

Thank you Justin!

Welcome to this lesson on work-related injuries. A report by NIOSH shows that there were over 21 thousand work-related injuries for EMS workers in 2017. As you are at high risk of getting hurt, it is essential to know how to keep yourself safe. Hence, in this lesson, we discuss several safety techniques and ways to avoid injuries.

Stay healthy and good studying.

Vehicle Restraint

- Fatality rate of 12.7 per 100,000 workers. Twice the national average
- Wear squad bench lap belts
- Drivers must wear seat belts
- Use patient cots that meet NIOSH guidelines
- Appropriate training
- Occupant-protection systems to survive crashes



Developmental testing conducted with instrumented crash test dummies
Photo courtesy NIOSH

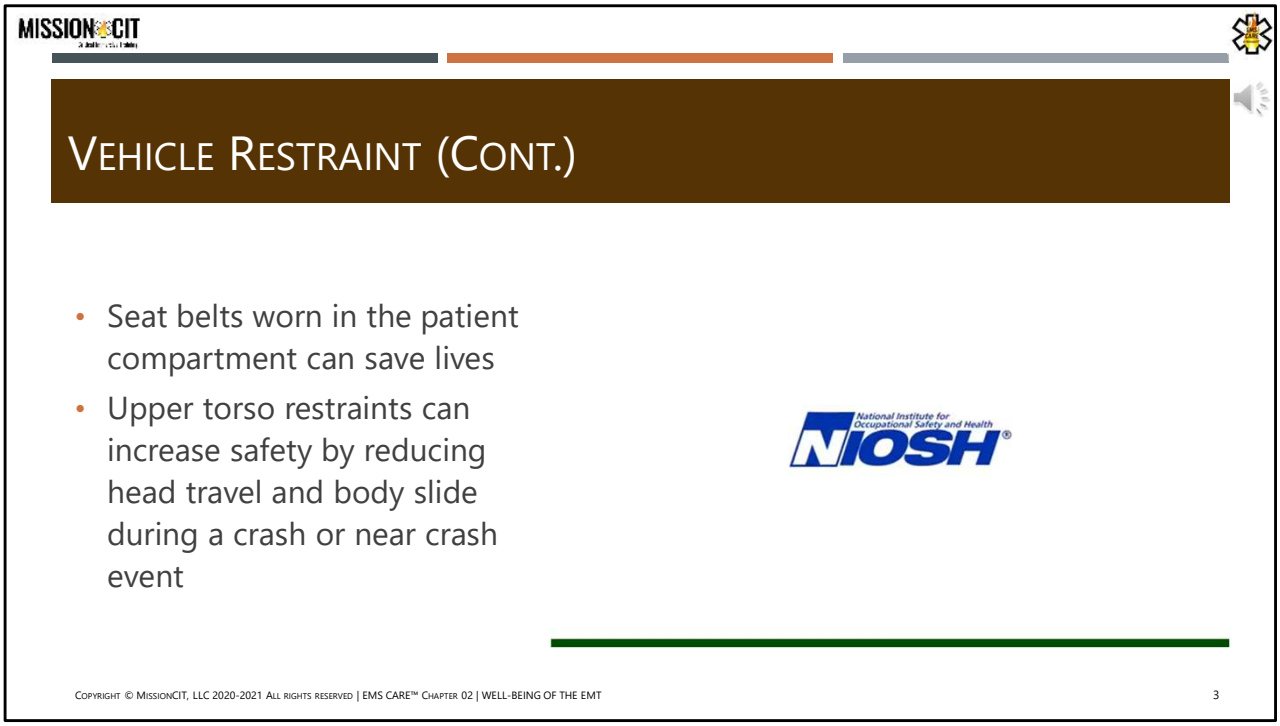
Copyright © MissionCIT, LLC 2020-2021 All rights reserved | EMS CARE™ Chapter 02 | Well-Being of the EMT

EMS personnel have an estimated fatality rate of 12.7 per 100,000 workers, more than twice the national average. Also, of the 27 fatal incidents recorded over ten years, the EMS workers killed were not wearing a vehicle restraint.

To prevent such fatal accidents, NIOSH and NHTSA have come up with a set of recommendations and they include,

- EMS workers in the patient's compartment must wear the squad bench lap belts, even if it gives them limited access to the patient.

- Drivers and other EMS workers in the front seat must wear seat belts while driving.
- NIOSH has also sent recommendations to use ambulances with patient cots that include upper body restraints.
- Appropriate training for EMTs will help understand the importance of wearing restraints.
- The CDC directs ambulance manufacturers to develop occupant protection systems designed to increase the crash survivability rates for EMS workers.

