

# TWO MORE CHAINS

Spring 2011 ▲ Vol. I Issue 1 ▲ Produced and distributed quarterly by the Wildland Fire Lessons Learned Center



## So You Call for a Medivac . . .

**Y**ou are injured out on the fire line. You require advanced medical treatment—that only a hospital can provide. Your injuries could be life threatening.

What happens next?

In the past year, several firefighter injuries—incidents within an incident—have occurred that required emergency medical evacuation (see pages 3, 5, 6). We have gained valuable lessons learned from these events.

For instance, we now know that the following are important fireline considerations:

- The need for more firefighters to be trained and certified as Paramedics and Wilderness EMTs;



Members from two crews form a “conveyor belt” transport system to carry an injured firefighter—hit by a 200-pound boulder who has a femur fracture—to a medivac helicopter landing site. To see the video of this carry-out process, click on this link: <http://www.myfirevideos.net/Default.aspx?VideoID=403>. See incident details on page 6.

- The need for available medical supply caches that include everything from bone splints and backboards to blood clotting materials;
- Agency helicopters with extraction capabilities;
- Clear communication channels with neighboring agencies and emergency service providers; and
- The value of fireline medical evacuation training.

### Dutch Creek Incident Impact

Between 1340 and 1350 hours on July 25, 2008 on the Iron Complex on the Shasta-Trinity National Forest, the following radio transmission comes into the Iron Complex dispatch center:

*“Man Down; Man Down. We need help. Medical emergency. Dozer pad. Broken leg. Bleeding. Drop Point 72 and dozer line. Call 911, we need help.”*

Approximately three hours later, this severely injured firefighter, Andrew “Andy” Palmer, 18—who had been hit by an eight-foot-long by 20-inch diameter section of a sugar pine tree during falling operations on a nearby hazard tree—is loaded into a medivac helicopter.

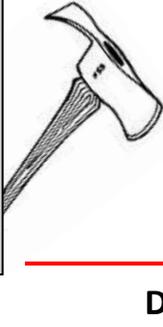
[Continued on Page 5]

### Welcome!

Welcome to the first issue of *Two More Chains*. This quarterly publication is dedicated to sharing information with wildland firefighters. It replaces the Wildland Fire Lessons Learned Center’s previous publication *Scratchline*. For story tips, questions, or comments, please contact: Paul Keller, [pkeller@fs.fed.us](mailto:pkeller@fs.fed.us), 503-622-4861.

### In this Issue:

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- Having trouble with your handheld radio? Page 4
- Is it a lie? The history behind ‘Two More Chains’. Page 7



# GROUND TRUTHS

By Travis Dotson  
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## Digging Through Incident Reviews

In my 15 seasons, I have been delivered to fires by long white school buses, green buggies, a hose hauler, spinning blades, and a silk canopy. I've been on crews that put fires out, crews that don't put fires out, and crews that start fires. I've worn four different uniform colors. *"I been hit and run down and run over and walked on and knocked around and I'm just sittin' here now trying to study up what else I can do to show that woman that I still ain't afraid of hard work."*<sup>1</sup> (Anybody else a Woody Guthrie fan?)

I am now the Fire Management Specialist—also known as “analyst”—at the Wildland Fire Lessons Learned Center (LLC). A large portion of this job is digging through incident reviews that have been submitted to the LLC. My task is to extract tangible nuggets that can be put to use in the field. I often think of myself as a gold miner from back in the day or a dumpster diver in the back alley. (It depends on the day.) The intent is for me to recognize relevant trends or other meaningful morsels of information that might be useful to my fellow dirt throwers.

So here's a few nuggets mined from the 2010 incident reviews submitted to the LLC.

### Watch out for Trees!

Of the reports submitted to the LLC in 2010, 33 percent of the injuries involved being hit by a tree. Of the seven instances of folks being hit by trees, only *one* involved cutting on a tree. All of these injuries were serious, including one fatality—after five months of intensive care.

What's the message here?

