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It was a cold and dreary late May afternoon.
Thick fog impeded the evacuation of the body of a snowboarder caught in an avalanche on the east face of Torreys Peak, Colorado, on May 21, 2011. Sadly, he died from internal bleeding during the evacuation.
Photo and story by Dale Atkins

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After the *fire*

tools for those left behind

The rest of the story: *(Continued from the cover.)* The unlucky rider hit a rock in the path, and we knew that he was bleeding internally but we couldn't get him down fast enough because of the weather. Though it was impossible to fly we actually set up a pseudo-emergency room in a dug out Forest Service outhouse, staffed with an ER doc (with blood), a flight nurse, and a flight paramedic. We just couldn't get him there in time. From where I took this photo there was about another half mile before we could meet snowmobiles, and then it was another 1.5 miles to the outhouse. We knew the subject needed a hospital and a surgeon, so our hope was to stabilize him at the outhouse, and then take him by snowmobile another 3 miles to a waiting ambulance. The avalanche was a small SS-AR-R2/D2-I. The slab was only about 30x30 feet and a foot deep, but it ran 1000 vertical feet in terrain with some exposed rocks.

Ironically, in a twisted sort of way, the year before on the same day, a climber was swept down a nearby gully (about 100m away) by a WL-AF-R2/D3-O. He was completely shattered, but it was a sunny afternoon and we were able to land a helicopter 200m away. After three months in the hospital and 13 surgeries, he healed and walked away.

Photo Dale Atkins

After The Rescue

Those left behind—rescuers, family, and friends

Dale Atkins

In the profession of avalanches and of mountain sports, death is the metaphorical elephant in the room—the consequence that no one wants to talk about. Uncertainty lurks and so too can death, yet we don't address it other than to say it is an outcome no one wants to experience. Though we do not talk about it, it is a consequence that many in our profession have been exposed to. Back in 2004 Ian McCammon and I surveyed avalanche professionals and recreationalists. One of our findings that really stood out was that 83% of pros and 47% of recreationalists knew someone who had died in an avalanche. Think about that for a moment. Certainly, we work and play in a small community, but who do you know that died selling skis or ski boots, creating websites, painting houses, or playing golf, tennis, or biking? There are likely very few other professions and sports where deaths are so prevalent. Yet we don't talk death. Ask a group of people participating in an avalanche course about what is the worst outcome of an avalanche encounter. Almost immediately some will reply "death" or "you can die," but these remarks are often accompanied with a few laughs or at least a snicker or two.

Formal avalanche training typically ends with rescue—finding the buried person. This makes sense. In a profession and sport where things can and will go wrong; avalanche rescue is the last layer of defense. But when an accident ends badly, the effects can be broad and deep. Certainly a sudden and unexpected death is promptly terminal to the victim, the aftermath for companions, family, and friends is chronic. The impact can last a lifetime for those left behind. There is no "closure." Even rescuers are not immune.

Why what happens after the rescue matters

What happens after a rescue matters because avalanche accidents are a too-frequent activity within our profession and sports, and too often avalanche accidents end in death or with severe life-changing injury; therefore, there is a reasonable chance that you as an avalanche professional will have to directly or indirectly deal with a death. Too often our well-meaning ways and caring words of dealing with grief or traumatic stress are not helpful, sometimes they are wrong, and for a few it can be deadly. According to a 2015 article published in the *Journal of Emergency Medical Services* the rate of emergency medical service responders (basically ambulance workers) contemplating and attempting suicide was 10 times greater than the national average.

Grief and acute stress and post-traumatic stress disorders (ASD and PTSD) are not simple emotional responses to a loss. Rather they are complex response involving cognitive, behavioral, and social elements. Grief and stress disorders can affect those directly involved in an accident like companions and rescuers, or even those indirectly involved like family, friends, and rescuers who did not even participate in the recovery. For rescuers it is important to know that what may be a minor experience for one rescuer can be a traumatic for another. And no matter how many bad things one has experienced, something about a particular event can—for that rescuer—turn it into a major traumatic experience, regardless of previous events that seemed or actually were much worse.

