Firefighter Rehab

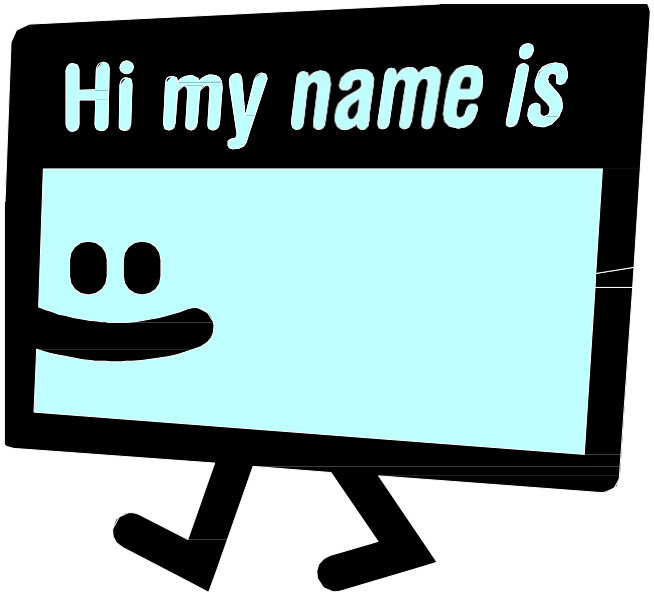
Community Emergency
Response Team

FEMA

citizen corps

Participant Introductions

- Introduce yourself to the class



Administrative Announcements

- Breaks
- Emergency exits
- Restrooms
- Smoking policy
- Silence cell phones
- Module completion requirements

Module Purpose

- To train CERT members to recognize signs of physiological distress in firefighters
- To train CERT members to safely set up and perform the non-medical functions of firefighter rehabilitation

What You Will Learn

- Physiological Threats to Firefighters
- The Incident Scene
- The Rehab Area
- The Rehab Process

Training is consistent with and based on NFPA 1584: Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises. 2008 Edition

Module Objectives

At the end of this module, you will be able to:

- Define firefighter rehab
- Identify the purpose of firefighter rehab
- Describe the physiological threats to firefighters
- Describe the primary components of firefighting
- Set up a rehab area
- Conduct rehab operations

What Do You Think?

- What is firefighter rehab?

Firefighter Rehabilitation

- Firefighter rehabilitation is the process of providing rest, rehydration, nourishment, and medical evaluation to members who are involved in extended or extreme incident scene operations

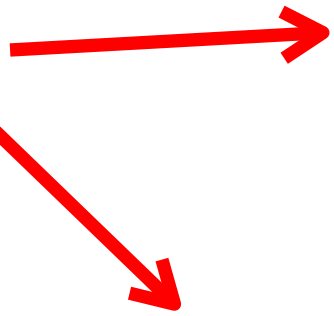
Why Is Rehab Needed?

Firefighting is hot and strenuous work!

