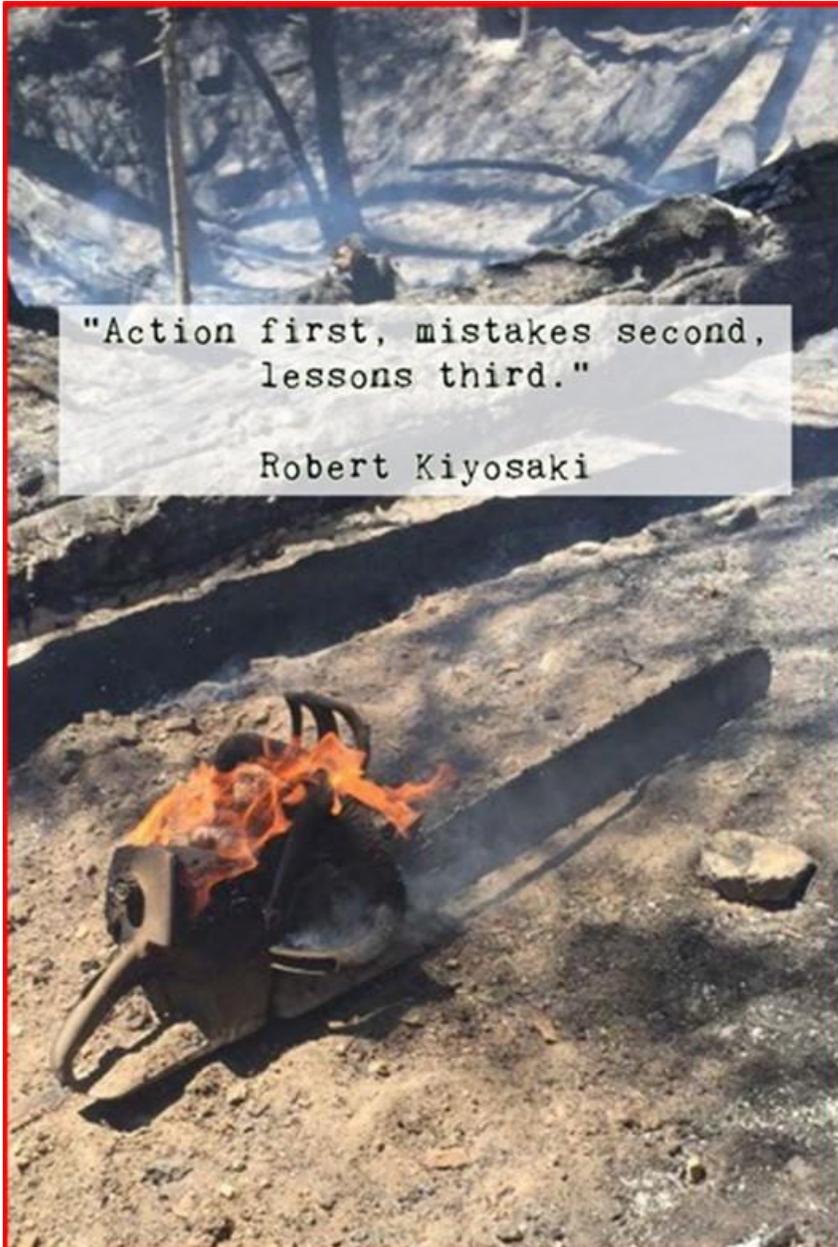


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# 2016 Incident Review Summary

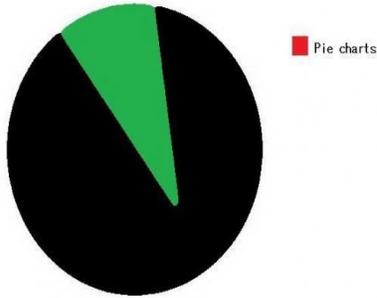


"Action first, mistakes second,  
lessons third."

Robert Kiyosaki

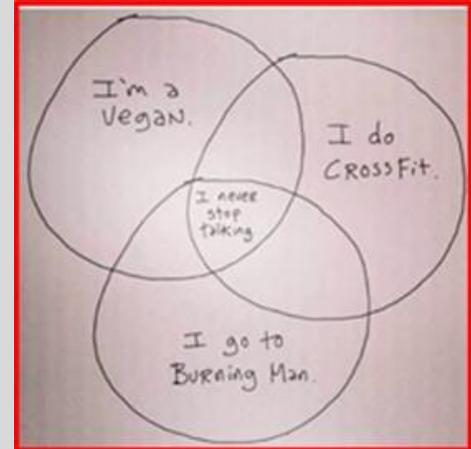


Things I don't understand



*"Statistics are no substitution for judgement."*

**Henry Clay**  
American lawyer,  
statesman, and skilled  
orator



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**Use the content in this document to guide your annual Fire Refresher.**

### Instructors

The exercises require some preparation – pulling up videos and some printing.