I am not a psychologist, psychiatrist, or sociologist, but I am a lawinologist who has investigated hundreds of avalanche accidents, and I am a mountain rescuer who has participated in hundreds of searches and rescue. Over the years I have spoken to many survivors—those left behind—of all sorts of mountain accidents ranging from avalanches and airplane crashes to climbing, hiking, and hunting accidents. I have also experienced firsthand sudden and unexpected deaths directly and indirectly. From my experiences, along with some formal and informal learning, I will define some terms, describe how the brain works with experiences and memories, dispel "closure," and offer some suggestions for dealing with death, grief, and stress disorders.

lawinologist:
a person who studies or has knowledge of avalanches, *lawinen*—German for avalanches

The Terms

Trauma has two different meanings. Medically, trauma means a serious bodily injury or wound. Trauma also has a psychiatric meaning that refers to an experience that is emotionally painful, shocking, or distressing. In psychologist Frank Gallo's 2017 book *Bouncing Back From Trauma*, he writes that trauma can be caused by extraordinary experiences as well as ordinary experiences. He also adds that even hearing about something horrible that happened to someone else may also be traumatic. Within this essay trauma's psychiatric meaning is generally implied.

Grief is the natural response to a loss and is typical identified with bereavement, or the death of a loved one. Many think of grief—thanks to Sigmund Freud—as a single instance or short event that one needs to move on from. It is not. **Grieving** is a complex process, and it is not the five-stages ingrained in the consciousness of Americans that Elisabeth Kübler-Ross identified nearly 50 years ago. (She wrote about the terminally-ill dying—not grieving—and her work has not been validated.) While grief is a multifaceted response to a loss, it is really only a feeling, like any other feeling. It may begin as disruptive and painful, but it does not have to be so. It may endure for days, weeks, months and even years. It may even endure a lifetime, and that can be okay too. For many, maybe most, grief is resilience. It is the ability to recover quickly, but it does not imply an end or closure. While companions and colleagues can feel grief, so too can rescuers.

People grieve in so many different ways. Respect them even if you might not understand them.
— Molly Tyson

Acute Stress Disorder (ASD) and **Post-Traumatic Stress Disorder** (PTSD) are afflictions, according to the National Institute of Mental Health, that some people experience after a shocking, scary, or dangerous event. PTSD and ASD can also affect people who did not directly experience the dangerous event. The difference between the two is basically about the length of time that the symptoms last. According to the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5) ASD/PTSD can affect people who were exposed to death threatened death, actual or threatened serious injury by way of:

- Direct exposure
- Witnessing, in person
- Indirectly, by learning that a close relative or close friend was exposed to trauma (violent or accidental)
- Repeated or extreme indirect exposure…

While the DSM-5 defines specific criterion, symptoms of ASD/PTSD fall into six additional categories:

- Event is persistently re-experienced (involuntary and intrusive distressing memories of the trauma or recurrent distressing dreams)
- Avoidance of trauma-related stimuli after the trauma (avoidance of memories, thoughts, feelings, people, or places associated with the trauma)
- Negative thoughts or feelings that began or worsened after the trauma (overly negative thoughts, exaggerated blame, negative affect, feeling isolated after the trauma)
- Arousal and reactivity increase after the trauma (difficulty concentrating, falling or staying asleep, irritability, aggression)
- Distress and functional impairment after the trauma (social and occupational settings)
- Cannot be other causes (medication, substance use, or other illness)

Experiencing trauma is relatively common. According the US Department of Veteran Affairs, about 5 to 6 out of every 10 Americans will experience at least one trauma in their lives. Of the general public about 7 to 8 out every 100 Americans will have PTSD at some point in their lives. For military members the incidence runs about 11-20%, however, Vietnam Veterans were about 30%. A recent, 2016, report by the International Association of Fire Fighters (IAFF) found that first responders experience PTSD rates similar to combat veterans.

The symptoms of ASD/PTSD can start immediately or days, weeks, months or even years later. While relatively few people experience sufficient symptoms to met the diagnostic criteria for ASD/PTSD, experiencing some of the symptoms is not unusual and can be considered part of grieving. However, when the symptoms change one's normal routine or behavior, then it is time to consider seeking professional help.