Leads to dehydration and heat stress

Effects of Heat Stress

- Fatigue
- Overexertion and strain
- Reduced situational awareness



Slips
Trips
Falls

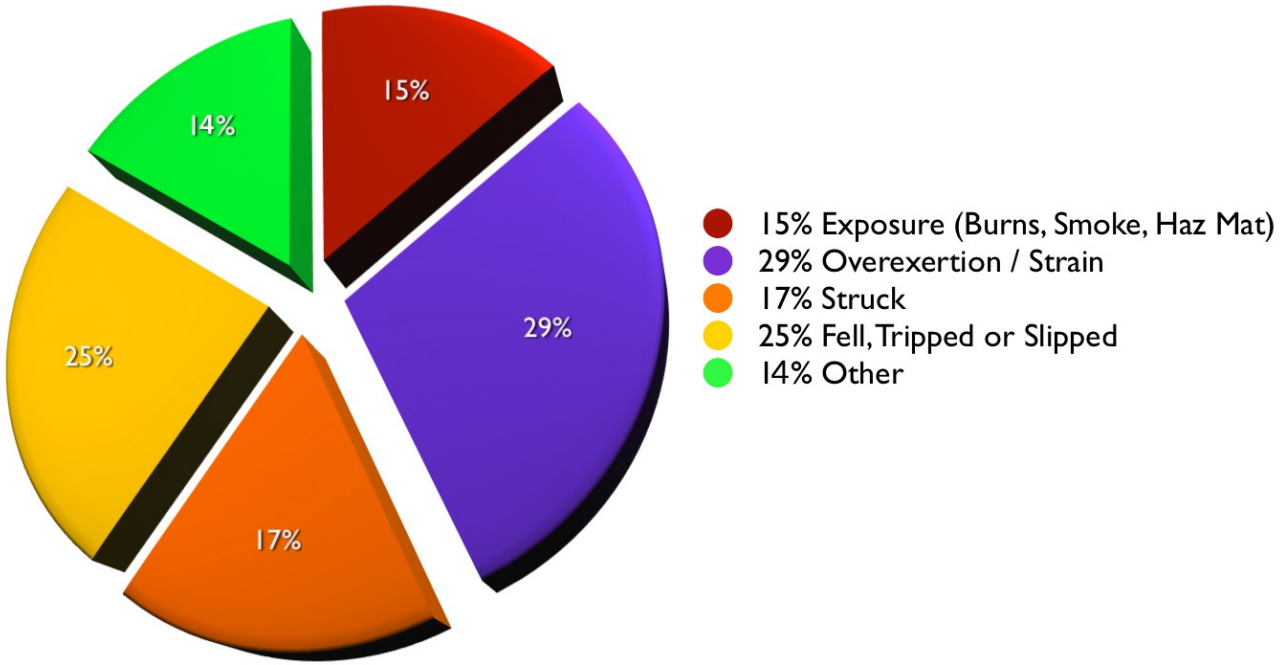
Cardiac (heart attack)
Cerebrovascular (stroke)

Additional Stress Factors

- Sometimes this hot work is done in very hot or very cold conditions
- Fitness of the firefighter:
  - Hypertension
  - High lipids
  - High blood glucose
  - Overweight/obesity
  - Inactivity
  - Smoking

The Facts

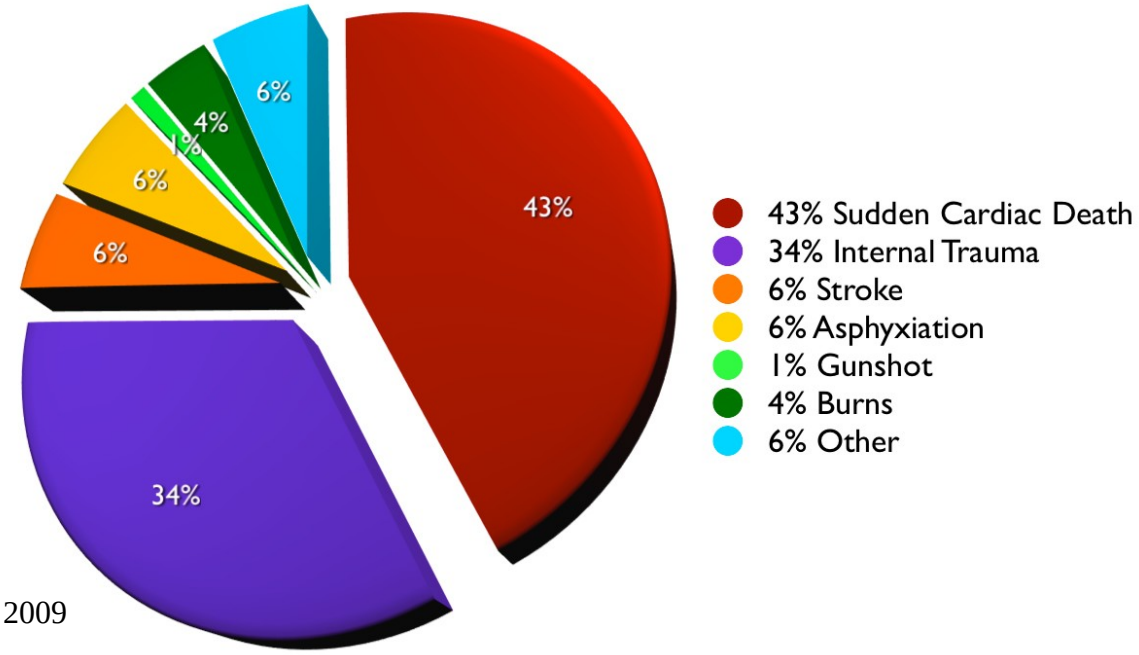
- About 80,000 firefighters are injured every year



Karter, M.J., *Patterns of Firefighter Fireground Injuries, NFPA* 2009

The Facts (cont'd)