**Be Prepared.**

**We think the numbers, topics, exercises and questions included in this document can help you translate the lessons from last season into learning for future operations.**

## 1. Introduction

The information in this report comes from wildland fire incidents—from various agencies—submitted to and gathered by the Wildland Fire Lessons Learned Center (LLC) in 2016. The primary source of data is accident reports (FLA, RLS, SAI, etc.). Most of these reports have been posted to the LCC's [Incident Reviews Database](#). SAFENETs and other data sources have been included when no actual report could be located. The total data set included 108 incidents.

### What Should You Do with this Report?

Our intent is for this report to inform general training and dialogue—very specifically, annual refresher training.

What is the intent of your refresher? Is it to “wipe the cobwebs off.” Just a brush-up on how to start the pump and advance the hose lay? Is it a venue to update everyone on new policy? Is it intended to reduce accidents and injuries? Obviously, you have to answer these questions for yourself.

Whatever you decide, we think the numbers, topics, exercises and questions included in this document can help you translate the lessons from last season into learning for future operations.



**Throughout this report, this Action Icon identifies training curriculum related to the topic. If you are an instructor, you will need to look at each exercise ahead of time to pull up videos or to print reading material.**

**Use these exercises for training days.**

## 2. Dead On

### **FATALITIES**

*Last year we predicted that between 8 and 35 firefighters would die in 2016.*

*The number was 15.*

We also predicted this: *“It will likely include some heart attacks, some vehicle accidents, getting hit by trees, and an entrapment or two. That’s just what the numbers say.”*

### **2016 Fatalities**

**Vehicle Accidents: 7**

**Medical Emergency: 4**

**Hit by Tree: 2**

**Hit by Rock: 1**

**Fall: 1**

**So What?**



### Exercise (30 minutes)

Write down your answers to these questions: (5 mins)

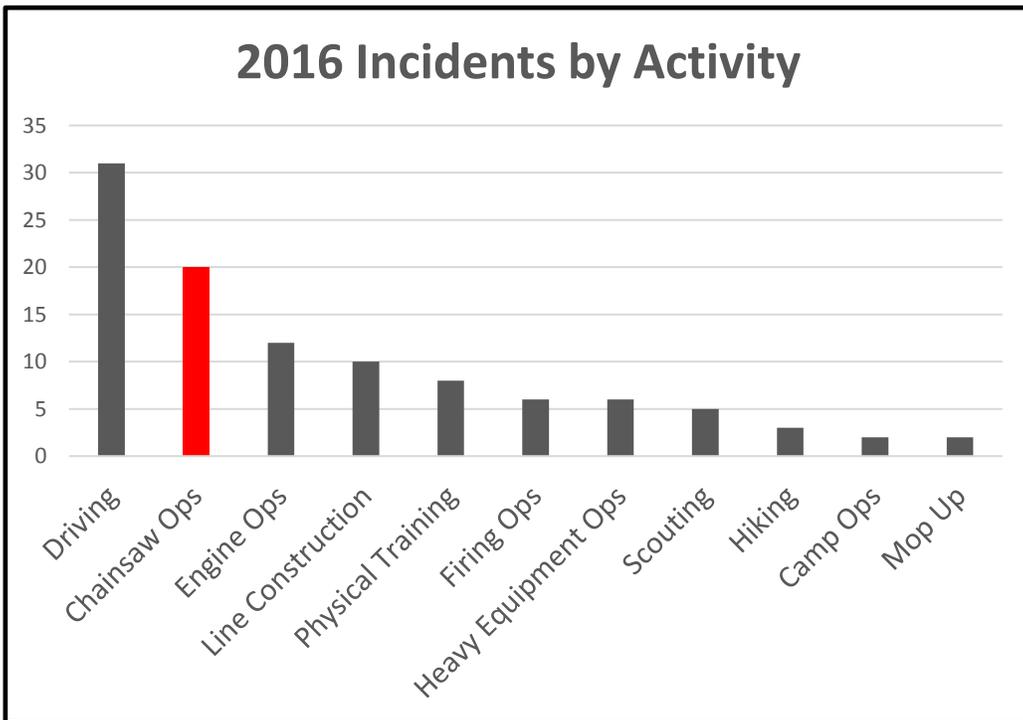
- Based on how I spend my time supporting fires, if I were to die on assignment it would most likely be from \_\_\_\_\_.
- Five things I have no control over that could take my life on a fire assignment include: \_\_\_\_\_
- Five things I do have control over that could take my life on a fire assignment include: \_\_\_\_\_
- If one of my coworkers dies on a fire assignment, my top three concerns will be: \_\_\_\_\_