The recommendations in the reports revolve around training and awareness. Bottom line is that trees fall in the woods and we spend a lot of time in the woods. There is an additional concern that the current number of hazard trees has increased due to insects, disease, and recent fires.

What should you do? When in new territory, ask about any of these factors being present, then make calculated decisions about risk and exposure regarding the mission. Maybe you don't really need to go down and scout that drainage.

### Simulate Medical Emergencies

Remember when someone was dogging it at practice and the coach yelled *"you'll play like you practice!"* Well, nothing has changed. Of the reports submitted to the LLC in 2010, 62 percent of the injuries required a medical evacuation. As would be expected, there was an obvious difference between those who had practiced evacs and those who had not.

The crews who had trained with medical evac simulations—when faced with the real thing on the fireline—performed in an orderly and comfortable manner, saving precious time. Those who had not practiced wished they had. This holds true for *everyone* involved—including dispatch and administrators.

Do this! If you get hit by a tree, I'm sure you would prefer the folks around you were not at their first rodeo.

### [Coordinate Preseason with Your Local Medical Aircraft](#)

Last season, four out five instances of trying to contact an incoming non-agency medical helicopter resulted in no contact. Four out of five! The one group who did not have this issue had done a preseason orientation with the local medivac helicopter. Pretty simple: Do the homework, set up the meeting, get the information, pass it on.

*"Be the change you want to see in the world."*  
– Mahatma Gandhi

*"You've got to ask yourself one question: 'Do I feel lucky?' Well do ya punk?"* – Clint Eastwood

### What to Ask and What to Practice

So, what I'm saying here is . . .

This season:

- Ask about the presence of hazard trees and think about exposure.
- Practice packaging up your injured brothers and sisters and getting them off the hill.
- Ask what the Emergency Medical Plan is and demand specifics ([Dutch Creek Protocol](#)).

Dig on tool swingers.

<sup>1</sup> *"Talking Hard Work"* words and music by Woody Guthrie © Copyright 1961 (renewed) by Woody Guthrie Publications, Inc.



## Sarah Cuddy



Prineville Interagency Hotshot and Wilderness EMT Sarah Cuddy on the Pyramid Butte Fire.

It is the end of another shift on the Pyramid Butte Fire, burning in rugged wilderness terrain near Mount Jefferson in the Oregon Cascade Mountains. Cooler temperatures have moved into this high elevation location—“it was cold, windy, nasty” a firefighter will later recall. In 20 minutes, two crews, the Prineville and Warm Springs hotshots, will begin hiking back down to the road.

Prineville IHC saw partners Sarah Cuddy and Michael Vinton have been dropping fire-weakened hazard trees. It is too windy to fall their last tree. They are monitoring it, waiting for the winds to knock it over. That’s when they hear it.

“I heard some shouts,” Sarah recalls. “I looked over and saw that somebody was

injured.”

Thirty feet away from her, a member of the Warm Springs IHC—who had been hunkered down trying to stay warm—was suddenly hit from behind by a 400-pound boulder.

Sarah is a trained and certified Wilderness Emergency Medical Technician (EMT). Vinton, her saw partner, is a trained and certified Wilderness First Responder (WFR).

“I immediately went to the patient and assessed him, the scene, and the situation. Vinny [Vinton] took over the radio. I started relaying patient information to him. It was automatic, we immediately fell into our roles—we didn’t even have to discuss it,” explains the 25-year-old University of Oregon Environmental Science and Biology graduate. The two saw partners’ actions and emergency medical operation savvy that day are a reflection of their Prineville IHC’s focus on preparing for these emergency situations. (More on that later.) Among Sarah and Vinny’s first actions is ensuring the injured firefighter is in a safe, secure place.

“He [the injured firefighter] was slow to respond. He was very disoriented and a little confused. He was having trouble seeing, he had double vision. He was complaining of head and back pain,” says Sarah, who, as she talked with the patient, immediately began taking his vital signs—including monitoring his pulse and respiration rate.

