury data are also prepared.[6]

## What are the data sources?

Medical visits for Active Duty Soldiers are obtained from the Defense Medical Surveillance System (DMSS), which is maintained by the Defense Health Agency. Injury rates are determined through queries of inpatient and outpatient records (direct medical treatment facilities (MTFs) and purchased care (TRICARE)) for primary diagnoses of injuries. The top five injury causes are identified from ICD external cause codes included in medical records.

## What are the leading Active Duty injury types?

The vast majority of Army injuries are musculoskeletal injuries treated through outpatient services, including physical therapy. Though the installation Active Duty summaries do not describe specific types of body regions, evidence has repeatedly shown that the lower extremities (e.g., foot, ankle, knee, lower leg) and back are the most commonly injured.[7,8] Common injuries include:

- Sprains (injury to joint, usually acute)
- Strains (injury to muscle or tendon, from an acute event or from repetitive overuse, joint pain)
- Inflammation/pain[5] (from acute event or overuse)
- Stress fractures, which are less frequently reported, but are costly outpatient injuries that are a concern especially during initial entry training[8]

## What are the leading causes of Active Duty injuries?

Cause codes in a medical record provide some insight to the conditions or activity causing an injury. Unfortunately, causes are recorded in fewer than 10% of Army injury diagnoses.[4] Even when documented, a cause code is often only a generic description. The leading cause of hospitalized injuries has routinely been motor-vehicle accidents, followed by falls. Because the vast majority of injuries are treated on an outpatient basis, the installation summaries focus on outpatient causes. Leading causes of outpatient visits (for cause-coded injuries) include:

- Overexertion
- Falls
- Being struck by or against objects
- Natural and environmental factors
- Motor vehicle traffic crashes

Given the limitations, installations should investigate their leading injury causes to identify high-risk activities or conditions. For example, overexertion injuries may occur as acute or overuse injuries and during different activities (e.g., physical training, sports, or on the job).[9]

## Who are at the greatest risk for Active Duty injuries?

Female Soldiers typically have higher injury rates than male Soldiers, and rates are higher in Soldiers over 45 years of age.[4] Scientific evidence also indicates that Soldiers are at greater risk of injury who have poor physical fitness, start or increase physical training with inadequate progression, have very high or very low body mass index (BMI), have very high or very low flexibility, use tobacco, or are in certain military occupations.[10]

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### *How can common Active Duty injuries be prevented?*

The general recommendations below can help reduce the occurrence of injuries. The Information Sources offer further guidance.

| Primary Injury Causes | Common Activities & Hazards[6] | Injury Prevention Recommendations[8,12-15] |
|---|---|---|
| **OVEREXERTION** | **Single acute events**<br>• Lifting, lowering, pushing, pulling items at work, home, in hospital<br>• Physical training/sports – lifting, twisting, pivoting too quickly or too much<br><br>**Repetitive/overuse**<br>• Running, road marching<br>• Work-related activity (lifting, pushing and pulling) | • **Modify workplace procedures by**—[12-14]<br>– Eliminating unnecessary movement of material.<br>– Assigning heavy weight lift jobs to two or more persons.<br>– Following military guidance on weight limits.<br>– Using mechanical devices or equipment to minimize manual lifting or lowering (e.g., hand trucks, dollies, conveyors, lifts).<br>• **Use proper individual procedures by**—[12-14]<br>– Reducing weights (smaller/lighter containers).<br>– Performing lifts in a smooth and even motion.<br>– Keeping load close to the body; using the legs to lift.<br>– Replacing a pull with a push whenever possible.<br>• **Gradually increase physical intensity** (frequency, duration, weights)<br>• **Avoid repeat days of intensive activity of same body region** (run/march)<br>• **Reduce excessive training of a single type of body region** (running)[8] |
| **FALLS** | • Ice and snow on steps and walkways<br>• Getting in or out of motor vehicles<br>• Improper parachute landings<br>• Playing sports (particularly basketball)<br>• Walking, marching, or climbing on uneven surfaces or while carrying objects | • **Establish system for personnel to report hazards**. Ensure employees know how to report unsafe work site conditions/problems.[15]<br>• **Minimize outdoor hazards**. Keep walking surfaces clear and maintained by—<br>– Ensuring timely snow/ice removal.[15]<br>– Refilling and patching cracks and holes on walking surfaces.[15]<br>• **Lighting**: Install light fixtures in dimly-lit areas (e.g., steps).[15]<br>• **Use "3-point contact"** for ladders, and entering or exiting a vehicle (e.g., 2 feet and 1 hand).[15]<br>• **Getting in/out of military vehicles**: Conduct installation-specific assessments to identify types of motor vehicle-related falls.[6]<br>• **Protective equipment**: Promote benefits of using protective equipment in sports (e.g., ankle braces during basketball).[6] |
| **STRUCK BY OR AGAINST OBJECTS** | • Hit head on crane at work<br>• Hit by bat, ball, another player | • **Personal protective equipment (occupational and sports)**: Ensure personnel are wearing proper shoes, gloves, helmets/hard hats, eye protection, and mouthguards.[14] |
| **NATURAL/ ENVIRONMENTAL FACTORS** | • Weather (hot or cold)<br>• Inadequate water intake and/or vigorous exercise causing dehydration<br>• Prior cold or heat-related injury<br>• Animal, insect bites | • **Educate personnel** to be familiar with risk factors associated with heat and cold weather-related illnesses and means to reduce risks.<br>• **Clothing and skin protection**: use sleeves and gloves to protect against sunburn and/or environmental (e.g., insect) hazards; wear sunscreen, sunglasses; keep clean and dry in cold weather.<br>• **Monitor hydration** and use Work/Rest Water consumption guidance.<br>*See more in the APHC Heat and Cold Injury Fact sheets, training slides, videos** |
| **MOTOR VEHICLE AND MOTORCYCLE CRASHES** | • Excess speed, fatigue, and/or alcohol<br>• Not wearing appropriate protective equipment<br>• Unsafe road conditions<br>• Inexperienced motorcyclist | • Do not drink and drive (designate a driver, call for pick up).<br>• Wear a seat belt at all times.<br>• Avoid speeding (especially in rain, ice/snow).<br>• Avoid drowsy driving (plan ahead, get rest, pull over to nap).<br>• Avoid using cell phones/other devices.<br>• Take motorcycle training and safety courses.<br>• Wear a DOT-compliant helmet.<br>*See more in the APHC Motor vehicle & Motorcycle Injury Fact sheets** |

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Note: **Other APHC Products retrieved from https://phc.amedd.army.mil/topics/discond/ptsaip/Pages/Army-Injury-Prevention-Factsheets-and-Training-Products.aspx*