January 28th 2026

Slips, Trips, & Falls

Ergonomics, Ladder Safety, and Safe Lifting

Kipling Len

Attendance Check-in

WEDNESDAY, JANUARY 28 AT 9:00AM

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Overview

- Slips, Trips, and Falls
  - What are the differences?
  - How to avoid/prevent them
  - Real-world examples
- Ergonomics, Ladder Safety, and Safe Lifting

Slip, Trip, & Falls

Slips happen because of a lack of friction or traction between a person's footwear and the walking surface. Common causes of slips to look for in the workplace are:

- Spills
- Hazards created from weather (e.g. puddles and ice)
- Surfaces that are wet or oily
- Loose rugs or mats

How To Prevent Slips

• Practice safe walking skills. Take short steps on slippery surfaces to keep your center of balance under you and point your feet slightly outward.

• Clean up or report spills right away. Even minor spills can be very dangerous.

• Don’t let grease accumulate at your workplace.

• Be extra cautious on smooth surfaces such as newly waxed floors. Also be careful walking on loose carpeting.

Slip, Trip, & Falls

Trips occur when your foot strikes or hits an object, which causes a person to lose their balance. Common causes of trips to look for in the workplace are:

- Obstructions and clutter on the floor
- Poor lighting
- Uneven or irregular walking surfaces
- Wrinkled or curled up mats

How To Prevent Trips

- Make sure you can see where you are walking. Don’t carry loads that you cannot see over.
- Keep walking and working areas well lit, especially at night.
- Keep the workplace clean and tidy. Store materials and supplies in the appropriate storage areas.
- Arrange furniture and office equipment so that it doesn’t interfere with walkways or pedestrian traffic in your area.
- Properly maintain walking areas, and alert appropriate authorities regarding potential maintenance related hazards.

Slip, Trip, & Falls

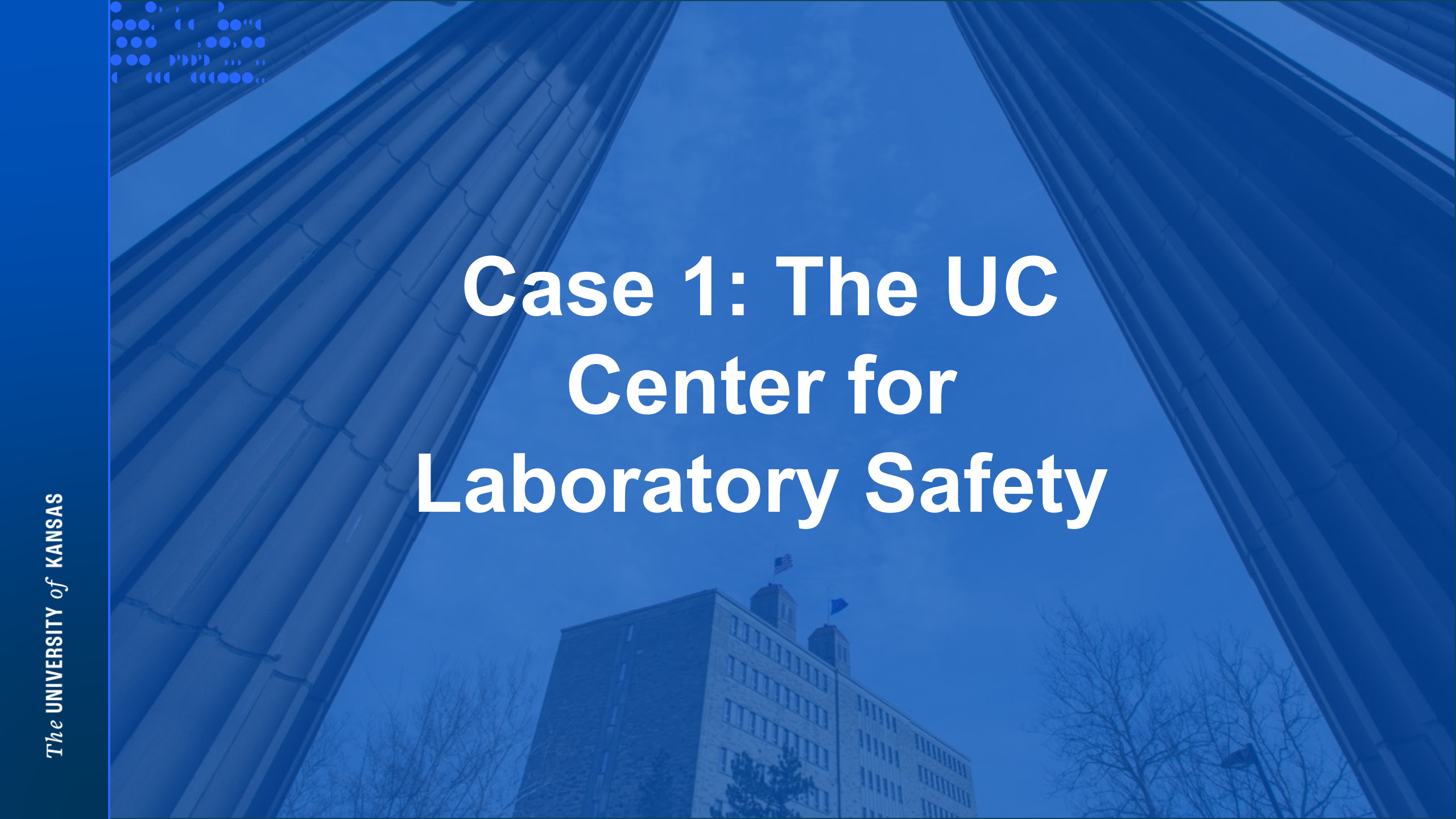
Falls can result from a slip or a trip when a person's center of gravity is shifted and balance is lost. In addition to slips and trips, other causes of falls to look for in the workplace are:

- Obstructed view (e.g. carrying large items)
- Not paying attention to the surroundings
- Not using appropriate equipment (e.g standing on a chair, table, or other surface with wheels)

How To Prevent Falls

- Do not jump from platforms or elevated surfaces. Use designated stairs or ladders.
- Repair or replace stairs or handrails that are loose or broken
- Keep passageways and aisles clear of clutter and well lit.
- Wear shoes with appropriate non-slip soles.

Real World Examples



Case 1: The UC Center for Laboratory Safety

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Case 1: Water from Freezer Ice Causes Slip and Fall

Background:

- Water accumulated on the floor as a result of ice falling from the freezer.
- An anti-slip mat had been placed in front of the freezer, but the water had spread past the mat.
- The student entered the area to return samples to the freezer, but when he turned around and stepped off the anti-slip mat, he slipped and fell.
- The student sustained bruises on both knees and his left hand as a result
- Additionally, the researcher was wearing open-toed shoes.

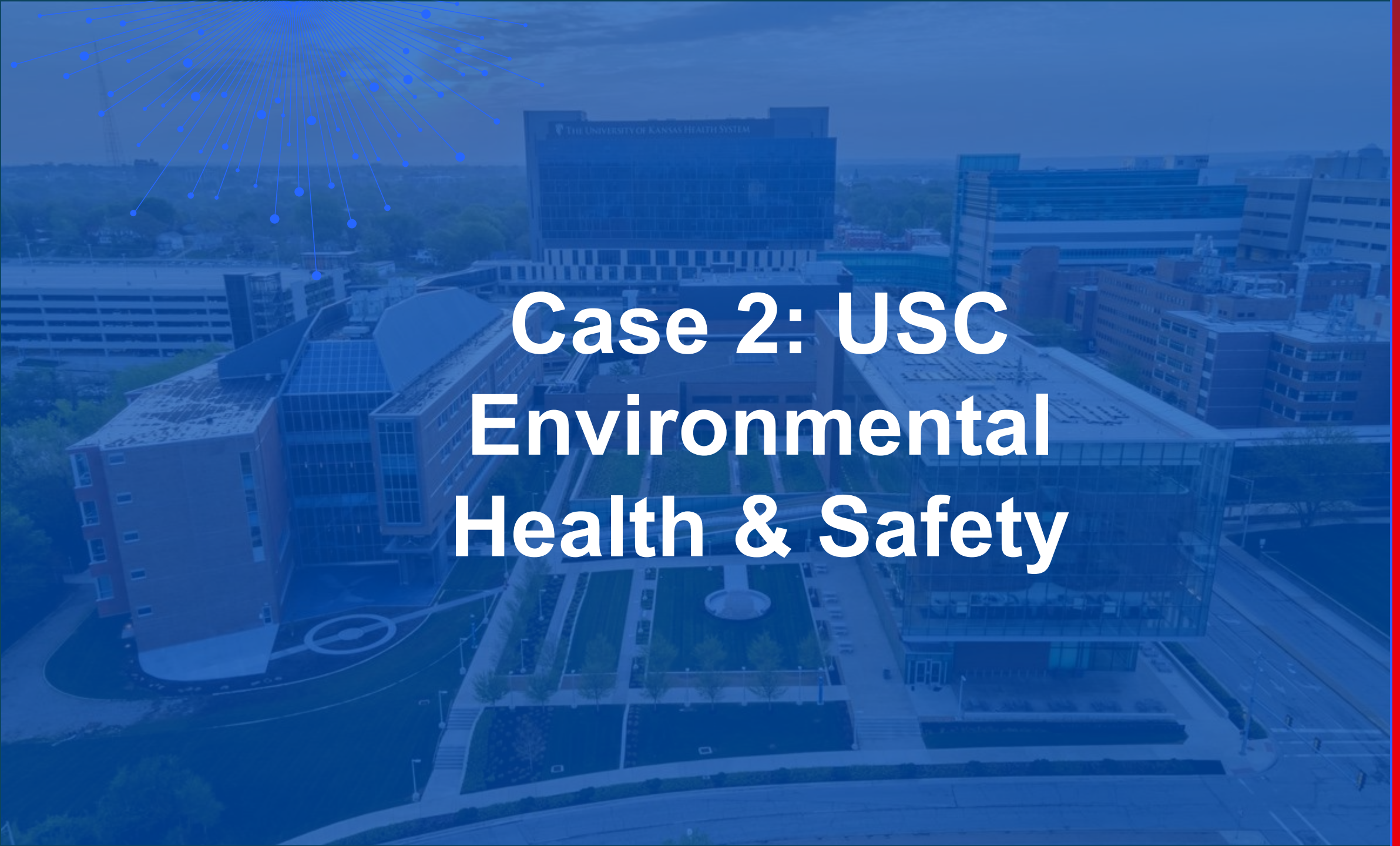
Case 1: Water from Freezer Ice Causes Slip and Fall

What Was The Cause?

- The incident was caused by poor housekeeping resulting in water accumulating on the floor. Improper footwear may have contributed to the slipping.
    - Additionally, if the fall happened while still holding the chemicals, the injuries may have been more severe.

How Can Incidents Like This Be Prevented?

- Defrost freezers once a year or when ice accumulates
- Have caution signs available in the freezer area that can be placed if you cannot clean up the wet area immediately
- Wear closed-toed shoes with slip-resistant soles at all times inside the lab
- Clean up when you cause or see a water spill



Case 2: USC Environmental Health & Safety

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Case 2: Acetic Anhydride Spill

Background:

- Student #1 from Lab A was lifting a 4-L bottle of acetic anhydride from a flammable cabinet. The bottle slipped out of their hands and broke on the floor.
- The student put on a half-face respirator and goggles and attempted to neutralize the spill. PI of Lab A was notified, and the PI evacuated the adjacent room and called DPS(Department of Public Safety) and EHS.
- Unbeknownst to Student #1, the chemical spill had gone out into the hallway.
- Student #2 from Lab B was walking down the hall and slipped and fell in the liquid making contact with their right arm and leg.
- The student began experiencing a burning throat, eyes, and uncontrollable tearing. Student #1 took Student #2 to a lower floor to wash off in a restroom.
- Student #2 did not have PPE as it is not required in hallways.
- The PI from Lab A pulled the fire alarm and evacuated the building on instructions from DPS. USC HazMat responded to the scene.