- About 100 firefighters die each year
  - Cardiac or cerebrovascular events are approximately 50% of all annual line of duty deaths



National Fire Protection Association 2009

Purpose of Rehab

- Improves performance
- Decreases likelihood of onscene injury or death
- Ensures that physical and mental condition of members does not deteriorate to point that affects safety of each member or that jeopardizes safety and integrity of operation

NFPA 1584 Guidelines

- Two guidelines for company or crew rehabilitation in terms of work-to-rest ratio and/or self-contained breathing apparatus (SCBA) usage

NFPA 1584 Guideline #1

- The company or crew must self-rehab (rest with hydration) for at least 10 minutes following:
  - Depletion of one 30-minute SCBA cylinder
  - Or after 20 minutes of intense work without wearing an SCBA
- Company Officer (CO) or crew leader must ensure that all members are fit to return to duty before resuming operations

NFPA 1584 Guideline #2

- Company or crew must enter formal rehab area, drink appropriate fluids, be medically evaluated, and rest for minimum of 20 minutes after any of the following:
  - Depletion of two 30-minute SCBA cylinders
  - Depletion of one 45- or 60-minute SCBA cylinder
  - Whenever encapsulating chemical protective clothing is worn
  - Following 40 minutes of intense work without SCBA

Variation on Guidelines 1-2

- If members enter rehab area prior to going through two 30-minute SCBA cylinders (or any other of the criteria listed in Guideline #2):
  - Still must be medically evaluated and drink fluids
  - However, rest period may be lowered to only 10 minutes, if they are fit to return to duty

CERT Members and Rehab

- CERT members will provide critical service that directly affects health and safety of firefighters
  - Rest and recovery
  - Relief from incident, environmental conditions
  - Rehydration
  - Nourishment
  - Documentation
  - May assist with medical monitoring

What Do You Think?

- What are some other situations where rehab could be necessary?

Physiological Threats to Firefighters

- Prolonged exposure to thermal conditions
  - Heat
  - Cold
- Firefighter PPE

Heat Stress

- Heat cramps or muscle spasms
- Heat exhaustion
  - Heavy sweating and loss of body fluids
  - Increased blood flow to skin, decreased blood flow to vital organs
- Heat stroke
  - Temperature reaches over 104°F. or higher
  - Brain damage and death may result

Is Heat Stress Possible?

- What is the outside temperature?
- How humid is it?
- How windy is it?
- Are they working in direct sunlight?
- How close are they to the flame front?
- Are they kneeling or crawling on hot surfaces?
- Is this a chemical or flammable fuel fire?

Water and Steam

- Water and steam transfer heat many times faster than air

What Do You Think?

- How might you know that someone is suffering from heat stress?

Is Cold Stress Possible?

- What is the outside temperature?
- How windy is it?

Temperatures between 32°F and 55°F can cause cold injuries.

What Do You Think?

- How might you know that someone is suffering from cold stress?

Three Other Conditions

- Dehydration
- Altered mental state
- Cardiac event

The Incident Scene

Fire Factors

- Type and extent of incident
- Length of time to fight fire
- Environmental elements

The Rehab Area

- Location
- Facilities
- Equipment and Supplies
- Setup

Location Approved by IC

- Protects from the elements (hot and cold)
- Provides refuge from the incident
- Provides protection from the prevailing environmental conditions (exhaust, smoke, toxins)
- Is large enough to accommodate multiple crews and rehabilitation personnel
- Is located near or with EMS

