



OSHAcademyTM
Occupational Safety & Health Training

CAUTION



**WET
FLOOR**

Healthcare

Slip, Trip, and Fall Prevention

Work-related slip, trip, and fall (STF) incidents can frequently result in serious, disabling injuries for healthcare workers. They can impact a healthcare employees ability to do his or her job. Slips, trips, and falls are preventable. This course also provides guidance on implementing a STF prevention program to protect healthcare workers. The goal of this course is to familiarize you with common STF hazards in healthcare facilities so you are able to recognize and reduce the risk to employees.

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OSHAcademy Course 624 Study Guide

Healthcare: Slip, Trip, and Fall Prevention

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This study guide is designed to be reviewed off-line as a tool for preparation to successfully complete OSHAcademy Course 624.

Read each module, answer the quiz questions, and submit the quiz questions online through the course webpage. You can print the post-quiz response screen which will contain the correct answers to the questions.

The final exam will consist of questions developed from the course content and module quizzes.

We hope you enjoy the course and if you have any questions, feel free to email or call:

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Course Introduction

Work-related slip, trip, and fall (STF) incidents can frequently result in serious, disabling injuries for healthcare workers. They can impact a healthcare employee's ability to do his or her job, often resulting in the following:

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

According to the U.S. Bureau of Labor and Statistics, in 2009, STFs were the second most common cause of lost-workday injuries in hospitals.

An analysis of workers' compensation injury claims from acute-care hospitals showed that lower extremities, such as knees, ankles, and feet, were the most-commonly injured after STF's. The nature of the injury was most often sprains, dislocations, and tears. Also, STFs were significantly more likely to result in fractures (Source: Centers for Disease Control, 2011).

This course identifies the top 10 STF hazards specific to healthcare facilities. For each hazard, this course will:

1. Explain how the hazard contributes to STFs.
2. Identify where the hazard is likely to occur.
3. Provide recommendations to reduce or eliminate the hazard.

Slips, trips, and falls are preventable. This course also provides guidance on implementing a STF prevention program to protect healthcare workers. The goal of this course is to familiarize you with common STF hazards in healthcare facilities, so you are able to recognize and reduce the risk to employees.

Module 1: Top Hazards and Solutions

Across the globe, falls are the second leading cause of accidental death and the third leading cause of disability. In the U.S., the health services sector is the largest private employer, with some 10 million workers. During 2002, this sector accounted for more injured workers than the construction and mining industry combined.

STFs accounted for the largest proportion of lost time injuries to these health care workers and the incidence of these injuries in hospitals was considerably higher than in private industry. The large population of workers at risk and the frequent occurrence makes STF incidents a substantial problem for health care workers.

This module takes a closer look at several top hazards that cause STFs in the healthcare setting.

Quiz Instructions

After each section, there is a quiz question. Make sure to read the material in each section to discover the correct answer to these questions. Circle the correct answer. When finished, go online to take the final exam. This exam is open book, so you can use this study guide.

- 1. Across the globe, _____ is/are the second leading cause of accidental death.**
- a. falls
 - b. hazard communication
 - c. workplace violence
 - d. scaffolding issues

Contaminants on the Floor

According to OSHA, contaminants on the floor are 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.

Where Does the Hazard Occur?

Many areas in a healthcare setting have to deal with contaminants on the floor. Here are a few examples:

- food services areas (kitchen, cafeteria, serving line, buffet, ice machines, freezers, dishwashers, sinks, and drains)
- decontamination area (when wet equipment is transferred from one area to another)
- soap dispensers
- drinking fountains
- building entrances, where rain and snow are tracked inside

Prevention Strategies

To prevent injuries, you should provide and maintain a written housekeeping program. This can help ensure the quality and consistency of housekeeping procedures. A copy of the housekeeping program should be provided to all employees and they should know where to find additional copies.