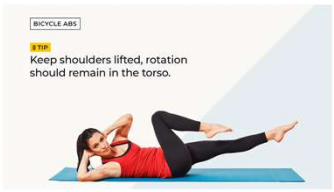


Seat belts worn by EMS workers in the patient compartment can save lives. In this video, you will learn how upper torso restraints can increase safety by reducing head travel and body slide during a crash or near-crash event.

Safe-Lifting Techniques

- Lower back injury results from wrong lifting posture
- Get as close to the patient as possible
- Keep feet wide apart
- Tighten your abdominal muscles and keep the back flat
- Lift with your thighs, glutes, and hamstrings
- Shift weight equally
- Do strengthening exercises





Copyright © MissionCIT, LLC 2020-2021 All rights reserved | EMS CARE™ Chapter 02 | Well-Being of the EMT

Lower back injury is a debilitating injury for EMTs that stem from lifting patients, often in the wrong posture.

Some common injuries that can occur during patient handling are:

1. Transferring patient — strained shoulder
2. Loading patient into ambulance — strained neck
3. Carrying patient out of the house on cot — strained upper arm

4. Sprained knee re-entering ambulance side door, and
5. Lifting patient from floor to chair — strained lower back

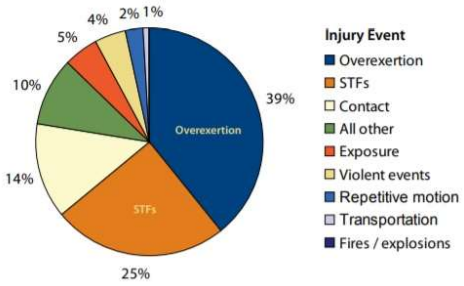
Here are some suggestions to safely lift heavy objects and patients.

- First off, get as close as possible to the person or object you're trying to lift.
- Keep your feet wide enough to give you maximum stability, and if possible, have your toes and feet as close to the bodyboard as possible.
- Just before you lift, tighten your abdominal muscles and keep your back flat. Maintain this position until the lift is fully complete.
- Next, make sure you lift with your legs and not your back. To do this, keep your feet firmly on the ground and put all the body weight on your heels. Push up through the hamstrings, glutes, and hips as you rise.
- If the patient is immobile, take help from other EMTs. Make sure to shift the weight equally to avoid over-exertions.
- Lastly, shuffle your feet often to maintain a strong base and always keep your shoulders aligned with your hip.

These techniques can significantly reduce the strain on your lower back. During your off-hours, consider doing the bicycle abs exercise to strengthen the abs and obliques. Also, exercising on a hyperextension bench and training on an exercise ball can strengthen your lower back.

SLIP, TRIP, AND FALL (STF)

- STF incidents can often result in:
  - ✓ Lost workdays
  - ✓ Reduced productivity
  - ✓ Expensive worker compensation claims
  - ✓ Diminished ability to care for patients

