CHAPTER 4: Initiating a response

Chapter Overview

Mission success begins prior to the call going out. Prior to an incident occurring, hazard analysis, rescuer training, and preplanning specific incident types may be performed. Preincident planning and immediate initial implementation contribute to an overall positive incident outcome.

Objectives and Resources

**Knowledge Objectives**

After studying this chapter, you should be able to:

 Describe how to apply a preplan to the incident action plan. (pp. 50 – 51)

 Explain the initial rope rescue response actions that can be taken by an awareness-level rope rescuer. (NFPA 1006: 5.1.4, p. 51)

 Identify the signs that indicate an incident requires rope rescuers. (NFPA 1006: 5.1.4, p. 51)

 Describe how the emergency response system is activated. (NFPA 1006: 5.1.4, pp. 51 - 52)

 Describe the purpose and components of the Incident Command System. (NFPA 1006: 5.1.4, pp. 52–54)

 Describe the methods of isolating hazards and hazardous areas. (NFPA 1006: 5.1.3, pp. 54–55)

 Describe the capabilities of operations- and technician-level rope rescuers. (NFPA 1006: 5.1.4, pp. 56–57)

 Define the Planning P. (NFPA 1006: 5.1.4, pp. 57 - 59)

 Identify the forms that can be utilized to build and implement an incident action plan. (NFPA 1006: 5.1.4, pp. 57 - 59)

 Describe the debriefing purpose and potential processes. (pp. 60 – 61)

 Compare a hot debrief to a structured debrief. (pp. 60 -61)

**Skill Objectives**

After studying this chapter, you should be able to:

 Describe how to utilize scene control barriers. (NFPA 1006: 5.1.3, pp. 54–55)

 Isolate an area to control a hazard. (NFPA 1006: 5.1.3, pp. 54–55)

Support Materials

 Dry-erase board and markers or chalkboard and chalk

 LCD projector, slide projector, overhead projector, and projection screen

 PowerPoint presentation or slides

 **Navigate for Students**

 **Advantage**

 Each printed textbook comes with an access code that unlocks several valuable teaching and learning assets including:

 **Navigate eBook**.

 Online and offline accessibility ensures that the eBook is always available. Offline interactions are captured, cached, and uploaded the next time they are connected to the Internet.

 **Navigate for Instructors**

 **ACCESS LEVELS**—Differing levels of access meet the needs of traditional, hybrid, and distance learning courses.

 **LMS COMPATIBILITY**—A fully hosted and supported online learning solution. It is also available for deployment in third-party learning management solutions, such as Blackboard and Canvas.

 **ANALYTICS**—Dashboards for the instructor enables access to real-time, actionable data.

 **SUPPORT & TRAINING**—A Navigate Implementation Specialist will be your personal resource to answer questions, set-up your course, and maintain your customizations from semester to semester.

Reading and Preparation

Review all instructional materials, including *Rope Rescue,* Fifth Edition, Chapter 4, and all related presentation support materials.

Chapter Presentation Overview

Pre-lecture

I. You Are the Rescuer

Small-Group Activity/Discussion

Purpose



The purpose of this activity is to introduce students to concepts surrounding the understanding and management of rope rescue incidents.

Instructor Directions

1. Direct students to read the “You Are the Rescuer” scenario found at the beginning of Chapter 4 (p. 50).

2. You may assign students to a partner or a group. Direct them to review the discussion questions at the end of the scenario and prepare a response to each question. Facilitate a class dialogue centered on the discussion questions.

3. You may also assign this as an activity and ask students to turn in their comments on a separate sheet of paper.

Lecture

I. Introduction

A. Review the learning objectives

B. Tasks that can be performed prior to an incident occurring:

1. Hazard analysis

2. Rescuer training

3. Preplanning specific incident types

C. Advanced preparation and immediate implementation equate to positive incident outcomes

II. Preplanning

A. Written preplans allow for advantages:

1. Identify hazards in the jurisdiction.

2. Specify required rescue capabilities.

3. Establish operational procedures for rescue tasks.

B. Advantages of formal documentation:

1. Reference for consistent training of new personnel

2. Eliminates shortcomings of assuming team members know how to accomplish a task

C. Written preplans may show compliance with regulations and assist with documentation in liability cases.

D. Well-written plans provide framework to adapt operational responses to specific incidents.

E. Incident action plan (IAP) with preplan provides reference points for multi-agency responses for:

1. Common goals

2. Intentions for the rescue

3. Roles of the rescuers

4. Incident specific responsibilities

F. IAPs developed during the response cover more incident specific topics than those in the preplan.

G. Preplans are useful to develop an IAP.

1. Should provide insight and consistency without specificity

a. Being too specific may limit its application.