The program should describe the following things:

- how to immediately contact the housekeeping department
- where and how cleaning materials and products are stored
- when to use wet floor signs and barriers and where signs are stored
- when specific areas of the healthcare facility need to be cleaned
- what cleaning methods are appropriate for different areas and surfaces

2. Which of the following item should be included in your written housekeeping program?

- a. How to avoid falls
- b. Hazard communication issues
- c. Workplace violence
- d. Where and how cleaning materials are stored

Floors Clean and Dry

- Encourage workers to cover, clean, or report spills promptly.
- Hang or place spill pads, paper towel holders, pop-up-tent wet floor signs in convenient locations throughout the healthcare facility so employees have easy access to products to clean, cover, and highlight a spill.
- Advertise phone/pager numbers for housekeeping through emails, posters, and general awareness campaigns.
- Place water-absorbent walk-off mats where water, ice, or soap may drip onto the floor.
- Use beveled-edge, flat, and continuous mats.
- Provide walk-off mats, paper towel holders, trash cans, and umbrella bags near entrances and water fountains to minimize wet floors.
- Mats should be large enough so that several footsteps will take place on the mat; if there is water around or beyond the mat, it means that the mat is not large enough and/or is saturated and needs to be replaced.
- Secure mats from moving and make sure they have slip-resistant backing. Remind staff to lay mats in the correct position daily and use visual cues such as tape on the floor if necessary.
- Make sure that drip pans of ice machines and food carts are properly maintained so that water does not spill onto the floor.

Use Proper Cleaning Procedures for Floors

Optimal floor cleaning procedures may prevent slips and falls. Research has shown a two-step mopping process is better than damp-mopping. In the two-step process, the following must occur:

1. Cleaning solution is applied on a section of the floor with a dripping mop.
2. After a few minutes, the cleaning solution is removed with a wrung mop, before the solution dries.

You will also need to make sure the cleaning product can be used on common floor contaminants and the cleaning products are mixed according to manufacturer's directions.

3. What is the first step to properly clean hospital floors?

- a. Remove cleaning solution with a mop
- b. Apply cleaning solution with a dripping mop
- c. Wait for someone else to clean up the spill first
- d. Find out how the spill occurred

Wear Slip-Resistant Shoes

Slip-resistant shoes are an important component of a comprehensive STF prevention program. All healthcare facility employees may benefit from these types of shoes. Food services, housekeeping, and maintenance staff are at greatest risk for a STF due to exposure to water, grease, or slippery walking surfaces.

Shoe fit, comfort, and style are important factors that determine whether employees will actually wear the slip-resistant shoes. Therefore, employees should have an opportunity to try them on to find the proper fit before purchasing.

Prevent Entry into Wet Areas

Use highly visible cautions signs to inform employees and visitors to be careful and avoid contaminated areas. You may want to also block off areas during floor cleaning, stripping, and waxing to prevent injuries. Use barrier products, such as those shown below, or caution tape to prevent employees from entering an area being cleaned or from stepping on a spill.

Make sure you also use a barrier device to prevent water and other fluids from entering hallways and cleaning rooms. Use these devices along with a tension bar or other blocking device so the floor barrier does not become a tripping hazard.

Note: You will need to remove all signs once the floor is clean and dry, so they do not become commonplace and ignored by staff members.

4. Which healthcare employees are at the greatest risk of slips, trips, or falls?

- a. Doctors
- b. Nurses
- c. Housekeeping staff
- d. Administrative employees

Poor Drainage: Pipes and Drains

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

Where Does the Hazard Occur?

- drains inside the healthcare facility where liquids accumulate (particularly in kitchens and decontamination areas)
- down spouts that spill rainwater onto sidewalks

Prevention Strategies

- Check that pipes are correctly aligned with the drain they are emptying into.
- Unclog drains regularly, particularly in kitchens.
- Redirect downspouts away from sidewalks with high-pedestrian traffic.

5. How often should you unclog drains, particularly in kitchens?

- a. Regularly
- b. Weekly
- c. Annually
- d. Monthly

Indoor Walking Surface Irregularities

Damaged, warped, buckled, or uneven flooring surfaces inside healthcare facilities can cause employees to stumble, trip, slip, or fall.

Where Does the Hazard Occur?

- building entrances
- patient rooms
- operating rooms
- hallways
- around drains in the floor
- floor matting

Prevention Strategies

- Replace or re-stretch loose or buckled carpeting.
- Remove, patch underneath, and replace indented or blistered vinyl tile.
- Patch or fill cracks in indoor walkways greater than $\frac{1}{4}$ " wide.
- Make sure elevators are leveled properly so elevator floors line up evenly with hallway floors.

