

Rapid Lesson Sharing

Event Type: Medivac of Tree Strike Injured Firefighters

Date: August 12, 2018

Location: Rattlesnake Creek Fire, Idaho

Summary of Incident

During the night of August 12, two firefighters were successfully extracted and transported to medical care after suffering severe injuries from being struck by a falling snag.

The firefighters were members of a Type 1 Crew that was conducting a burnout operation on a remote portion (Division Z) of the Rattlesnake Creek Fire on the Nez Perce-Clearwater National Forest in Idaho.

Division Z of the fire follows an extensive ridgeline bounded by steep drainages that contain areas of pine with a brushy understory. At the higher elevations, mixed conifer of various age classes become the dominate timber fuel type. Patches and stringers of mixed conifer, broken by semi-open ridgetops with dry meadows, is typical of the terrain.



Fireline operations Rattlesnake Creek Fire, photo from InciWeb.

Spot Fire

Crews had spent several days prepping hand line along the ridgetop and waiting for favorable conditions to conduct burning operations. On the evening of August 12, conditions were again favorable for burning operations (cooler temps, increased humidity, and downslope winds). At approximately 2330 hours, a group of trees torched inside the burn, igniting a spot fire across the line.

Crews held up burning operations and discussed plans to take action to contain the spot fire—now burning in a patch of fir trees outside the line. The crews believed that they could safely engage. They began work containing the spot fire.

Snag Strikes Two Firefighters

Shortly after beginning work on the spot fire, a snag fell, striking two of the firefighters who were working to contain the spot. The snag came down quickly, seemingly as soon as fire had reached it.

One of the firefighters was struck on the head and chest by the falling snag. It was not immediately known to firefighters and medics responding to this accident that a second firefighter had also suffered injuries due to the falling snag.

Crews disengaged from the spot fire to deal with the unfolding medical incident.

Pre-Planned Medical Response Initiated

At approximately 2400 hours, night DIVS Zulu made the notification to Rattlesnake ICP that there was a medical incident on Division Z and relayed the Medical Incident Report (MIR).

A ground ambulance assigned to the incident responded to the ground transport location, an approximate 1.5 mile hike from the accident site. This was done as a contingency in case the air ambulance could not respond.

Non-aerial transport from the accident location to the nearest medical facilities would be more than 4 hours—due to hand carrying of the patients down a steep ridgeline, and the added driving time on narrow winding mountain roads from the ambulance rendezvous point.

Although a transport of the patients by ground was possible, air-ambulance was still the preferred method of transport.

The medics assigned to DIVS Z were located on the line close to the crews. They responded quickly to provide an initial patient assessment and confirm the transport priority.

DIVS Zulu served as the Incident Commander for this Incident Within an Incident (IWI), relaying the Medical Incident Report information to Rattlesnake ICP, as medics tended to the patient.

Medical Incident Report	
1. Contact Communications/Dispatch	
2. Incident Status	
Severity of Emergency/ Transport Priority	<input type="checkbox"/> Green <input checked="" type="checkbox"/> Yellow <input type="checkbox"/> Red
Nature of Injury & Mechanism of Injury	<i>Firefighter hit in head by snag, no visible soft tissue injuries</i>
Transport Request	<i>Air ambulance from H-11</i>
Patient Location	<i>Division Zulu</i>
Incident Name	<i>Lockwood Medical</i>
On-Scene Incident Commander	<i>IC - Johnson</i>
Patient Care	<i>Medic - Sampson</i>
3. Initial Patient Assessment: <i>20 yo male, head/chest impact, pain to lower back, C-spine (+), I.V. Est., A&O x 4, BP - 130/92, Pulse 80, Pulse Ox 96%, 1 lpm O₂, Patient is stable</i>	
4. Transport Plan: <i>Air ambulance from H-11 (Coordinates, etc. pre-identified in IAP)</i>	
5. Additional Resources/Equipment Needs: <i>Requested Fireline ALS Team respond with trauma kit.</i>	
6. Communications: <i>Command 1 (Rattlesnake Communications), Tac 2, EMS2 Air-to-Ground</i>	
7. Contingency: <i>1.5 mile walk out to Zulu Spike, to meet incident ground ambulance crews.</i>	
8. Additional Information:	