2. Cover key concepts like mandatory safety practices

H. Key items from a preplan when preparing an IAP:

1. Jurisdictional and operational responsibilities for rescue

a. External resources with specialized capabilities and how to reach them

b. Radio frequency information

2. Incident type and location hazard documentation

a. Maps of known hazards

b. Local municipal and business operations

c. Site-specific known hazards

3. Standard rescue operations protocol

a. Activating appropriate resources

b. Operational guidelines for different types of rescues

4. Establish air ambulance

a. Landing zones

b. Coordinates

c. Known aerial hazards

5. Incident review procedure

III. Initial Response

A. Incident-specific IAP forms when responders arrive on scene

1. May not be the rescuers

2. Should be awareness-level responders

1. Recognize need for rope rescue.
2. Identify needed resources for rope rescue.
3. Activate emergency response system.
4. Site control and scene management
5. Recognize hazards and mitigations.
6. Identify and use needed PPE.

B. Initial responders must recognize the need for a rope rescue response.

1. Be alert to cues indicating the need for rope rescue.

1. Potential fall hazards
2. Previous incidents at location
3. Activity subject was engaging in
4. Potential for the subject or rescuer to fall from height

2. Bystanders may not be aware of the need for rope rescue.

3. Rope rescue should be initiated when subject or rescuer has potential to fall.

4. Untrained personnel should be kept from entering the hazard area.

1. Initial responders should cordon off area until correct responders and equipment arrive.
2. Awareness-level should size up scene to determine correct response.
3. Gather information from responsible party.
4. Activate emergency response system and establish command.
5. Provide safety to rescuers and bystanders.

IV. Activate the Emergency Response System

A. First responders assist rope rescuers are adequately prepared for the environment at the incident.

B. Activating emergency response is generally when dispatch is contacted.

1. Resources may come from:

a. Within the agency

b. Aid agreements with neighboring agencies

c. From the private sector

2. Situations where additional external resources should be considered:

a. Nighttime car-over-the-edge incidents

i. For extra lighting

b. Utilities incidents

ii. When power shut-off is needed

c. Landslides or excavations requiring heavy equipment

d. Collapse incidents requiring shoring and supplies

e. Tower rescue

i. Owner input needed for structure or safety issues

f. Extended duration

i. Food and sanitation needed for rehabilitation

g. Farm or machinery

i. Chemical or engulfment hazards may exist.

V. Command Structure

A. *National Incident Management Systems (NIMS)* provides a national incident management capability framework scalable and applicable to most incidents.

1. Best practices applicable to all levels of government, private sector, tribes, and non-governmental organizations

B. NIMS three guiding principles:

1. Flexibility

2. Standardization

3. Unity of effort

C. Enables organizations to better support one another while maintaining respective authorities

D. NIMS three distinct components

1. Resource management

a. Systemic approach toward managing resources both before and during an incident

b. AHJ is primary control point for determining necessary qualifications required for responders.

c. AHJ may be a municipal agency or private sector organization.

2. Command and coordination

a. Leadership roles, processes, and recommended organizational structures

b. Explains how structures interact to manage incidents

c. Multiagency Coordination Group (MAC) with incident command systems used at the local level fall in this category.