### Need to Get Him Out as Fast as Possible

“The only outside sign of injury he had was a bloody nose. But, judging by the mechanism of the injury—where the boulder struck him—we knew there were definitely more injuries that just weren’t visible. I knew immediately that we needed to get him out as fast as possible.”

Sarah, through Vinny on the radio, communicated to their crew that they needed their backboard with special “spider” straps and a cervical collar neck brace—all available within one mile of the injured firefighter. The Prineville IHC carries such advanced medical emergency extraction equipment and supplies—including oxygen as well as OPA airway devices to ensure a patient’s airway is open—in all of their buggies. **[Continued on Page 8]**

**Looking for ‘One of Our Own’ Candidates**

Do you know someone who might make a good candidate for this “One of Our Own” section—a person whose story might be of interest and could benefit other wildland firefighters? Please forward this person’s name and contact info, plus a brief summary of why he or she would be beneficial for this section to: Paul Keller, [pkeller@fs.fed.us](mailto:pkeller@fs.fed.us), 503-622-4861.



## Shop Talk

Photo by John Coil

***“Did you copy ?  
Repeat, Did you copy that ?  
Negative contact . . .”***

### Tips to Improve Radio Coverage with Your Handheld

- Hold the radio vertical, with the antenna straight up—and not bent.
- Don’t speak directly into the mic. Hold it off to one side about two inches. (When you speak directly into the mic, the other end of your transmission hears “wind noise” from your breath.)
  - Hold the radio as high as possible.
- Avoid obstacles between you and who you want to talk to.
- Remember that the radio wave pattern off the antenna is generally straight out the sides—transported out horizontally. Very little energy is transmitted out vertically.
- The worst possible case for a poor transmission is when you use your radio while it is inside your chest harness—talking down into the radio while transmitting. When you do this, you are losing power by not having the antenna in a vertical position. Your body is also absorbing some of the radio waves. And, you are adding background noise to your transmission by speaking into the mic from too far away.



Photo by Eric La Prince

### Communications and Radios Web Page

More fire radio-related information is available on the National Interagency Fire Center’s site:

[http://www.nifc.gov/communications\\_radios.htm](http://www.nifc.gov/communications_radios.htm).

This National Interagency Incident Communications Division web page includes a “Hot Sheet” with up-to-date wildland fire radio updates.

Check it out.

### **Share Some ‘Shop Talk’?**

If you have a subject idea for this column—anything that you feel could benefit other wildland firefighters—please contact: Paul Keller, [pkeller@fs.fed.us](mailto:pkeller@fs.fed.us), 503-622-4861.

[Continued from Page 1]

Forty minutes later, after the medivac helicopter lands at the Redding Airport, Andy is pronounced dead due to loss of blood from a shattered femur and severed blood vessels.

This tragedy, known as the “Dutch Creek Incident” (Drop Point 72 was located on Dutch Creek Road), becomes a significant wake-up call for this country’s wildland fire services.

The July 2009 Dutch Creek Accident Investigation Report identifies several factors that contributed to this fireline fatality. When this accident investigation report is released, National Park Service Director Jon Jarvis states: *“This was a tragic accident and our hearts go out to the Palmer family, his [Andy’s] friends and his colleagues. Our intent in releasing this report is for all of us to learn from this incident in order to help prevent reoccurrences of this type of event in the future. This is how we will honor Andy, by remembering his commitment to self and colleagues. His passing should serve as a constant reminder to honor your fellow employees by watching out for their safety.”*

[http://www.nps.gov/fire/download/fir\\_wil\\_investigation\\_DutchCreek\\_report.pdf](http://www.nps.gov/fire/download/fir_wil_investigation_DutchCreek_report.pdf)

### NWCG Task Team Provides New Emergency Procedures and Protocols

In response to the Dutch Creek Accident Investigation Report, the interagency Accident Review Board recommends eight corrective actions—that address incident medical planning, risk management, and training and qualifications—to be implemented by wildland fire agencies. Six of these recommendations are assigned to the National Wildfire Coordinating Group (NWCG).