Discuss this exercise in your groups and with your instructors. (25 minutes)

## 3. What We Do and What Happens

### Activity

This chart depicts what people were *doing* when something happened that triggered a report. It tends to involve activities we spend a lot of time doing. What makes an activity "**dangerous**"?



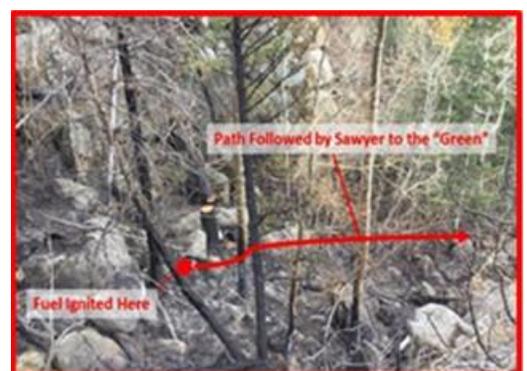
### Exercise (30 minutes)

Listen to this podcast: [Chainsaws and Fire Season 2016](#) (20 mins)

In small groups discuss the following questions: (10 mins)

Is operating a chainsaw more dangerous than it has been in the past? Explain.

Why are Driving and Saw Ops the top two activities that result in incident reports?

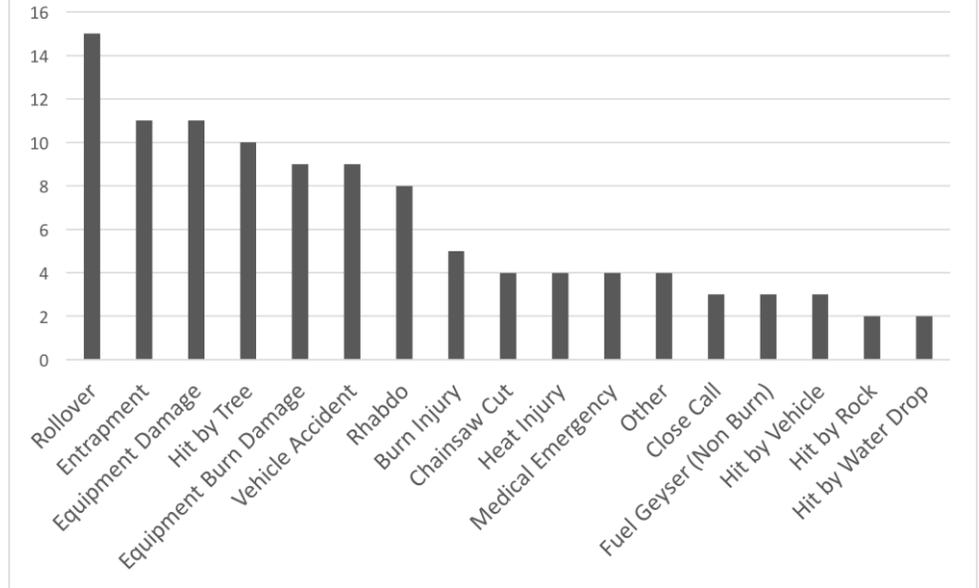


## Outcome

What was the *outcome*? This graph tends to consist of outcomes that normally get reported. What are some outcomes we don't normally write reports on?



### 2016 Incidents by Outcome - "Split"



### Lumper or Splitter?

**How do you like your data?**

Both graphs use the same incidents organized different ways.

Does how it's portrayed matter?

How will you decide what to pay attention to?