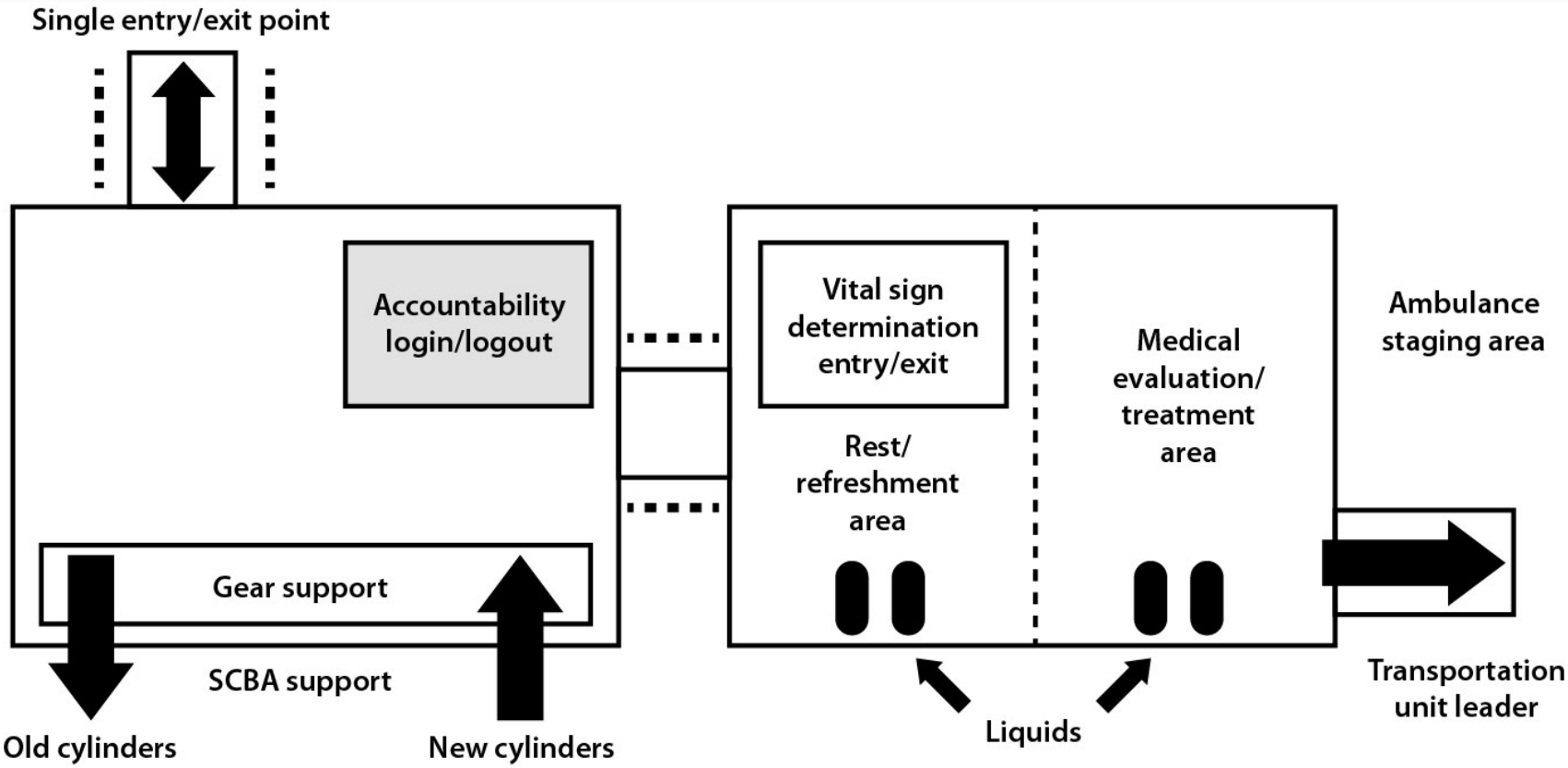
Multiple Locations

- If location becomes inundated with smoke
  - IC alerted and location changed
- If need more than one location
  - Incident is big
  - There are barriers to accessing rehab area
- Naming convention

Facilities

Equipment and Supplies

Sample Setup



Sample Layout of a Rehabilitation and Treatment Sector. (Source: Dickinson, E. T., and Wieder, M. A., *Emergency Incident Rehabilitation*, 2nd edition. Pearson Education, Upper Saddle River, NJ, 2004.)

Establishing a Rehab Area

25 minutes:

- As a group, consider four scenarios
- Discuss responses to questions about scenarios

Rehab Operations

- Review of training up to this point
  - Why firefighters need rehab
  - What rehab area looks like
- Final section
  - What happens in each part of rehab area
  - CERT members' roles

CERT Safety

- PPE
  - Reflective vests and gloves
  - Hard hats not needed, but keep nearby
- Avoid smoke; may contain chemicals
- Wear exam gloves to remove firefighter's gear
  - Gear may contain hazardous material
- Rehab yourselves

Overview of Rehab Operations

- Reminder
  - Training based on NFPA 1584, Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises. 2008 Edition

1. CERT members are mobilized

- CERT never self-deploys for rehab
- CERT will be notified by Incident Command through local protocol when it is needed for firefighter rehab