In May 2010, the NWCG Dutch Creek Serious Accident Task Team releases its new directives and incident management team protocols and procedures—mitigation measures—that provide direction in three main areas:

- Standardized medical emergency procedures for incident management teams to include in their incident emergency plans.
- Standardized communication center protocols.
- An expanded ICS 206 Medical Plan to include emergency medical procedures that will be reviewed on incidents each operational period at the incident’s planning meeting.

The NWCG memorandum that outlines these recommendations explains that *“incorporating these procedures and protocols into daily operations and practicing the critical elements should result in faster and more effective medical emergency response.”*

<http://www.nwcg.gov/general/memos/nwcg-025-2010.pdf>

### Medical Evacuation Practice and Planning on Actual Incidents

In response to the NWCG Guidance for Dutch Creek Mitigation Measures, many incident management teams are now honing up their emergency medical evacuation capabilities. Last August on the Davis Fire on the Helena National Forest, an emergency medical response *simulation* is conducted during this actual wildfire incident. A comprehensive report about this simulation exercise is available on the LLC’s web site:

[http://www.wildfirelessons.net/documents/Davis\\_EMS\\_Assessment.pdf](http://www.wildfirelessons.net/documents/Davis_EMS_Assessment.pdf).

Last July on the Cow Creek Fire—because any potential ground evacuation could take up to ten hours—special precautionary considerations are implemented. To learn more about this undertaking, a special After Action Review report is available on the LLC’s web site: [http://wildfirelessons.net/documents/Cow\\_Creek\\_Fire\\_Emergency\\_Evacuation\\_Mitigations\\_V.6a.pdf](http://wildfirelessons.net/documents/Cow_Creek_Fire_Emergency_Evacuation_Mitigations_V.6a.pdf).



**Andy Palmer**  
**Sept. 10, 1989 – July 25, 2008**

Andy Palmer, 18, was an engine crew member stationed in Olympic National Park. In July 2008, he and his crew were dispatched to the Iron Complex on the Shasta-Trinity National Forest near Weaverville, Calif.

While his engine crew was dropping a hazard tree, Andy is struck by a large section of a nearby falling tree—that had been hit by the primary tree—that shatters his femur and severs blood vessels. By the time he had been transported and medivacked enroute to a nearby hospital, Andy passes away from loss of blood.

To honor Andy, National Park Service Director Jon Jarvis said that everyone involved in the wildland fire services needs to learn from Andy’s fatal incident.

Today, as explained in this issue of *Two More Chains*, the National Wildfire Coordinating Group’s “Guidance for Dutch Creek Mitigation Measures” is helping to ensure that faster and more effective emergency medical response is occurring on incidents.

A resident of Port Townsend, Wash., Andy had just graduated from Port Townsend High School. At 6 feet and 240 pounds, he was a “natural” on the Port Townsend High School football team for four years. He was very proud of his big red Dodge turbo diesel pickup truck and enjoyed helping his area’s farmers buck hay.

Andy was also a devoted “Big Brother” active in the Big Brothers Big Sisters Program. He had a “Little Brother” assigned to him in the Port Townsend community. *“He was just the best ‘Big Brother’,”* said Peggy Albers, program coordinator. *“His ‘Little Brother’ used to wait by the window for Andy to come pick him up.”*

Albers continued: *“Andy was a great example. He was exactly the type of person we are looking for in the Big Brothers Big Sisters Program.”*

[Continued on Page 6]



*Prior to loading patient, Flathead IHC, Lifeflight nurse, and Sawtooth Helitack paramedic brief.*

***“The organization is ethically and morally obligated to put an EMS [Emergency Medical Service] program in place that is supported by the organization—and provide the standardized training and equipment to make the program succeed.”***

Senior Firefighter/Paramedic  
Sawtooth National Forest Helitack Crew  
From the *Deer Park Wildfire Firefighter Injury and Helicopter Incident Facilitated Learning Analysis (FLA)*