00:07 – 1st Air Ambulance responds with an ETA of 43 minutes

Shortly after the initial Incident Medical Report was made, Division Zulu called into Communications with a second medical incident report. A second injured firefighter, also a transport priority “Yellow”, to be added to the same medivac. This firefighter had been injured by the same falling snag and had received burns to the face (cheek) and back. The patient assessment for this second individual, copied from the Medical Incident Report:

3. Initial Patient Assessment: *20 yo male, Head impact, Burn to right cheek & right back flank, 1-2% blistering, BP 140/100, Pulse 80, No shortness of breath, Pulse Ox 98%, A&O x 4, Ambulatory, Patient is stable.*

00:39 – 2nd Air Ambulance responds with an ETA of 45 minutes

The Medical Unit Leader then placed a call for a second air-ambulance after the second medical incident report was received. This was done based on prior discussions with local air ambulance providers that—depending on flight conditions—sometimes the air ambulance would only be able transport one patient at a time.

00:50 – Air Ambulances are unable to land at H-11

Upon arrival of the first air ambulance, the pilot informed the on-scene IC that they would be unable to land at the designated Helispot H-11 due to smoke interference with night vision capabilities. The pilot requested an alternate LZ. The Field Medical Officer (MEDL) suggested H-10, H-12 or H-13—all of which were near H-11. However, it was determined that these LZ's were likewise affected by smoky conditions.

01:49 – Hoist Capable/Night Vision Capable Air Ambulance ordered

After the first air ambulance declined landing, the Field Medical Officer placed the order for a hoist capable air ambulance (2-Bear Air, a privately owned air rescue service) from Kalispell, Montana that had an ETA of 1.5 hours. This air ambulance is equipped for nighttime hoist operations. If needed, it could perform a hoist extraction of the injured firefighters from a location that was unaffected by the smoke.

Both Patients Stable

The medics confirmed that both patients were in stable condition and that there was time to wait for air conditions to improve to proceed with the medivac. The medics and on-scene IC still believed that an air transport would be the safest and most timely method for both the injured firefighters and responders.

Based on this recommendation, 2-Bear Air landed at the Idaho County Airport located at Grangeville, Idaho, to wait for air conditions to improve before proceeding with the medivac.

“Even with a medivac situation, often times ‘slow is smooth and smooth is fast’—preparation is key.”

Fireline Medical Responder

03:41 – Smoke clears at Helispot H-11

Once air conditions had improved at H-11, the on-scene IC informed Rattlesnake ICP. The request for the air ambulance to return to H-11 was made. 2-Bear Air was launched from Grangeville with an ETA of 30 minutes to H-11.

04:25 – 2-Bear Air on the ground at H-11

2-Bear Air was able to land at H-11. The two firefighters were loaded onto the helicopter and transported to another Helispot (H-1) where an incident ground ambulance with paramedic was waiting to transport the firefighters to St. Luke’s hospital in McCall, Idaho for definitive care.

05:08 – Patients loaded on ground ambulance and en route to McCall, Idaho

Both firefighters were treated and released from the hospital later that afternoon. One was released to go home and the other to be taken to a burn facility in Phoenix, Arizona for additional evaluation and care.

What Went Well

- ❖ The Field Medical Officer (MEDL) communicated daily with air ambulance services, local hospitals, and medics on the line prior to there being an IWI.
- ❖ Medivac sites were “ground-truthed” to better estimate transport timelines (both for ground transport and air) prior to an IWI. The Field Medical Officer and fireline personnel physically walked the transport routes and estimated transport times prior to an IWI.
- ❖ Advanced Life Support (ALS) Teams consisting of EMPF (Fireline Paramedic) and EMTF (Fireline EMT) were assigned to each Division. ALS kits were also located with each medic team.
- ❖ The ALS Teams assigned to each division proactively adjusted their locations to be closer to firefighters working on the line. This greatly reduced the time it took for the medics to arrive on scene.
- ❖ The Field Medical Officer uses a “P.A.C.E.” model in planning for an IWI. Primary, Alternate, Contingency, and Emergency plans for managing an IWI for each Division on the fire was developed.