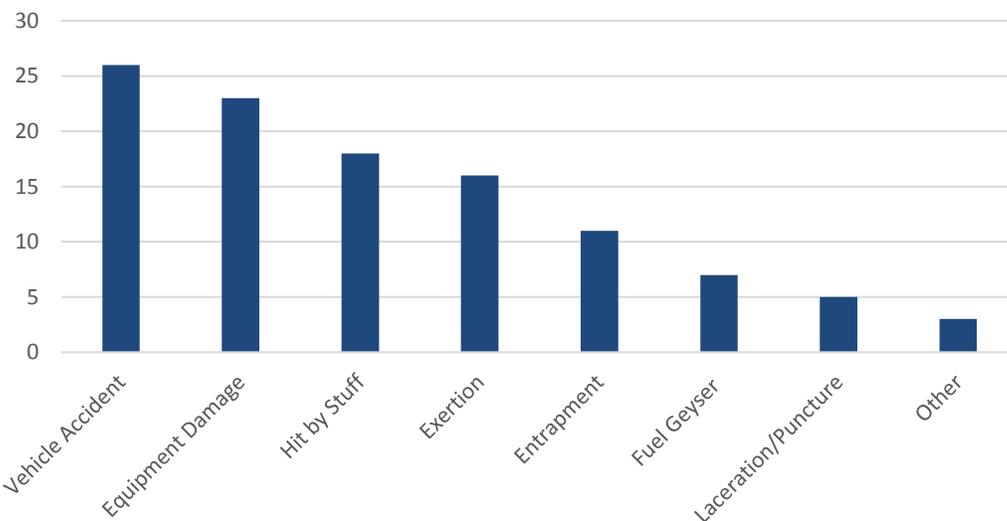


### Exercise (40 minutes)

Look closely at both graphs. Identify all the things we get "Hit by."

- In small groups, trade stories about getting "hit by" or "nearly getting hit by" stuff. **(20 mins)**
- In the large group, report out on how many stories emerged in your group. **(10 mins)**
- Based on the numbers and the stories, identify one lesson related to:
  - Avoiding getting hit.
  - Planning for someone getting hit. **(10 mins)**

### 2016 Incident by Outcome - "Lumped"



## 4. “We Got Cut Off” (Entrapment?)

### Common occurrence or rare event?

Nobody died by fire entrapment this season. Multiple firefighters survived entrapments. Others got “cut off” or “took a little heat”. Here are a few highlights:



**When Fire Shelters Work**  
Mop up. Fire whirl. Escape route cut off. Squad leader directs everyone to previously burned area and orders shelter deployment. [Cedar Fire Entrapment](#)

**Structure Protection**  
“Two Type 3 Engines were overrun by the fast-moving fire at a residence—where two civilians had remained on the property. Firefighters had asked the residents to leave multiple times but they refused.” [Blue Cut IA Structure Protection](#)



**Exercise (50 minutes)**

**Part 1: (25 mins)**  
Write down how you finish this statement:  
Entrapments are \_\_\_\_\_.

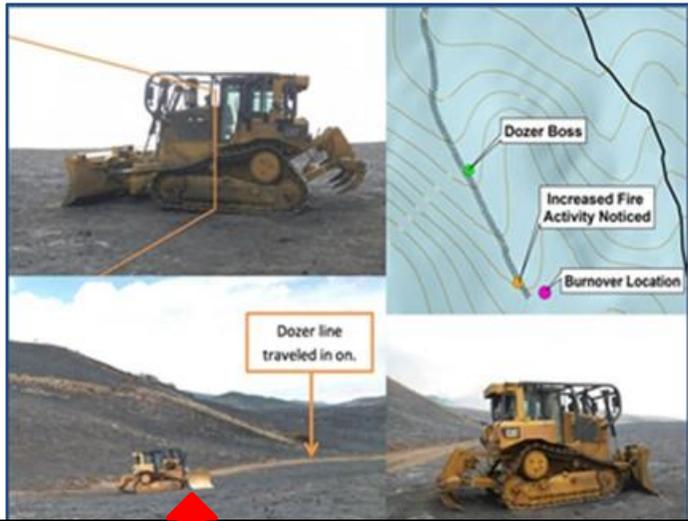
Watch this video: [Holloway Fire](#) (12 mins)  
Instructor: Pick three individuals to read aloud their answers to “Entrapments are \_\_\_\_\_.”

After watching the video, would anyone change their statement?

Discuss as a class what Chrissy’s story means.

**Part 2: (25 mins)**  
Read this short blog post: [Entrapments Are...](#) (5 mins)  
In groups, discuss these questions: (20 mins)

- Share your “Close Call” stories – are any entrapments?
- Can LCES fail?
- Is there a social stigma with entrapment? Explain.