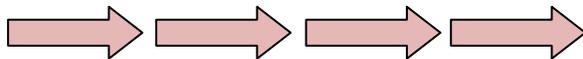
### **Firefighter Injury/Helicopter Incident FLA Shares Key Lessons**

On August 10 last year on the Deer Park Fire, located in remote and rugged terrain inside central Idaho’s Sawtooth National Forest, a firefighter working as a lookout is hit by a 200-pound boulder. The injury results in a potentially fractured femur. During the ensuing medical evacuation, a Lifeflight helicopter is dispatched to the scene. Ground crews are repeatedly unable to make radio contact with this helicopter. After landing at the medivac spot, the helicopter tips backward onto its tail boom. Both the helicopter and medivac spot are now unusable for this medical evacuation. A second medivac spot is created and an agency helicopter is used to medivac the patient. *The Deer Park Wildfire Firefighter Injury and Helicopter Incident Facilitated Learning Analysis (FLA)* examines the successful actions and leadership taken by firefighters on the ground during this emergency fireline medical evacuation. The FLA Team asked these medical evacuation participants to share the lessons that they learned from this incident. They were also asked to share what they think can help improve safety, leadership, and any other aspects of fireline operations.

***“Hotshots, Smokejumpers, and Helitack have recognized the critical need to have this higher level of medically trained personnel [EMTs and Paramedics]. By doing so, these individuals and crews are going beyond the call of duty to protect their fellow firefighters and the public, and deserve to be recognized for their efforts.”***

***“Out of respect for the professionalism and sacrifice our employees make on a daily basis, we agree that the Forest Service is ethically as well as morally obligated to make significant changes to communication systems and procedures as well as emergency equipment and training. Our employees and firefighters are giving 110% of what we ask of them; it is a worthy goal for their employers to do the same.”***

From the *Deer Park Wildfire Firefighter Injury and Helicopter Incident Facilitated Learning Analysis (FLA)*. Available at: [http://wildfirelessons.net/documents/DeerPark\\_FLA.pdf](http://wildfirelessons.net/documents/DeerPark_FLA.pdf)



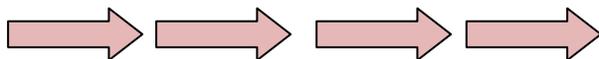
### **Cut & Paste This Into Your IRPG**

To help you report a medical incident from the field—as part of the Dutch Creek Protocol—the pink-colored box on right should be printed out and placed on page 49 of your 2010 Incident Response Pocket Guide (IRPG).

This straightforward nine-step process provides a standardized checklist to follow during a rapidly emerging medical incident.

This checklist is also available online at: [http://wildfirelessons.net/documents/Medical\\_Emergency\\_IRPG\\_Pg\\_49\\_insert\\_pink.pdf](http://wildfirelessons.net/documents/Medical_Emergency_IRPG_Pg_49_insert_pink.pdf).

If you would like to have these IRPG insert (peel-off/adhesive) stickers sent to you, please e-mail [lessonslearnedcenter@gmail.com](mailto:lessonslearnedcenter@gmail.com) with number of stickers needed and your shipping address.



**In the event of a medical emergency provide the following information to the Communications Unit.**

1. Declare the nature of the emergency.
  - a. Medical injury/illness? If injury/illness is it Life Threatening?
2. If Life Threatening, then request that the designated frequency be cleared for emergency traffic.
3. Identify the on-scene Point of Contact (POC) by Resource and Last name (i.e. POC is TFLD Smith).
4. Identify nature of incident, number injured, patient assessment(s) and location (geographic and GPS coordinates).
5. Identify on-scene medical personnel by position and name (i.e. EMT Jones).
6. Identify preferred method of patient transport.
7. Request any additional resources and/or equipment needed.
8. Document all information received and transmitted on the radio or phone.
9. Identify any changes in the on-scene Point of Contact or medical personnel as they occur.

*To get this sticker email [lessonslearnedcenter@gmail.com](mailto:lessonslearnedcenter@gmail.com)*



Photo on left by Boyd Blihovde shows a prescribed burn at Wekiwa Springs State Park in Apopka, Florida.