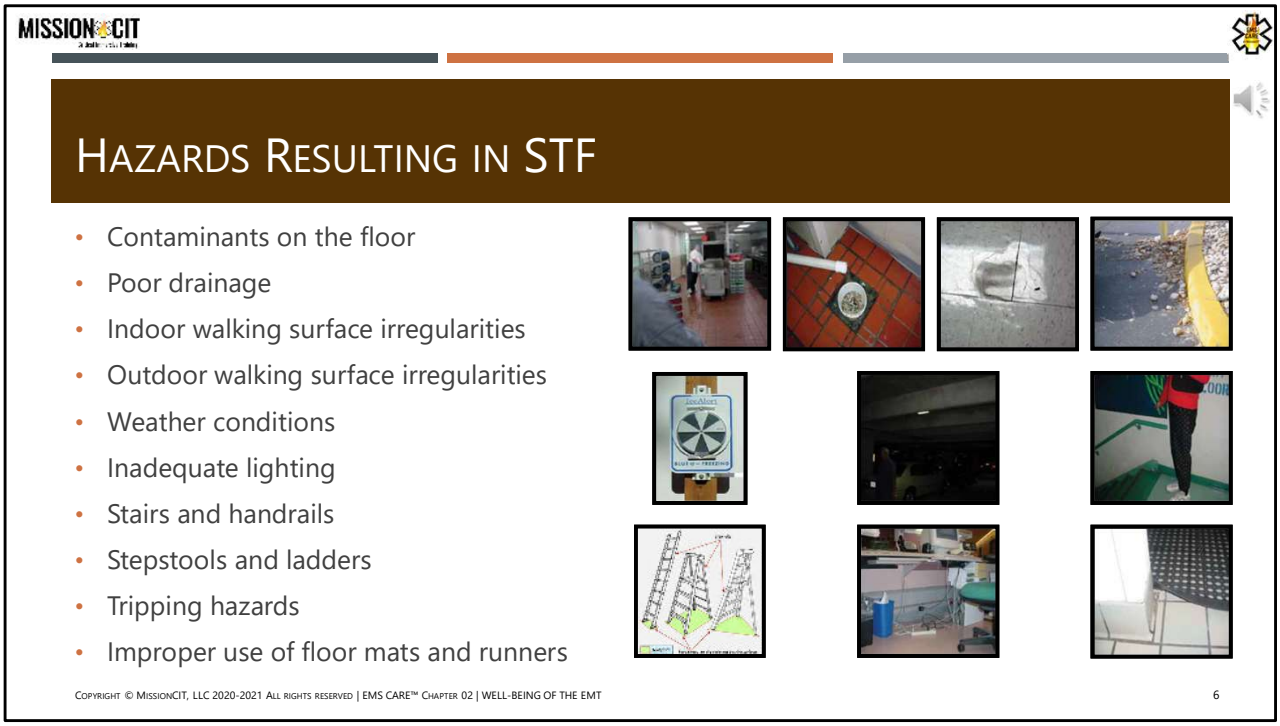


Percent distribution of hospital employee injuries by injury type

COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | EMS CARE™ CHAPTER 02 | WELL-BEING OF THE EMT

Work-related slip, trip, and fall incidents can frequently result in serious disabling injuries that impact a healthcare employee's ability to do his or her job, often resulting in:

- lost workdays,
- reduced productivity,
- expensive worker compensation claims, and
- diminished ability to care for patients.



The top 10 hazards that can result in a slip, trip, and fall incident are:

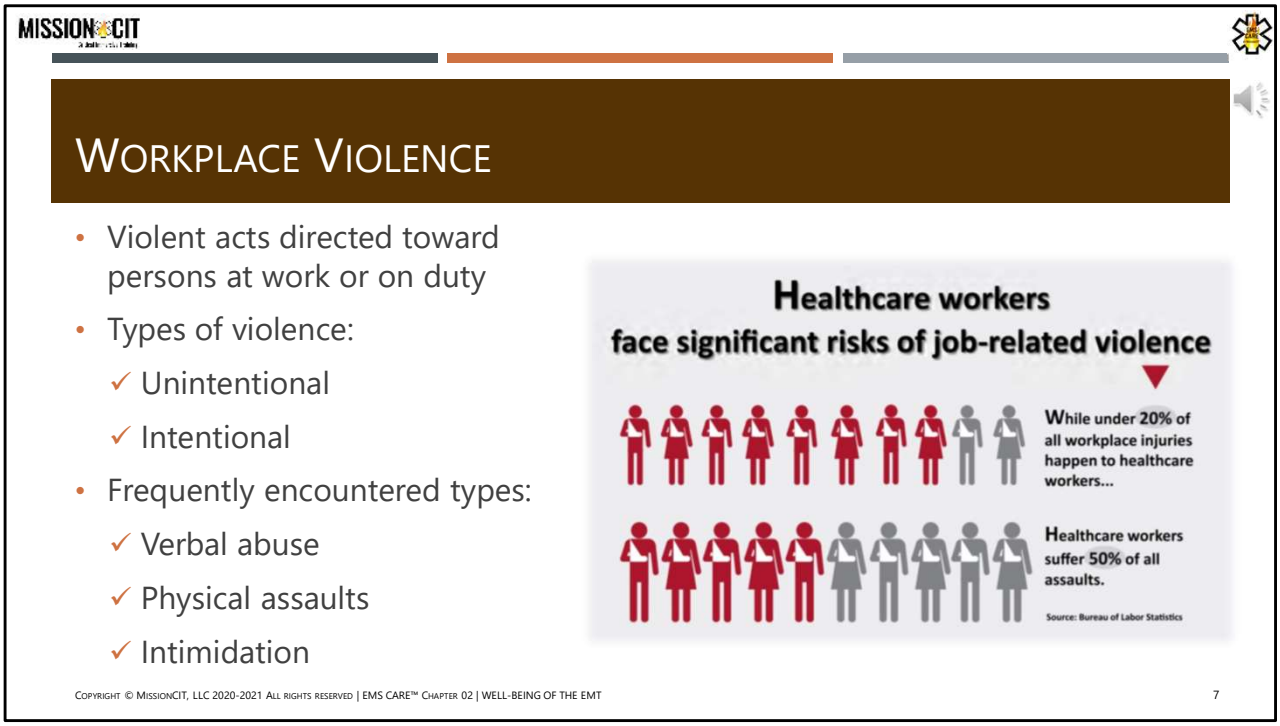
1. Contaminants on the floor: This is the leading cause of STF incidents in healthcare facilities. Water, grease, and other fluids can make walking surfaces slippery. Well-documented housekeeping procedures, correct floor cleaning, proper usage of mats and signs, accessible clean-up materials, and slip-resistant shoes will help to minimize the risk of slipping.
2. Poor drainage: Drains and water pipes that are

improperly aligned can cause the liquid to spill onto walking surfaces, while clogged drains can cause water to back up onto the floor.