**Heavy Equipment**  
The DZIA trainee was following a two track road up the draw to the saddle for quicker progress, and for easier access for engines to mop up. When the wind direction changed, the DZIA trainee did not have enough time to retreat into the black before the flame front reached him. [Sand Ledges Dozer](#)

## 5. Repeats

If a type of accident happens again and again, what does it mean? It's easy to blame our workforce for "not learning the lesson"—but how well is that working? Maybe the combination of certain conditions and operations will produce the same result time and time again. So what is it that we can change?



2014



2015



2016

### Drip Torch Leg Burn

By design, the hot end of a torch is near your leg. Liquid leaks and drips. Rough terrain and brush will trip you up and "grab" stuff. You are flinging a can of gas around flames. Can we expect a burn or two?

### Fuel Geysers

Fuel becomes superheated and pressurized. Opening a partially filled pressurized container can result in a geyser. It keeps surprising us.

- Expect a geyser.
- Cover the cap.



2014



2015



2016



2014 Pg. 3



2015



2016

### Heavy Equipment Rollover

We often push equipment limits. There is often perceived urgency. What is desired and what is possible are not always clear to those involved. Take extra time to discuss intent.

### Exercise (40 minutes)

- Each group pick one of the following topics above (Leg Burns, Fuel Geysers, Equipment Rollover).
- Discuss all the CONDITIONS around these events (slope, pressurized tank, flame near legs, etc.).
- Is this type of incident just part of the "price of doing business"? Individually, decide on Yes or No. **(20 mins)**
- Group-up by topic discussed (all Fuel Geysers discussers in one spot).
- Divide each group by the answer to the "price of business" question – Yes on one side, No on the other.
- Each Yes and No group identify three points supporting their position. **(10 mins)**
- Report out to larger group. **(5 mins)**



## 6. The Lessons

This season we gathered information on well over 100 incidents. Most of these incidents have a report. In those reports are lessons related to the incident. This section provides some of those lessons. **Remember, these are only lessons—they are not learned until you put them to use!**



### ***How hard should Day One PT be?***

Acknowledging that stress and anxiety affect physiology, there was discussion around the mental and physical intensity of Day One. Other programs have also experienced Rhabdo cases early on in the critical training period. One such program shifted their “hard day” from Day One to later in the week and the occurrence of Rhabdo has sharply declined.

[Day One PT Rhabdo](#)

### ***Fuel can ignite away from flames***

“Even if you get away from the fire, the fuel from a geyser may still ignite. Performing other saw maintenance before fueling, such as cleaning the air filter or sharpening the chain, is one way to allow more time for the saw to cool.”

[Pioneer Fire Fuel Geyser Burn Injury](#)

### ***Carry an “Israeli Bandage”***

“In crew discussion after the incident, it was noted that the effectiveness of the Israeli Bandage, utilized in this situation from the sawyer’s pack, should be shared by all members of the crew—not just primarily limited to sawyers.”

The Israeli Bandage is a specially designed first aid device that is used to stop bleeding from hemorrhagic wounds caused by traumatic injuries in pre-hospital emergency situations.

[Broadway Fire Chainsaw Cut](#)



[Deer Creek Fire Engine Damage](#)

### ***Hung tree = Different complexity***

“An average free-standing “B” caliber tree begins as a standard felling operation. But in the process of felling, this tree becomes hung/suspended with compound binds, at high-angle, with undetected limb lock. It is now clearly an advanced C “bucking” operation that has a plethora of unknowns.

[Gap Fire Tree Strike](#)

### ***Policy in your pocket***

Having an electronic copy of policy manuals on a mobile device proved to be invaluable in determining the correct response. Since the accident, the other Burn Bosses on the District as well as the qualified EMT have added relevant policy manuals to their mobile devices. [Rock Creek RX Burn Injury](#)



## Diversify your investments

Assign Emergency Medical Providers (EMPs) on the crew to separate squads. By spreading EMPs among the crew, when this accident occurred there were EMPs who were not involved in the initial incident and were available to provide medical care.

The Forest hosted a “Taking Care of Our Own” training and established protocols for medical incidents. On this incident, an IC, Hospital Liaison, Safety Officer, and Public Information Officer responded immediately and arrived at the hospital shortly after the patients arrived.

### [Colorado Vehicle Collision](#)



### Oaks are not conifers

“The ability to manipulate the lay of conifers against their natural lean may not translate adequately to oak trees because of the increased difficulty of gaging the natural lean due to the complex limb structure.”