The “Two More Chains” masthead photo on page 1 of the Lassen and Plumas hotshots preparing to set a backfire on the Blue Cut Fire on the San Bernardino National Forest was shot by Wade Salverson.

The “One of Our Own” header photo on page 3 of firefighters boarding a Blackhawk helicopter in Fort Wainwright Alaska was shot by Eli Lehmann.

The “Shop Talk” header photo on page 4 of swampers clearing brush on the Nuttall-Gibson Complex near Safford, Ariz. was shot by John Coil.

#### Looking for Fire Photos

If you’re a wildland firefighter with photos you’d like to share with us, please send to: [pkeller@fs.fed.us](mailto:pkeller@fs.fed.us)

## ‘Two More Chains’: What Comes to Mind When You Hear These Three Words?

We asked wildland firefighters from across the country that very question. Here’s what we heard back:

“Liar!”

“Keep on keepin’ on.”

“Two more miles.”

“What knucklehead asked: ‘how far to go?’”

“Wasn’t it two more chains 12 chains ago?”

“It’s like the answer to the kids in the back seat when they ask: ‘Are we there yet?’”

“Long way to go.”

“We won’t be catching it anytime soon.”

A hotshot crew assistant superintendent told us that these three words suggest: *“It’s all a big lie! In essence, to me it means that we are almost done—or there. But I never believe it. And neither does my crew when I tell them! I do use it as a saying for ‘almost done’ whether on a fire or not.”*

On a practical note, measuring distances by “chains” out on the landscape is very effective and efficient. Ten square chains equal one acre, which is helpful in determining the size of wildfires. And, because of this equation, areas expressed in square chains can be easily converted to acres by dividing by 10. On a historical note, beginning in the 1700s, the 66-foot-long Gunter’s Chain—an actual chain—became the standard for measuring distance and had a primary role in mapping out America.

On a sociological note, over the years, during wildland fire suppression actions, firefighters have learned to take the phrase “you’ve got two more chains to go” with a healthy degree of pessimism. Chances are good, as it turns out, that there’s really a lot more ground to cover. All part of the firefighter equation.

#### Definition of ‘Chain’

*1 unit of measure in land survey, equal to 66 feet. Commonly used to report fire perimeters and other fireline distances. This unit is popular in fire management because of its convenience in calculating acreage (10 square chains equal one acre; 80 chains equal one mile).*

**From NWCG’s Glossary of Wildland Fire Terminology**

Consequently, down through the crackle and roar of fire seasons, “Two More Chains” has become a bonding, tongue-in-cheek phrase, a universal expression that helps tighten wildland firefighters’ esprit de corps—their common spirit of comradeship. Sharing this “insider” double entendre (a phrase that can be interpreted in two ways), “Two More Chains” underscores the wildland firefighters’ crucial ability to roll with the punches. Let’s face it, if you are a wildland firefighter, resiliency is key.

And because this phrase universally connects you—so many “yellow shirts” out there on the ground from coast to coast and state to state—we thought it was the perfect name for a publication dedicated to you.

## Emergency Medical and Medivac Training Pays Off on the Real Thing

The Prineville Interagency Hotshot Crew practices complex field scenarios for medical emergencies and patient extraction training. This crew also performs an in-depth review of the IMT's Medical Plan at their daily briefings. On Sept. 4, 2010 on the Pyramid Butte Fire in the Oregon Cascade Mountains, the Prineville IHC is called on to activate its emergency medical extraction training when a firefighter is severely injured. [See adjacent feature story.]

When the accident occurs, the Type 2 Helicopter Manager is monitoring the radio. Knowing that a possible medivac might be necessary, the Helicopter Manager ensures that—within ten minutes—the helicopter has been reconfigured to load and secure a possible medivac patient. At the same time, the Malheur Rappel Crew (the Helicopter Manager and crew) initiates their emergency medivac protocols.