Suffering from ASD/PTSD is not a sign of weakness and can happen to anyone. And as described in the DSM-5, not everyone with ASD/PTSD has to go through a dangerous event. Some people develop symptoms after a friend or family member experiences the harm or danger. Likewise, rescuers, even ones not on site can also develop symptoms.

Photo Dale Atkins

Rescuers do strategic shoveling to recover the body of a backcountry snowboarder (and his dog) on Berthoud Pass (Colorado) two days after the avalanche. The accident occurred on a Monday morning (19 January 2011) as a powerful storm settled over the region. His companion was riding just ahead and while he noticed a "small" avalanche behind, he dismissed the possibility that his friend could have been caught. The rider reached US 40 and decided to wait for his friend. After waiting awhile he felt the two had become separated by the nasty weather. He hitched rides up the pass, including one from a CAIC forecaster (but the rider never mentioned an avalanche) and made two more runs through the area looking for his missing friend. By now CDOT had closed the pass, and the rider was met again by the CAIC forecaster. This time the rider mentioned the "small avalanche," and the forecaster advised him to immediately call 911. CDOT plowed a single lane to the pass so Grand County SAR could access the site. They searched well into the night doing an immediate search (transceivers and spot probing) and probed many trees for the possibility of a tree well accident. The next day the pass remained closed, but CDOT again plowed access to the summit so rescuers could continue searching. The SAR team also accepted the help from a small group of the victim's friends. Rescuers used Recco and probe lines searched for most of the day without success. On Wednesday morning, the storm had eased enough for CDOT to open the pass. Rescuers from other teams came to help and nearly 50 locals showed up to help too. Probe lines were started and by mid morning the snowboarder and his dog had been found.

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OK, here's a little back story. The avalanche turned out to be much larger than expected—200' across and 300' vertical—and so too was the turn out of the victim's friends who came to help. I was assisting the site leader who was a bit overwhelmed by this huge turnout. By now all the debris had completely disappeared under the new snow. In an effort to get things going and keep people busy—and to let us rescuers get our act together—I told the site leader "to start 2 big probe lines down and out of the way." I figured this would give us time to figure out where the debris was hiding. And darn it, within 20 minutes of probing one of the lines hit the victim.

The avalanche fell sort of across the slope, say 2 to 8, if using the hands on a clock to describe the slide. The rider who escaped saw the moving snow but cut back to his left, say at 5, and quickly and easily rode out or away from the avalanche. The victim, however, seemed to have tried to outrun by going to his right, which put him right in the flow. The slide pushed him over from behind and buried him. He was on his forearms in a prone position with his back and head arched backwards as if he was trying to keep his head above the flow. Sadly, it didn't work and he was buried about 18" to the top of his helmet. If he had made it another 50 feet, he probably would have been ok. Neither man had rescue gear. The victim had left his transceiver in his car because his buddy didn't have a transceiver. The victim also had Recco reflectors in pair of snowboard boots, but that morning he left them at home and wore a different pair of boots.

Closure means bringing an end, conclusion, finality, resolution, etc. to a problem. Depending upon the context closure can mean different things. In the legal world closure is an end to uncertainty. In social psychology, according to Arie Kruglanski at the University of Maryland, closure is to seek an answer to an ambiguous situation. But when it comes to grieving, closure is an incorrect concept and action.

Heal according to Merriam-Webster Dictionary is to cause an undesirable condition to be overcome.

Closure is a myth and an illusion

Depending upon context—who we are describing—closure is a myth or an illusion. A typical dictionary definition of myth defines it as a widespread but untrue or erroneous story or belief. An illusion is more deceptive or misleading. Clinicians and researchers who deal with grief and stress disorders like Fran Ochberg at Michigan State University, who is a pioneer in trauma and PTSD, or Pauline Boss, an emeritus professor at the University of Minnesota, Nancy Berns from Drake University, Joseph Melnick, editor of the *Gestalt Review*, say that closure is a myth. Berns calls it a made-up concept people use to talk about loss and grief. Berns, Boss and others also report that seeking closure can do more harm than good. While closure may be a very good word for business and real estate deals, Boss says it is a terrible word in human relationships, but we hear it used—especially rescuers—all the time.