### [Remote Area Falling Accident](#)

### When operating an ATV . . .

Just because you have done something similar many times doesn't mean this time will have the same outcome. Don't let your past experience cloud your current judgement.

Don't hesitate to step away and let equipment sustain damage—better it than you.

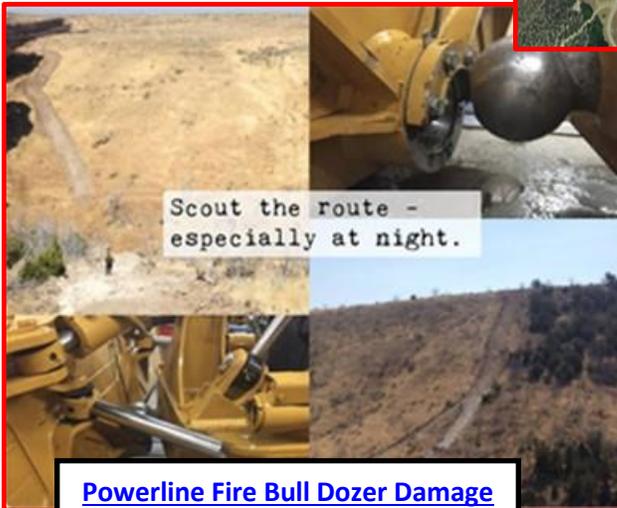
### [Soberanes Fire ATV Incident](#)

### Drill on the plan not working

Point protection in front of a fast moving fire is a common occurrence.

- Drill on the plan not working.

### [Mormon Rocks Fire Station Defense](#)



### [Powerline Fire Bull Dozer Damage](#)

### Have an Advocate – Have the Info

It is extremely helpful to have a Patient Advocate talk to doctors about the possibility of Rhabdomyolysis and to ask that they test for it.

The importance of Rhabdomyolysis [Information Sheet for Medical Providers](#) cannot be overstated. This information sheet should be part of every Crew Boss's kit. Many may not be so lucky as to have medical personnel at their community hospital that are familiar with Exertional Rhabdomyolysis.

### [Nez-Pearce Clearwater Rhabdomyolysis](#)

### Exercise (30 minutes)

Look through all of the lessons on pages 8 and 9.

#### Individually: (10 mins)

- Identify and prioritize the *three* that are most important to you.
- Write down two steps you can take to implement/practice your chosen lessons.

#### Self-Organize: (20 mins)

- Move around the room and find everyone who shares your top priority lesson.
- Discuss why you chose the lesson and share your implementation steps.
- Find someone with a different priority – share information on your plan.



## 7. “That Guy,” Uncle Rhabdo, and the Grey Area



### P.T. – Potential Trauma?

Every year we get a handful of reports on incidents during Physical Training – that’s normal. The surprising piece this year was the similarity of the events reported. We only had eight incidents in the PT category, but check this out:

- 6 Rhabdo
- 2 Heat stroke

**6 of 8** PT Incidents (5 Rhabdo and 1 Heat Stroke) occurred during the **first few days of the crew coming on.**



**These themes emerged:**

### Culture

These reports emphasize the need to speak up if you’re not feeling well. Our culture tends to value “suck it up” over “speak up.” If you are new to the crew it’s even more complex. What is the right balance?

Is the Pack Test an adequate measure of the job you do? How do we know if our PT program is enough—or not enough? Who is responsible?

### Know Rhabdo

People die from Rhabdo. It’s impossible to field diagnose. If you suspect Rhabdo—it’s urgent. Firefighters are at an elevated risk. Some health care professionals may not be aware of this.

- [Study up.](#)
- Talk about it.
- Identify a Patient Advocate.

### Intentional Design

What is the purpose of the Crew PT program? Is it preparation? Is it a test? Is it a crew cohesion tool?

Whatever it is, be very intentional with the design. Get on the same page with your supervisors. Take every precaution for emergencies.

- Collect detailed emergency contact info first.
- Do basic emergency protocol training before PT.
- Have a detailed medical plan and test communication.

### Exercise (30 minutes)

Read this short blog: [Fire Culture \(10 mins\)](#)

In small groups discuss the following questions: **(10 mins)**

- Is the description of fire culture accurate?
- In what ways is this culture beneficial?
- What are some of the downsides?

### **Rhabdo (10 Mins)**

Individually write down 5 things you know about Rhabdomyolysis.

- Share lists in your group.
- Discuss the lists—what is the range of knowledge?
- Do some fact-checking and compile one comprehensive 5-bullet list for the group.