As explained in the *Pyramid Butte Fire Firefighter Injury Facilitated Learning Analysis*: “This incident has a successful outcome, primarily due to the specialized training, leadership, and practiced response by the Prineville IHC, the Helicopter Manager, the Malheur Rappel Crew, and to the extensive development and sharing of NWCG medical extraction protocol information by the IMT.” The complete FLA report of this incident is available at:

[http://www.wildfirelessons.net/documents/Pyramid\\_Butte\\_FLA.pdf](http://www.wildfirelessons.net/documents/Pyramid_Butte_FLA.pdf) .



Prineville IHC EMT Sarah Cuddy (in blue jacket) responds to injured firefighter who has just been hit from behind by a 400-pound boulder.

[Continued from Page 3]

The backboard with spider straps and cervical collar arrives via Prineville IHC crew members within ten minutes. “We packaged him, packed him up. It was cold so we wanted to make sure that he stayed warm,” said the first-season (2010) Prineville Hotshot. Sarah’s wildland fire resume includes two seasons on a Forest Service engine, one season on a Bureau of Land Management engine, and two seasons on a Forest Service hand crew.

Early on in this incident-within-an-incident, Sarah was asked if she thought a helicopter transport was necessary. “I said, ‘Yes’. It was a very long drive in on a very bumpy road. I knew we needed a helicopter.” The medivac helispot site was located approximately three-quarters of a mile from their accident site. [For more details on the helicopter operation see sidebar box above.] In retrospect today, for future possible spinal or other severe injury evacuations, Sarah says her crew now has guidelines in place for checking on the availability of a helicopter immediately.

Fortunately that day, the two fire crews were working beside a well-established trail system. “We were really lucky that we were so close to the Pacific Crest Trail [PCT]. Off the trail, the slope was steep and rocky. Without that trail being there it would have been a very difficult pack-out,” Sarah assures.

Members from both the Prineville and Warm Springs crews helped carry the patient out on the PCT. Sarah walked beside the injured firefighter. “I was beside him the whole time, taking his vitals and talking to him—making sure that he was still oriented and trying to keep him calm. I kept assessing his situation, which, as the pack-out continued, did become a little more worrisome.”

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*“Five percent of all air medical evacuations actually have injuries requiring helicopter transport. This situation was one of them.”*

**Attending Physician  
Emanuel Hospital, Portland Oregon**

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The Wilderness EMT explains that—in the prone position on his back—he was swallowing a lot of blood from his broken nose. Her patient was also becoming more nauseous and more disoriented.

### Symptoms of Skull Fracture

“Toward the end of the pack-out, I noticed that he had bruising behind his right ear. I knew that was a symptom of a skull fracture.” Throughout, Sarah was relaying updates on the patient’s condition to Vinny who was relaying this information over the radio. “The pack out went smooth—that trail is well maintained. It took us less than an hour to get to the helispot.” Prior to arriving at the helispot, the Incident Management Team’s Paramedic met them on the trail.

“I relayed the information that I had gathered on the patient and his current situation. When we got to the helispot, the helicopter was waiting. I transferred the patient’s care to the flight Paramedic who was onboard. He took over the patient and they flew to the Portland hospital.” [The injured firefighter was taken to Emanuel Hospital where he was treated for a basal skull fracture, fractured cheekbone, three fractured vertebrae, inter-cranial bleeding, and internal bleeding. He spent six days in the intensive care unit before returning home. He is driving again, but still has some side effects from the accident. This spring he is pursuing obtaining his EMT credentials at a community college.]

What was Sarah thinking as she watched that helicopter and her patient lift off?