3. Communication and information management

a. Ongoing resources, systems, and methods that ensure personnel have information to make and communicate decisions

E. *Incident command system* is the systemic approach used for on-scene management of incidents.

F. ICS set by first-arriving responders with jurisdictional authority to manage operations

1. Becomes the first *Incident Commander (IC)*

G. The IC may be relieved by an equally or more qualified responder.

H. IC should establish a command point where:

1. Clear radio communication

2. Maintain accountability

3. Access to available resources

4. Observe rescue operations

a. If observation of full operation is not possible, may be substituted by other command staff

I. *Span of control –* a ratio ofone supervisor to five subordinates is recommended

1. Actual distribution may vary depending on circumstances and need.

J. Take care that no one person is tasked beyond their ability to manage and supervise.

K. Five major functional areas within the ICS:

1. Command

2. Operations

3. Planning

4. Logistics

5. Finance/Administration

L. As a scene expands, those roles may be assigned to new “chiefs.”

1. Collectively known as the *General Staff*

2. Distinctive helmet tags/vests may be used to identify.

3. Assignments should also be identified on radio.

M. Planning gathers and analyzes operational information and shares situational awareness.

N. Operations is responsible for executing tactics.

O. IC is responsible for developing an IAP.

1. Verbal for smaller incidents
2. Written for longer duration incidents
3. Establishes the overall strategy and assigns tactics for the incident
4. Constantly evolving as new information arises

P. An advantage to the ICS framework is its flexibility.

1. May be expanded or contracted depending on the size of the incident
2. Important for when the scene grows and diminishes over time
3. Adaptive to include span of control during the incident

Q. ICS for rescue operations permits:

1. Efficient use of resources
2. Personnel accountability
3. Promotes improved mutual aid response

R. Multiagency operations

1. Utilizes agency liaisons
2. Unified command practices
3. Emergency operations centers (EOCs) to meld leadership and develop coordinated strategies

S. *Agency liaisons* act as points of contact for the AHJ when working with other jurisdictions.

1. Participates in planning meetings, monitors resources, transmits objectives, provides agency specific demobilization information

T. *Unified command* is when leadership for multiple agencies work together to form an integrated, unified command team.

1. Each agency assigns an IC to work with ICs from all other responding agencies.

2. Work together for a common set of objectives and strategies

U. *Emergency operation centers (EOCs) are* physical locations where staff from multiple agencies assemble to support incident command.

V. Three established positions that function as additional command staff:

1. *Safety officer*

a. Should be assigned as soon as it is practical

b. Monitors all operational safety throughout the incident

2. *Public information officer (PIO)*

a. Gathers, verifies, coordinates, disseminates the right message to the right people at the right time

b. May target bystanders, agency representatives, or media

c. *Liaison officer*

a. Activated when operations include other organizations or agencies

b. Acts as a point of contact

c. Maintains awareness of present status, anticipating next steps and potential challenges and needs

VI. Site Control and Scene Management

A. *Site control* establishes and maintains control of the scene and perimeter areas.

* 1. Identify and mark a controlled hazard zone preserves safety of the subject, and bystanders
  2. Can by mitigated with law enforcement, if available
  3. Should extend beyond subject and any identified hazards
  4. May be marked with tape, rope, cones, markers

B. Accepted criteria for hazard zones:

* 1. Hot zone: 100 feet for critical functions
  2. Warm zone: 200 feet for support functions
  3. Cold zone: 300 feet for command and control
  4. Distances may vary by severity of incident and scene size

C. Scene management is important and ongoing throughout the incident.

* 1. Safety measures should be determined per the incident.
  2. Control from the elements, heavy traffic, heat from lighting as some examples
  3. Accountability of personnel is needed throughout the incident.
  4. Need for evacuation should be considered and implemented if needed.

1. May only be needed when additional hazards may be present
2. When present, all responders should be briefed on evacuation protocols.

D. LCES (lookouts, communications, escape routes, and safe zones) should be used in all training and emergency evolutions.

E. Preestablished signals set by FEMA and Urban Search and Rescue may be used:

* 1. Evacuate – three short blasts (1 second each)
  2. Cease operations – one long blast (3 seconds long)
  3. Resume operations – one long and one short blast

VII. Recognize and Mitigate Hazards

A. Control and limit access to the rescue site.

B. Awareness-level rescuers are recommended to stay away from hazards and keep others from hazards.

C. Higher levels should use methods and skills in accordance with level and hazards encountered.

D. Effective management of hazards at the awareness level influences the overall outcome of the incident.

E. Vigilance at every level will keep rescuers adequately protected.

VIII. Personal Protective Equipment

A. Awareness-level rescuers should be familiar with PPE to assist with what should and should not be used during a rope rescue.