3. Indoor walking surface irregularities: Damaged, warped, buckled, or uneven flooring surfaces inside healthcare facilities can cause employees to stumble, trip, slip, or fall.
4. Outdoor walking surface irregularities: Poorly maintained, uneven ground, protruding structures, holes, rocks, leaves, and other debris can cause employees to stumble, trip, slip, or fall.
5. Weather conditions: Ice and snow can cause employees to slip and fall.
6. Inadequate lighting: Inadequate lighting impairs vision and one's ability to see hazards. Proper lighting allows employees to see their surroundings and notice unsafe conditions in time to avoid them.
7. Stairs and handrails: Proper construction and maintenance of stairs and handrails can reduce hazards. Stairs that are poorly marked or uneven, as well as handrails that are not of the appropriate size, height, or are poorly maintained, can lead to missteps and can cause employees to trip and fall.
8. Stepstools and ladders: Stepstools and ladders used

to work from heights can create a hazardous situation if not used properly.

9. Tripping hazards: Clutter can build up in storage areas, work areas, hallways, and walkways potentially leading to an STF incident. Exposed cords on the floor, stretched across walkways, and tangled near workspaces can catch an employee's foot and lead to a trip and fall incident.
10. Improper use of floor mats and runners: Mats are used to prevent STFs to provide slip-resistant walking surfaces by absorbing liquid, and by removing dirt, debris, and liquid from shoes. Mats are only effective if properly used and maintained. Old or poorly placed mats can contribute to slips, trips, and falls.



EMS responders are increasingly called upon to meet community demands for service. As a result, EMS responders are often expected to respond to incidents where they can be exposed to violence. Violence against EMS responders has been recognized as an occupational hazard since the early 1970s, and recent incidents are evidence that the problem has not been abated. CDC and NIOSH define Workplace Violence as, “violent acts (including physical assaults and threats of assaults) directed toward persons at work or on duty”.

Violence toward EMS providers takes on two forms: unintentional and intentional. Unintentional violence arises from compromised patients who may be under the influence, have mental health issues, or existing health conditions that result in aggressive behaviors and actions. Intentional violence is patient-caused violence that is premeditated and was intended to cause harm, injury, or death to other individuals.

Overall, the types of violence frequently encountered include verbal abuse, physical assaults, and intimidation.

Sources of physical violence are varied. The most frequent sources of physical violence are:

- Struck by attempts
- Punching, slapping or scratching
- Spitting, and
- Biting

The least frequent types of physical violence experienced were:

- Stabbing or stabbing attempts, and

- Shooting or shooting attempts

Minor injuries from these actions of violence include minor bruises and abrasions, whereas more serious injuries have included contusions, hematomas, sprains and strains, eye injuries, facial injuries, bites, lacerations, dislocations, and fractures.

Workplace Violence (Cont.)

- Preventative measures:
  - ✓ Windshield survey
  - ✓ Situation specific training
  - ✓ Verbal de-escalation techniques
  - ✓ Self defense



Copyright © MissionCIT, LLC 2020-2021 All rights reserved | EMS CARE™ Chapter 02 | Well-Being of the EMT

- The most common preventative measure is assessing the scene or performing a “windshield survey”, in which those arriving at the scene look at the history of the neighborhood and the current situation of the scene they are entering, among other attributes, to decide whether or not it is safe for them to proceed further. If the scene is deemed unsafe, then current procedures recommend requesting police backup.
- Getting trained for specific situations likely to be associated with violence, such as domestic violence, mass shootings, and bombings, can come in handy.

This could include gaining assistance and knowledge of working with hazardous items and substances, what questions to ask, and how to prevent escalation in a domestic violence event.

- While verbal de-escalation techniques, such as having a calm and nonthreatening demeanor, are the first steps in settling a violent encounter, there are times when more force is needed. It has become commonly accepted for EMS to be skilled in self-defense techniques, which can include such practices as martial arts, to be able to restrain the patient when necessary.

With this, we come to the end of the lesson on work-related injuries and the best ways to stave them off.