“I had mixed feelings. Obviously, I was relieved because I knew he was in better care and he was off the hill. That was the most important part. But I had a lot of anxiety as well. I started wondering what was going to happen with him? You almost have to let it go, which is a weird feeling. I guess I would say I was having a whole lot of different emotions—mainly relief and anxiety.” [Continued on p. 9]

[Continued from Page 8]

### Why did Sarah want to become an EMT?

"I spend a lot of time in the wilderness—both job related and recreationally." This marathon runner, avid snowboarder, mountain biker, and backpacker's complete outdoor recreation resume is off the charts. Sarah recently wilderness winter camped in Montana by accessing the outback on snowshoes and cross-country skis, and backcountry snowboarded in the Tetons. She has climbed to the summit of both the 19-thousand-foot Cotopaxi peak and the 15-thousand-foot Ruchu Pinchicha peak in the Andes in Ecuador. This fluent Spanish speaker has backpacked solo throughout Guatemala, Mexico, and Cuba. This March, Sarah returned from a two-month backpacking trek in South America—traveling through Chile, Argentina and Bolivia.

"I knew it was only a matter of time before I might need to use these (EMT) skills," Sarah explains. "I didn't want to be caught unprepared." She spent \$3,500 of her own money to attend the intensive five-week Wilderness EMT program—that focuses on remote evacuation training—at the Wilderness Medical Institute in Lander, Wyoming.

### What would have been different that day if they only had a (national) cache medical kit?

"Everything would have been different in a very negative way. The fact that we had the backboard with spider straps and the c-collar very close and accessible was extremely important. Because of the head and neck mechanism of the injury, it would have been almost impossible to move the patient without these items. With a patient in that condition you don't want to cause any further damage by bouncing them around. Getting the patient to the helispot would have been extremely difficult. There is no way that he could have walked on his own. It would have been a lot longer process that would have definitely been detrimental to the patient's health—potentially causing a lot more damage to his overall injuries."

### How did her crew's previous medical evacuation simulation training help during this actual firefighter injury incident?

"Our training really kicked in. We practice 'running the scene' we call it. You want to make sure that other people don't get in the way or confuse the person who is responsible for the patient. Because we had trained on this—and talked about it—Vinny [Sarah's saw partner Michael Vinton] and I immediately knew what our roles were. Vinny ran the radio and made sure people weren't interfering with me. If the same person is communicating on the radio and trying to address the patient, something is going to get neglected. It would have slowed us down significantly if just one person was in charge of the show."



Top photo shows the ravine where firefighter injury occurred. Bottom photo is the boulder that displaced and hit—rolled over—the firefighter.

*"Members of the two IHC crews interviewed remarked how calm things were during the extraction and gave credit for this to Prineville's previous training and practice."*

*"The Prineville IHC had their emergency medical equipment readily available and it was evident to all that they were well-practiced in emergency extractions on the fireline."*

### Pyramid Butte Fire Firefighter Injury Facilitated Learning Analysis

"How, specifically, does her crew train for medical emergency situations?"  
"A lot of it is talking about it. We are constantly talking about medical emergencies and medical evacuations. This changes daily—at whatever work site we happen to be. We're always asking: 'What would we do if someone was injured? What would need to happen?' I think that really helps your mindset—before an injury really happens."  
"At the beginning of the season we also have 'live' scenarios. We'll be out doing practice line building and team building and suddenly our foreman will pretend like he's just been hit by a snag. We go through the entire scenario—including setting up a dispatch. These live scenarios coupled with the constant discussions and briefings that we always have on medical evacuations really helps."  
Does Sarah have any advice for other wildland fire EMTs—or perspective EMTs?  
"For perspective EMTs, I'd say to definitely get the training. It's worth it." [Sarah points out that the specialized nationally renowned Wilderness EMT school that she attended carried the steeper cost. EMT certification can be received at community colleges for generally \$800 to \$1,800.] "I've used it several times. For current EMTs, I'd say to talk with your crew on the fireline about medical evacuations in every briefing. Talk about what you're going to do if it [a medical emergency] happens. If you have a system dedicated and in place, it makes the actual execution a lot smoother."

This Prineville IHC EMT knows from her firsthand experience on the September 2010 Pyramid Butte Fire.

"I'm glad that I was able to help," says Sarah, who will be returning to the Prineville Hotshots again this season. "It was a pretty lucky situation all around. We had a lot of things going for us. I'm just glad that he ended up OK."