B. Environment dictates what PPE is appropriate for rope rescue.

C. Basic PPE for awareness-level rescuers:

1. Appropriate clothing

* + 1. Provide adequate physical protection
    2. Should not present undue thermal hazards
    3. Not restrictive, but not baggy enough to get caught in equipment

2. Footwear

a. Fit securely

b. Protect against hazards

c. Sturdy sole

d. Fire ground boots are not well suited for rope rescue operations.

3. Helmet appropriate for vertical work

a. Protect from impact and dropped objects but not heavy

b. Fit securely

c. Fire helmets generally unsuited for rope rescue

4. Gloves

a. Protects against abrasion and rope burn

b. Multiple layers across the palm, lighter coverage on fingers for dexterity

c. *Body substance isolation* should be used when near subject (when needed).

5. Eye protection

a. Should be appropriate to the environment

b. Should provide adequate BSI when needed

IX. Rope Rescue Resources

A. A clear understanding of NFPA’s guidelines for responder capabilities in rope rescue is needed.

1. Awareness level

a. Prevent further harm

b. Initiate response at a level to which they are trained and prepared

c. Typically a support role

2. Operations level

a. Perform rigging for the movement of rescuers or subjects from one stable environment to another.

i. “Stable environment” – conditions where rescuer performs patient care or related tasks on the ground or supported structure

b. Ability to reach the subject by conventional means

i. Stairways, ladders, trails…

c. Employ rope rescue techniques to remove subject from environment.

d. Limiting rope rescue techniques to the movement of nonambulatory subjects

e. Establish anchorage and perform lowering and raising operations.

3. Technician level

a. Rescuers need to work independently to perform rescue-related tasks while suspended by a rope system.

i. May include rescues while clinging to natural or manmade features or suspended by rope

ii. May require rescuers to provide their own protection to access subject

1. Includes lead climbing and work positioning

iii. Work in the vertical environment while suspended with little immediate support

b. Capable of managing multiple concurrent hazards

i. Subjects in emotional or physical crisis

ii. Horizontal movement of suspended loads using track lines and highlines

iii. Must be adept to all of the skills in the operations level as well as additional needs of the jurisdiction

X. Incident Action Plan

A. The collective plan generated by the IC

1. Does not need to be written down for small incidents

2. Written helps to ensure continuity of information when multiple agencies are involved

3. Written is essential when incident extends to multiple operational periods

B. IAPs include:

1. Objectives for the operational periods

2. Plans to support objectives with available resources

3. A comprehensive list of tactics, resources, and support needed to accomplish the goal

C. FEMA created a range of forms available to assist in writing an IAP.

D. IAP is a “living” document and should change as more information is collected during the course of the incident.

E. FEMA has developed a mnemonic called the *Planning P* to assist in a consistent planning process.

F. Each operational period begins with an *operational period briefing.*

1. Command and general staff present incident objectives

2. Review current situation

3. Share information related to communications or safety

G. *Incident planning forms*

1. Created by FEMA with input from emergency response organizations

2. Assists in implementing ICS, creating IAPs, and documenting progression

3. Best used by those with adequate training or experience with ICS concepts

4. Standardized ICS forms by FEMA promote consistency in management and documentation of incidents

a. Facilitates effective use of mutual aid

H. All IAPs are meant to assist in enabling rescues, not overshadow them.

I. LAST mnemonic details the phases search and rescue incidents

1. Locate

* + 1. Easy when subject is in plain sight
    2. Extensive search may be needed.
    3. May occur in any environment
    4. Rescuers should be competent in the environment they will be working.
    5. Awareness-level may be used here if it is within their skillset.

2. Access

* + 1. Next priority after locating the subject
    2. May be simple or complex depending on the location
    3. When special tools or equipment are required, care must be taken to not create additional hazards for the subject or rescuers.
    4. Accessing rescuers should proceed cautiously and in harmony, while remaining rescuers prepare for the next phase.

3. Stabilize

* + 1. First priority is preventing further harm to subject.
    2. May be securing them from a fall, removing them from water, isolating from other hazards
    3. Once secured, medical and physical needs may be tended to.