6. Patch or fill cracks in indoor walkways that are greater than ____.

- a. $\frac{1}{2}$ inch
- b. $\frac{1}{4}$ inch
- c. $\frac{1}{8}$ inch
- d. $\frac{1}{16}$ inch

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.

Where Does the Hazard Occur?

- entrances
- lawns
- parking garages and lots
- walkways
- around drains in the ground

Prevention Strategies

- Patch or fill cracks in walkways greater than ½" wide.
- Patch, fill, or repave outdoor areas that have deep grooves, cracks, or holes.
- Create visual cues. Highlight changes in curb or walkway elevation with Safety Yellow warning paint.
- Vehicle Parking Spaces: Wheel stops in parking lots can be a tripping hazard and should not block adjacent accessible routes. (see [2010 ADA](#) and [ICC/ANSI A117.1-2017](#)).
- Remove stones and debris from walking surfaces.
- Ensure that underground watering system structures are covered or highlighted.

7. Patch of fill cracks in outdoor walkways that are greater than ____.

- a. 1/2 inch
- b. 1/4 inch
- c. 1/8 inch
- d. 1/16 inches

Weather Conditions: Ice and Snow

Ice and snow can cause employees and visitors to slip and fall.

Where Does the Hazard Occur?

- entrances
- parking garages and lots
- walkways
- outside stairs

Prevention Strategies

- Have an aggressive program to promptly remove ice and snow from parking lots, garages, and sidewalks.
- Distribute winter weather warnings via email to staff when ice and snow are predicted. For staff that does not have access to email, provide notices on bulletin boards.
- Place freezing weather warning monitors at entrances to employee parking areas.
- Display the phone or pager number for the maintenance department via posters and emails to encourage employees to report icy conditions.
- Place labeled bins filled with ice melting chemicals and scoops that anyone can use immediately on icy patches. Consider placing bins in areas of heavy pedestrian traffic such as the top and bottom of outdoor stairways, parking garage exits and entrances, and healthcare facility entrances. The bins should be labeled with the appropriate Safety

Data Sheets (SDS) and include instructions for handling ice melting chemicals. Bins should be secured so they cannot be removed.

- Provide additional mats in entrances during winter months and when it rains.
- Consider slip-resistant footwear (including ice cleats) for employees who work or travel outdoors as part of their jobs.

8. When should additional mats be used to prevent slips, trips, and falls?

- a. Sunny weather
- b. During summer months
- c. During rainy season
- d. When it is foggy outside

Inadequate Lighting

Inadequate lighting impairs vision and the ability to see hazards. Proper lighting, on the other hand, allows employees to see their surroundings and notice unsafe conditions in time to avoid them.

Where Does the Hazard Occur?

- parking structures
- storage rooms
- hallways
- stairwells
- walkways both inside and outside the facility

Prevention Strategies

- Install more light fixtures in poorly lit areas.
- Verify light bulbs have an appropriate brightness.

- Install light fixtures that emit light from all sides.

9. _____ impairs vision and the ability to see hazards.

- a. Proper lighting
- b. Inadequate lighting
- c. More light fixtures
- d. Obstructions

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 the appropriate height, size, or are poorly maintained can lead to missteps and cause employees to trip and fall.

Where Does the Hazard Occur?

- indoor and outdoor stairs
- steps inside classrooms or conference rooms
- elevated and/or sloping walkways
- parking structures
- ramps

Prevention Strategies

- Create visual cues. Paint (Safety Yellow or other high contrast paint), tape, or highlight the edge (nosing) of each step, including the top and bottom, to provide a cue of a change in elevation.
- Check that stair treads and nosing are slip resistant and extend the whole tread. This is especially important for outside stairs exposed to the elements or stairways exposed to wet conditions.
- Ensure that stairs are kept free of ice, snow, water, and other slippery contaminants.