Case 2: Acetic Anhydride Spill

Causes/Issues:

- The lab did not follow proper spill response procedures
  - The spill was not barricaded immediately.
  - Lab personnel attempted to clean the spill without appropriate spill response training.
  - Inappropriate neutralization of acetic anhydride.
- Incorrect chemical was reported to emergency responders – it was acetic anhydride not acetic acid.
- Designated safety shower was not used in the building – restroom was used instead.
- Respirators should only be use for the functions workers have been trained to use them for

Satisfactory Actions:

- PI immediately notified DPS and followed their instructions

Spill kits

Case 2: Acetic Anhydride Spill

Corrective Actions:

- Ensure lab personnel understand where safety equipment is located and are properly trained
- Reduce working quantities. Handling an oversize bottle both increased the probability of an accident and increased the severity of the accident when it occurred.
- Use safety eyewash/shower stations instead of facilities with drains (e.g., restroom sinks).
- Respirators may not have been intended for acetic anhydride vapors, leading to a false sense of protection
- Proper spill response training
    - Access the situation and contact the PI
    - For large spills, use spill pads/socks to help contain the spill
    - Allow trained spill responders to handle the spill
    - Acetic anhydride is corrosive, reactive, and has strong vapors
        - Avoid contact on skin and breathing in vapors

Spill kits

Spill sock

Ergonomics, Ladder Safety, and Safe Lifting

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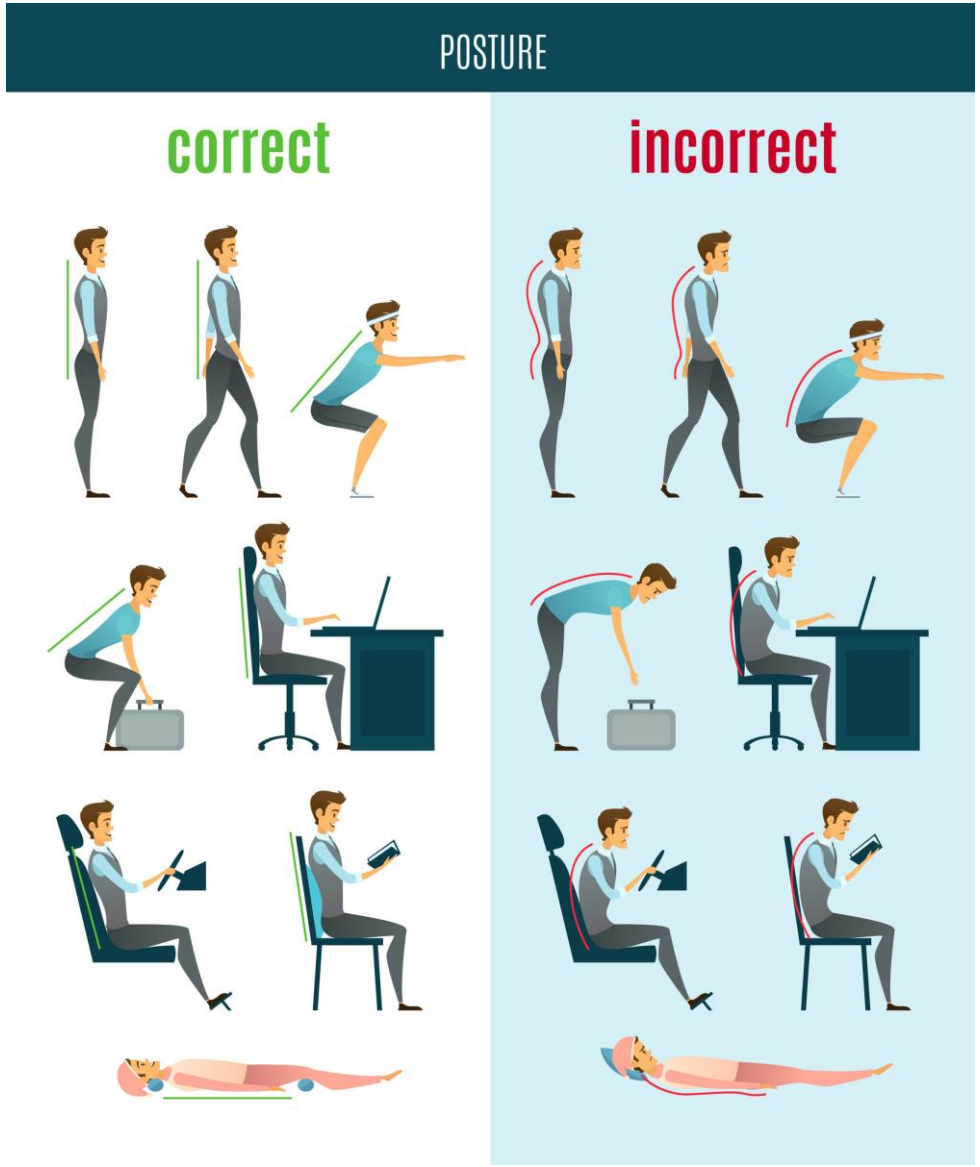
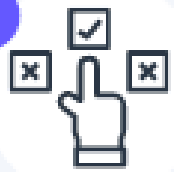
Ergonomics