- ❖ Information regarding patient status was effectively communicated between fireline medics, the Field Medical Officer, and air ambulance medics, providing for a more comprehensive understanding of the patients' status and a smooth and deliberate response to the medivac.
- ❖ Communications between the air ambulance and on-scene IC/medics on the fireline through EMS2 (air-to-ground radio frequency for emergency medical) worked well. There were no issues in establishing radio communication with air ambulances.
- ❖ The Payette National Forest provided the injured firefighters Hospital Liaison support at St. Luke's Hospital in McCall, Idaho.
- ❖ Agency and IMT Liaisons coordinated the provision of peer support for firefighters as soon as possible after the event.

KEY LESSONS

- ❖ Daily conversations and building rapport with local/regional air ambulances and medical facilities by the MEDL led to better understanding of capabilities between both incident personnel, air-ambulance, and definitive care providers. These conversations were also important in ensuring effective radio communications between air ambulances and the responders on the ground.
- ❖ Smoke was the primary factor in the inability of air ambulances being unable to land at H-11 initially. Although the smoke was not heavy, it was enough to inhibit the pilot's ability to use night vision goggles to land. Alternate Helispots were available near H-11 but were also affected by smoke impact.
- ❖ Advanced Life Support (ALS) Teams consisting of a paramedic and EMT assigned to the fireline were able to assess the severity of the patients' injuries and provide care to maintain the patients' stability. This provided the decision space in which medical responders felt comfortable with the decision to have the air ambulance wait for better visibility and then return. This ultimately reduced the time required to transport the patients to definitive medical care. This decision also reduced the exposure to crews that would be needed to transport the patients by hand 1.5 miles to a ground ambulance rendezvous site.

Further Considerations and Discussion

As any wildland firefighter can tell you, eliminating the element of risk from wildland fire operations is impossible. There is always some level of risk associated with wildland fire response, whether we tactically engage the fire or not.

Wildland firefighters actively manage risk on the fireline by adapting their operations based on their assessment of the environment they are working in, and making real-time adjustments to operations. This is due to the highly dynamic and complex environment in which they work.



Fireline holding operations, Rattlesnake Creek Fire. Photo from InciWeb.

The management of risk includes building the capacity to respond to unintended outcomes. In the case of this tree strike incident on the Rattlesnake Creek Fire, part of managing the risk was having in place a robust plan to deal with an IWI. Part of this plan was to provide the highest level of medical care possible on the fireline in the event of a medical emergency.

Discussion Questions

- ❖ *Considering that our current paradigm is one in which we as a wildland fire community will continue to be exposed to some level of hazard when responding to wildland fire incidents, what challenges do we face in building capacity to respond to unintended outcomes?*
- ❖ *What realities do we face when it comes to the level of medical care that can be provided on the fireline?*
- ❖ *How might these realities change, depending on where the fire is located?*
- ❖ *In what ways might a medivac be different as imagined (planned) vs. in reality (performed)?*

The amount and types of medical response resources available to incidents has exponentially increased over the past several years. Have we fully utilized the Incident Command System to provide for span of control and critically thought out placement of medical resources?

ICS dictates that medical personnel are assigned to a Medical Unit under the Logistics Section. But some IMTs choose to put them under Safety. The information requested in the Medical Plan (ICS 206 WF) regarding timeframes for air and ground ambulances was a catalyst for the Southwest Area IMT 3 to take a hard look at what they were doing to prepare for IWI response.

They have chosen to carry Field and Planning MEDLs on Team 3 to insure the information is vetted daily. Resources are requested and placed after the needs of the incident are critically thought through. These two positions are referred to as the Field Medical Officer and Planning Medical Officer on the team. The Field Medical Officer (MEDL) position has been of great value to the IMT to insure the IWI plan is dialed-in as much as possible.

Additional RLSs on fireline medical response and Rapid Extraction Modules (REM):

[Dog Head Fire Medical Preparedness RLS \(2016\)](#)

Doctor and Rapid Extraction Module Assigned to Dog Head Fire, NM – 2016

[Rapid Extraction Module Support RLS \(2017\)](#)

Rapid Extraction Module Support in the Pacific Northwest Region – 2017

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