Here is a typical and recent example of closure posted in social media by a well-meaning EMS service after a 2016 avalanche death: "It is a difficult task that our Search and Rescue colleagues take on. They go into the wild, hoping that their efforts will result in the finding of a lost soul who walks away with a harrowing story. But they go, knowing that sometimes the best outcome may be that they are able to find someone after they have passed. They give closure to the family…."

For families and friends, closure is a myth; it is untrue. For rescuers, closure is an illusion. We mislead ourselves into believing that we can close out our cognitive and emotional selves when end a difficult rescue or recovery. The experiences, memories and feelings remain forever.

Though Sigmund Freud did not use the word closure, he pushed the concept of closure in his writing of "grief work" in his 1917 essay Mourning and Melancholia. Freud's approach to dealing with grief was to cut the bonds that tied the survivor to the deceased. He treated grief as an event that should "come to an end" quickly, and he also stressed the importance of "moving on" and returning to "normal." This misguided approach that grief must be resolved guided clinicians for most of the last 100 years and is still used by well-meaning but poorly informed laypeople, like rescuers. It was not until the 1990s that clinicians recognized that Freud's "grief work" did not work, and other theories of grief arose.

Unfortunately, most in western societies think of closure as an event. It is about moving on, leaving the past behind, returning to normal, and that this event happens at some point, say, a few weeks or months after the loss. For rescuers with an outside view, it is easy to rationalize the use of closure. However, the view from the inside is very different. There is no door that a family walks through and leaves the past—that episode—behind. For the family (and closest friends) there is never closure. Writing a rent check, attending a school play, sleeping alone, holidays, walking down a familiar sidewalk, hearing the rustle of leaves can all be powerful reminders of what was one had but now is gone. For those left behind there is no return to normal, it is the beginning of a new normal and a new reality. They never forget. The same can happen for rescuers, too.

Unfortunately, most in western societies think of closure as an event. However, the view from the inside is very different. There is no door that a family walks through and leaves the past—that episode—behind. For the family (and closest friends) there is never closure.

As rescuers we have to be very mindful that the family and friends cannot forget, especially since we have the luxury and ability (most of the time) to conclude an event and move on. Rescuers can do this (most of the time) because rescuers do not have a deep investment or connection with that person. After the unfortunate event we don't spend weeks or months, (or for some unlucky people) years just waiting and hoping that their loved one will walk back through the door and return home.

Usually, there is a point when the realization (when the brain and heart resync) that someone will never come back. But that point is not closure; it is healing. When one can start looking forward, there's healing. But the memories (sights, feeling, smells, and tastes) will always remain, and they will remain remarkably strong and vivid for 10, 30, 50+ years, basically forever. When you have a conversation with someone who unexpectedly lost a husband, wife, father, mother, brother or sister, and when your chat veers to their loss—even years or decades later—you will hear words like these: "A day doesn't go by that I don't think about…." "I still think about her all the time." Or "I think of him almost every day." A lost loved one is forever part of one's life. Memories remain.

In mountain rescue, we don't provide closure, but we can—and do—play an important part in the role of initiating healing.

Rescuers initiate healing

Rescuers provide information to the whats, whens, wheres and hows of an accident. Healing starts and gets improved with that information. In the case of a loss, perhaps the best piece of information we provide is the finding and returning the body of the love one. The return of the body not only gives psychological support and answers, it also provides societal and legal support and answers. For example, in law there is no immediate recognizable death, without a body. There are no life insurance payouts, no dissolution of marriage or of contracts, no unfreezing of assets and estate, no inheritances, etc. (Eventually, a person can be declared dead in absentia, which typically takes about seven years but this depends on the circumstances and the balance of probabilities). For rescuers a missing and unrecovered person is a disappointment—even when rescuers are sure the person is dead. However, for a family that same missing person—in addition to the emotional and social distress—creates a financial limbo that sometimes can financial devastate the family.