- Designing tasks, equipment, and workspaces to fit the worker and reduce physical strain
- Improve ergonomics in the lab by:
  - Adjust bench height, chair, and equipment to maintain neutral posture
  - Avoid repetitive motions when pipetting or handling samples
  - Take regular breaks to prevent muscle and joint stress



Ladder Safety

10 Ladder Safety Rules

1. 
Choose the right ladder

2. 
Check for damages or issues before each use

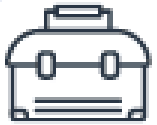
3. 
Ensure physical capability of using a ladder

4. 
Set up the ladder on a flat and stable surface

5. 
Set up in a safe place

6. 
Never lean or reach away from the ladder

7. 
Always maintain a three point of contact

8. 
Only take small items up or down a ladder

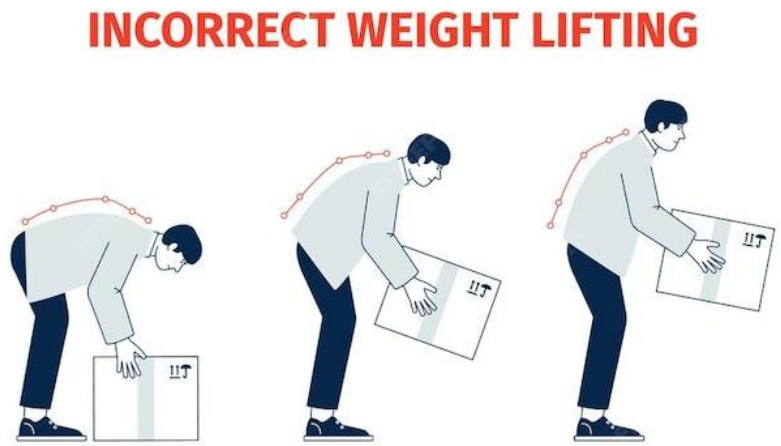
9. 1:4
Apply the 1:4 rule

10. 
Climb down cautiously

SafetyCulture

Safe Lifting

- Bend at the knees, not the waist
- Avoid twisting while lifting or carrying
- Get help or use equipment for heavy loads
- Poor lifting technique increases injury risk



Conclusion

- Slips, Trips, & Falls are a leading cause of workplace injuries
- Preventative measures are essential to protect health and safety in the workplace
- Ergonomics, ladder safety, and safe lifting reduce preventable injuries
- Small adjustments in posture and technique make a big difference

Thank you

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