- Check that stairwells have adequate lighting.
- Consider adding a handrail at locations that have less than 4 steps (such as employee shuttle bus stop, building entrances, conference theaters).
- Confirm all handrails are within an appropriate height range (34–38" from the stepping surface).
- Check that discontinuous handrails are of a consistent height.
- Check that handrails extend full length of stair and extend 12 inches at top and one tread depth at bottom.
- Check that handrails are available on both sides. For stairs >44 inches wide, two handrails are recommended. For stairs <44 inches, at least one handrail on the right-side descending stairway should be available.
- For open stairways, check to ensure a two-rail system is present; a top rail at 42 inches and a second handrail at 34 inches minimum and 38 inches maximum vertically above stair nosings. Protect the open area under the top rail to the stairway steps by installing a fixed barrier.

10. How many handrails are recommended for stairs that are greater than 44 inches wide?

- a. 1
- b. 2
- c. 3
- d. 5

Stepstools and Ladders

Stepstools and ladders that are used to work from heights can create a hazardous situation if not used properly.

Where Does the Hazard Occur?

- outdoors

- kitchens and pantries
- pharmacy
- medical records office
- areas with elevated storage

Prevention Strategies

- Train employees on the proper use of ladders.
- Wear appropriate footwear for climbing; shoes should have a closed back and sufficient tread on the sole to prevent slipping on ladder rungs or steps.
- Place ladders and stepstools on level surfaces before climbing.
- Check that stepladders are fully opened before climbing.
- Maintain three points of contact with the ladder at all times while ascending and descending (two hands and one foot or one hand and two feet).

11. It is necessary to make sure stepladders are fully _____ before using them.

- a. closed
- b. open
- c. usable
- d. broken

Tripping Hazards

Clutter can build up in storage areas, work areas, hallways, and walkways. Clutter, loose cords, hoses, wires, and medical tubing can potentially lead 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 or fall incident.

Where Does the Hazard Occur?

- nursing stations
- operating rooms
- patient rooms
- computer workstations
- hallways and walkways
- workstations

Prevention Strategies

- Organize storage areas to eliminate clutter.
- Consider wall-mounted storage hooks, shelves, hose spools, etc.
- Clear walkways.
- Use cord organizers to bundle cords.
- Cover cords on floor with a beveled protective cover or tape cords to flooring.
- Use retractable cord holders.
- Mount cords near or underneath the desk.
- Clear walkways and work areas to allow employees to move more freely and safely.

12. Which of the following strategies are useful to help eliminate tripping hazards in a healthcare setting?

- a. Organize storage areas
- b. Place equipment on the floor near your desk
- c. unmounted extension cords
- d. broken light fixtures

Improper Use of Floor Mats and Runners

Mats are used to prevent STFs, to provide slip-resistant walking surfaces by absorbing liquid, and to remove 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.

Where Does the Hazard Occur?

- healthcare facility entrances
- food preparation and serving areas
- under sinks
- water fountains

Prevention Strategies

- Mats and runners at healthcare facility entrances should be sufficiently large so that several footsteps fall on the mat, cleaning contaminants off the shoes, before the shoes contact the flooring.
- Place additional mats, if necessary, in entrances during ice, snow, and rainy conditions. If there is water on the floor beyond the last mat, additional mats or runners may be necessary.
- Use non-slip mats in areas where employees may routinely encounter wet flooring.
- Use beveled-edge, flat, and continuous or interlocking mats.

- Replace mats that are curled, ripped, or worn. Secure edges with carpet tape if needed
- Secure mats from moving.
- Paint small markers on the floor to remind staff to lay mats in the correct position every day.

13. _____ or _____ mats can contribute to slips, trips, and falls.

- a. Frayed, poorly placed
- b. New, properly placed
- c. Old, poorly placed
- d. New, frayed

Module 2: Tools and Resources

Know Your Healthcare Facility's STF History

You should be familiar with your healthcare facilities STF history. Review your healthcare facility's historical injury records for STF incidents. Obtain copies of and check workers' compensation claims, incident reports, first report of employee injury, OSHA and/or occupational health nurse logs. Read the narrative descriptions of the incidents to identify what types of STFs are most common in your healthcare facility and to identify specific locations where multiple STFs or "injury hot spots" may have happened over the years. When a STF incident occurs, carefully examine the circumstances of the incident to see where prevention measures can be implemented.