2. CERT members arrive in PPE

- Report to Incident Command Post

3. IC chooses a rehab leader

- Best if it is firefighter, for credibility with firefighters
- Responsibilities
  - Safety of rehab team
  - Setup, operations, and stand down
  - Notifying EMS when firefighter needs additional assistance
  - Handling logistics; ensuring sufficient supplies
  - Having plan for replenishing water and supplies

Rehab Team Accountability

- Accountability is key component of NFPA 1584 standard operating guideline
- Accountability system for rehab team
  - Rehab leader knows who to report to
  - Names of all team members are recorded
  - Rehab leader briefs team members on roles and tasks
  - All documentation is returned to rehab leader at end of operation

4. Rehab location chosen

- Protects from the elements (hot and cold)
- Provides refuge from the incident
- Provides protection from environmental conditions (exhaust, smoke, toxins)
- Is large enough to accommodate multiple crews and rehabilitation personnel
- Is located near or with EMS
- Is approved by IC

5. Set up rehab area

- What separate areas are needed?
- What are the critical supplies to have?

6. Firefighters sign in

- Establish clear directions to point of entry
- All firefighters must sign in
  - Names and arrival times are recorded on *Rehab Area Check-In/Check-Out Sheet*

7. Gear is removed; water is offered

- Offer water immediately
- Provide help with removing gear
  - Firefighters should “dress down” by removing bunker coats, helmets, and hoods, and by opening bunker pants to promote cooling
- Direct firefighters to wash or sanitize hands and face before moving into rest and recovery area

8. EMS provides medical assessment

- As firefighter enters rest and recovery area, EMS personnel will check vitals (heart rate, blood pressure, respiration, and pulse)
- CERT member may be asked to assist by recording vitals

9. Rest and recovery activities

- Firefighters need to rest in rehab area for at least 10-20 minutes
- They should sit, if at all possible
- Three CERT tasks:
  1. Offer beverages and nutrition
  2. Provide cooling and warming as appropriate
  3. Monitor for signs of distress

Offer Beverages and Nutrition

- Rehydration
  - Have fluids available at all times
  - Always offer water
  - After first hour of firefighting, provide a sports drink containing electrolytes
- Nourishment
  - Have appropriate food available in rehab area
  - During long operations, encourage firefighters to eat

Provide Cooling - Passive

- Remove gear and allow the body to cool naturally
- Sit in shaded area
- Drink cool or iced fluids

Provide Cooling - Active

- Active cooling situations
  - Whenever there is potential for heat stress
  - After second and each subsequent SCBA tank
- Guidelines
  - Put wet towels on head and neck
  - Sit in front of misting system/fan or in air-conditioned area
  - Submerge hands and arms in water

Provide Cooling – Active (cont'd)

Provide Warming

- Have firefighters move to dry, heated area protected from elements (wind, snow, rain)
- ONLY remove wet gear if there is heated area and warm, dry clothing available
  - Offer dry socks or clothing if gear is removed
- Encourage firefighters to drink warm fluids

Monitor Physical Status

- Expect firefighters to be hot, flushed, sweaty, and tired
  - Conditions should improve pretty quickly
- Get sense of how firefighter looks when first leaving fire in order to gauge improvement

Check Mental Status

- Can firefighter make eye contact?
- Is firefighter oriented to person, place, and time?
- Can firefighter respond coherently and logically?

Watch for Signs of Distress

- Look for signs of heat stress/dehydration
- In cold weather, look for signs of cold stress
- Watch for signs of a cardiac event

10. If a firefighter is distressed

- If you see any indication that firefighter is in trouble, notify rehab leader immediately
  - Indication may be as simple as “I don’t feel good”
- Rehab leader will notify EMS; may alert Incident Command
- EMS will then be responsible for treatment

11. Firefighters sign out

- All firefighters must sign out
  - Departure times are recorded on *Rehab Area Check-In/Check-Out Sheet*

One Exception

- Some jurisdictions may allow member of the rehab team to leave the rehab area
- If so, CERT members should provide water closer to the fire scene to assist firefighters with self-rehab

Rehab Area Operations

55 minutes:

Detailed instructions are provided in Participant Manual.

- Identify initial roles: 3-4 minutes
- Set up rehab area: no more than 5 minutes
- Process firefighters: about 25 minutes

Module Summary

- Introduction and Overview
- Physiological Threats to Firefighters
- The Incident Scene
- The Rehab Area
- The Rehab Process