4. Transport

a. Final step including all movement of the subject

b. May be as easy as loading into a transport vehicle or complex as technical evacuation

5. Entire LAST process may take less than an hour or multiple operational periods.

a. Operational periods thought of as 8-hour periods

XI. After Action Review

A. Review process following any incident, including training.

B. Effective debriefing helps to:

1. Identify and affirm good practices

2. Evaluate operational efficiency

3. Identify opportunities

4. Maintain team and individual focus

5. Motivate rescuers toward self-improvement

6. Prepare for the next response

C. Good debriefing consists of two parts:

1. Immediate *hot debrief*

2. *Structured debrief* that may occur later

D. Hot debrief

* 1. Should be conducted on every incident
  2. Should include all individuals and agencies involved
  3. Immediate initiation allows for the operation to be fresh in everyone’s mind.
  4. Should focus on *What* and not *Who*
  5. Should address:

a. What was the mission

b. How was it achieved

c. Where could improvement have been made

E. Structured debrief

* 1. Occurs when leadership observes learning points that require further review
  2. May be safety related or room for improvement
  3. Require preparation and delve into specific issues
  4. Should be performed as soon as practical
  5. When information is sensitive or involves a serious safety infraction, invite a third-party facilitator.

a. Should not be used to air grievances

b. Should not be used to push an agenda

6. Goal is to address specific concerns and how to mitigate them.

F. *Threat and Error Management System (TEMS)* is used during debriefs to keep attention focused on critical issues.

1. Threats and errors are part of every operation.

a. Potentially generate unsafe states and undesired outcomes

b. Efforts are directed to recognize and manage these.

2. Components of TEMS include:

a. Threats:

i. Potential hazards beyond the influence of personnel

ii. May include environmental hazards, traffic, bystanders

b. Errors:

i. Actions taken by rescuers that may result in undesired outcomes

ii. May include deviation from protocol, inappropriate reactions, or failure to perform as expected

c. Undesired states:

i. Operational conditions where safety is reduced or compromised

ii. Often occurs just before an incident or accident

iii. Usually the result of ineffective threat or error management

G. *Five Why’s* help identify the cause of a problem so appropriate corrective action can be taken

1. Created by Taichi Ohno – Toyota executive and architect of the Toyota Production System

2. Encouraged to ask “why” five times for every issue

3. Good technique to ensure you get to the root of the issue

H. Five Why example:

1. Error – The rescue pack was missing.

a. Why? The pack was not resupplied after the last incident.

b. Why? The pack was left in the vehicle.

c. Why? There is no formal equipment check-in after an incident.

d. Why? Not necessary in the past

e. Why? The team was smaller and the informal process was adequate.

I. Use of the Five Why’s helps depersonalize the debrief, allowing to not focus on opinion and preferences.

XII. **Summary**

** A well-written preplan is a useful tool for guiding the development of an incident action plan (IAP).**

** The incident-specific IAP begins to form with the first responders to arrive at an incident.**

** Information provided by the awareness-level rescuer in the initial phases of a response helps to ensure that resources deployed to a rope rescue incident are adequately prepared and adept in functioning in the environment where the incident occurred.**

** Methods for activating the appropriate emergency response system may vary by jurisdiction, but generally involve reaching out to dispatch to request appropriate resources.**

** The command structure reflects the three principles of the National Incident Management System (NIMS): flexibility, standardization, and unity of effort.**

** The incident command system (ICS) is able to adapt to match the scope of an emergency, from single subject to multiple subjects.**

** One of the most useful things awareness-level rescuers can do is to establish and maintain control of the scene and perimeter areas.**

** Identifying and marking a controlled hazard zone helps to preserve safety of the subject, and can also keep well-intentioned bystanders from being exposed to hazards.**

** Controlling and limiting access to the rescue site and traffic around it is a big part of hazard mitigation and for the awareness-level rescuer, the primary recommended method for hazard mitigation is to stay away from hazards and keep others from them as well.**

** Personal protective equipment (PPE) used for rope rescue operations will differ from that required in a fire-ground environment unless the rope rescue is occurring in the fire-ground environment. In most cases, environment dictates what is appropriate PPE for rope rescue.**