[Click here to view a checklist to help identify STFs in your facility.](#)

1. Why is it important to review your healthcare facilities history of slips, trips, and falls?

- a. To look smart to your employer
- b. Brag to your coworkers
- c. Eliminate OSHA fines
- d. To see where prevention measures can be implemented

Risk Assessment

You must manage the health and safety risks in your workplace. To do this you need to decide whether you are doing enough to prevent harm. This process is known as a risk assessment and it is something you are required by law to carry out.

A risk assessment is not about creating huge amounts of paperwork, but rather about taking sensible measures to control the risks in your workplace (for example, using doormats to stop rainwater being tracked in and making the floor slippery.)

You are probably already taking steps to protect your employees, but your risk assessment will tell you whether you should be doing more. Consider what risks in your workplace may lead to slip or trip injuries and decide what suitable and effective control measures will prevent these types of accidents.

You then need to put these control measures into practice. Concentrate on the real risks – those that are most likely to cause harm. Think about how accidents could happen and who might be harmed. You can do this in the following ways:

- Ask your employees what they think the hazards are, as they may notice things that are not obvious to you and may have some good ideas on how to control the risks.

Make a record of your significant findings and what you have in place to prevent them. Hazards should be photographed, described, and kept on file so changes can be made and documented. It is also helpful to list a person responsible for fixing the hazard and a targeted completion date in your paperwork.

Few workplaces stay the same, so it makes sense to review what you are doing on an ongoing basis.

2. You must take measures to protect the health and safety of your workplace. What is this process known as?

- a. Risk assessment
- b. Administrative controls
- c. Engineering controls
- d. Elimination

Employee Training and Involvement

All healthcare facility employees are at risk; therefore, all employees should be trained on how to recognize STF hazards and be involved in the development and implementation of prevention strategies.

It is important to have written housekeeping procedures that require all employees (including direct patient care staff such as nurses) to immediately report spills/snow/ice etc. to initiate a prompt response by the housekeeping or facilities departments.

Here are a few things to remember when training employees:

- Make cleaning and safety supplies and products easily accessible to all staff.
- Incorporate slip, trip, and fall awareness and prevention into routine safety training.

- Conduct general awareness campaigns within the healthcare facility (i.e., booths, posters, emails, paycheck inserts, and incentives) educating employees about the risk of STF at work and what they can do to prevent injuries.
 - Consider making key chains or something employees can carry with them that have emergency numbers for housekeeping to quickly report floor contaminations or hazards.
- Reinforce the use of prevention equipment (handrails and appropriate footwear for example) frequently with staff.
- Track success: Provide feedback to employees on how the facility is doing with regard to STF injury rates.

Healthcare facilities should educate all employees on the seriousness of slip and fall accidents and inform them of any hazards specific to their industry. When employees know the causes of slips and falls and understand the technical components including types of flooring and types of treatments, they too can help to recognize, evaluate, and control hazards.

3. _____ should be involved in the development and implementation of STF prevention strategies.

- a. OSHA
- b. Employees
- c. Patients
- d. Visitors

STF Prevention Program

In 2008, a National Institute of Occupational Safety and Health (NIOSH) study found that when implementing a slip, trip, and fall prevention program, it reduces STF injuries and workers' compensation claims.

Elements of a slip, trip, and fall prevention program should include:

1. **Plan:** Identify key risk areas and set goals for improvement.

2. **Organize:** Involve workers and assign responsibilities so they are committed to the process.
3. **Worksite analysis:** Assess the risk to employees, to visitors, and to the public. Periodically review to be sure all hazards are addressed.
4. **Hazard prevention and control:** Ensure work practices and processes are being carried out properly and that they are being monitored.
5. **Safety and health training:** Provide essential training at all levels, including management.
6. **Take control:** Establish policies and procedures to reduce the number of injuries.

4. Which of the following elements of an effective STF Prevention Program is important to identify key risk areas and set goals for improvement?

- a. Organize
- b. Plan
- c. Analysis
- d. Take control

Endnotes

1. Health and Safety Executive. (2014). Preventing Slips and Trips at Work. Retrieved from: <http://www.hse.gov.uk/pubns/indg225.pdf>
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