** Awareness-level rescuers may be incorporated into incident response, but only at the level to which they are adequately trained and prepared.**

** Operations-level rescuers are able to perform rigging and related operations for the movement of rescuers or the subject from one stable location to another.**

** A technician-level response is required where rescuers need to work independently to perform a rescue related task while suspended or protected by a rope system.**

** In the IAP, incident objectives for a given operational period are stated and a plan is formed to support these objectives using available resources.**

** Every incident (and training) should be followed by a review process, whether it be a concise hot debrief or a detailed structured debrief.**

Post-lecture

I. After-Action Review

Individual/Small-Group Activity/Discussion

On Scene

This activity is designed to help the student understanding how to approach a fire investigation. This activity incorporates both critical thinking and the application of basic trench rescue knowledge.

Purpose

To allow students an opportunity to develop responses to critical thinking questions.

Instructor Directions

1. Direct students to read the “On Scene” questions located in the After-Action Review section at the end of Chapter 4 (p. 63).

2. Direct students to read and individually answer the discussion questions. Allow approximately 10 minutes for this part of the activity. Facilitate a class review and discussion of the answers, allowing students to correct responses as needed.

3. You may also assign these as individual activities and ask students to turn in their comments on a separate piece of paper.

Answers

1. What sorts of functional capabilities should a responder have who is trained at the awareness level in rope rescue?

They should have the ability to recognize the need for a rope rescue and identify and activate appropriate resources. On scene, they should be capable of controlling the scene, recognize and mitigate general hazards, and use appropriate personal protective equipment (PPE).

**2.** What is the relationship between a preplan and an IAP?

A preplan is not incident-specific, but is created in advance to anticipate what kinds of incidents might be likely in a given area, and to prepare resources before an incident occurs. An IAP is incident specific, and forms as responders arrive and begin to form a plan relative to the event that is taking place at that time.

**3.** Describe the parts of a Planning P.

The vertical base of the P occurs only at the outset of an incident response, and includes provisions for initial notification and response, initial briefings, and establishment of unified command (if applicable). The circular part of the P provides guidance for ongoing updates to objectives, strategies, and tactics, updating the incident action plan, and executing and assessing progress. The cycle covered by the O part of the P (sometimes called an “operational O”) repeats with each new operational period until the incident is resolved.

**4.** What is the Incident Command System, and why is it important?

ICS is a systematic approach to on-scene management of an incident, commencing with the first-arriving emergency re­sponder with jurisdictional authority and building a consistent framework to include the five functional areas of Command, Operations, Planning, Logistics, and Finance/Administration.

**5.** What does the mnemonic LAST stand for?

Locate, Access, Stabilize, Transport

**6.** How does the TEMS system contribute to safety?

The Threat Error Management System (TEMS) helps to keep attention focused on critical issues during incident debrief by directing efforts toward recognizing and managing potential hazards that might be outside the control of responders, reviewing actions taken (or not taken) by personnel during the response, and analyzing the resulting potential for unsafe states and undesired outcomes.

II. Lesson Review

Discussion

Note: Facilitate the review of this lesson’s major topics using the review questions as direct questions or slides. Answers are found throughout this lesson plan.

1. What are advantages of a written preplan and formal documentation? (Lecture II A-D)

2. What are some key items from a preplan that are useful in creating an IAP? (Lecture II F – H)

3. When does an IAP develop and who initiates its development? (Lecture III A,B)

4. When the emergency response system is activated, where may resources come from and when may you need additional resources? (Lecture IV B)

5. What are the three guiding principles and three components of NIMS? (Lecture V B-D)

6. What is the goal of site control? (Lecture VI A)

7. What are some examples of basic PPE for the awareness-level rescuer? (Lecture VIII C)

8. What are some capabilities of each level of rescuer on a rope rescue? (Lecture IX A)

9. What is an IAP and what does it include? (Lecture X A-D)

10. How does an effective debriefing help crews after an incident? (Lecture XI B,C)

III. Assignments

Lecture

A. Advise students to review materials for a quiz (determine the date/time).

B. Direct students to read the next chapter in *Rope Rescue, Fifth Edition*, as listed in your syllabus (or reading assignment sheet) to prepare for the next class session.