Recovery of an avalanche victim is critical to the well-being of those left behind. Obviously, a transceiver and Recco reflector are vital devices to possibly save a life, but they are also vital devices to ensure someone always comes home, even if deceased, to help those others, namely family and loved-ones heal. An acquaintance of mine directed the mountain rescue service in Zermatt, Switzerland for decades. Toward the end of every summer he would start to get phone calls, usually from mothers or other family

Photo Dale Atkins Collection

Shovellers are freeing a buried hut keeper above Verbier, Switzerland, on 22 January 2005. Late that day the man was caught and buried while retrieving a shovel that had fallen from the deck of the Mont-Fort hut. The search effort involved two helicopters, five dog teams, one Recco team, and a total of 120 people who searched for nearly three hours and found nothing. The hut keeper, buried in a quasi-upright, fetal position, was eventually able to use his cell phone and called the hut. The person who answered thought it was a prank call, and almost hung up on the buried man. Once convinced that the caller was the buried man, he was able to direct rescuers to his general location—outside the debris area [sic]—and by a combination of yelling and probing he was soon found, three hours after the avalanche. The avalanche fell down a steep slope with an abrupt terrain trap at the bottom. Instead of being buried in the terrain trap, the maelstrom of moving snow literately tossed (or pushed) the man up and out into very soft and undisturbed snow about 10m beyond the edge of the obvious debris. The man was buried about 1.5 to 2 feet with very soft debris, and then the small powder cloud settled out hiding any evidence of the debris and the buried man.

In effort to make some sense of this, here's a couple more photos. In the first picture you can see the hut. In the second picture I added the location of the buried man. This photo was taken before he was found. If you look carefully at the debris to the looker's right—hindsight is so wonderful—you can see the flow pattern of the very soft debris spilling out to the looker's right. I suspect that at the time, the rescuers did not notice this subtle feature. They thought he had been picked up and tossed by the avalanche, which has happened before (very, very rare) beyond the obvious debris. I don't think this was the case because the man was really buried.

members, enquiring if their loved-one had melted out of the glaciers. Some of those victims have been missing for more than 40 years.

Trying to bring closure is not helpful, and George Bonanno at Columbia University, who is perhaps the most renowned grief researcher in the US, has found that, the harder that one *tried* to cope with grief, the harder it is to cope with grief and not just in the first weeks but also the first years. In a 2013 *Atlantic Monthly* article he mentions three basic tracks in the journey of grief. Most people, 50 to 60 percent, are resilient and while they may suffer early and have day-to-day fluctuations, they quickly appear to be fine and are fine. About another third suffer great sadness and have a gradual road to recovery that may take a couple of years. The other 10 percent suffer chronic and relentless grief. These people, he points out, need counseling. Bonanno points out that if one thinks they are doing okay, then they are doing okay.

Experiences and memories, why you don't have to be present to be affected

Since a mix of experiences and memories are important elements in grieving and the development of stress disorders, a little review of both and about the brain will be helpful. The way the brain works also explains why someone like a loved-one or even a rescuer who was not involved in the accident, rescue or recovery can also be affected.

Psychologist and Nobel laureate Daniel Kahneman says memory is storage of our personal experiences, but that memories and experiences are not the same. To understand the difference we need a quick review of how our brain works. Our brains are filled with about 100 billion neurons, a specialized cell that transmits, receives and processes electrical and chemical impulses. Each neuron is connected to about 1000 other neurons. This is the wiring, so to speak, that creates vast and complex neural networks within our brains. Eric Kandel, a neuroscientist (and another Nobel prize winner) showed how that wiring changes when people learn something. As one experiences or perceives an event the brain splits what information from the how information and processes it and stores the memory in different places in the brain. When memories are retrieved, however, the brain does not work like a computer's hard drive. Rather the memory, according to psychologist Karim Nader of McGill University, is reformed or "reconsolidated." For decades, it had been well known that memories are very malleable. As Kahneman said in an NPR interview in 2013, when it comes to memories, we cannot tell what's real and what is not, only that some reconstructed better than others.

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There is also one additional implication about the brain that is potentially important to ASD and PTSD, and that is in the role of mirror neurons. Discovered in monkeys by neuroscientist Giacomo Rizzolatti, a mirror neuron is a neuron that fires both when one monkey acts and when the other simply watches. Two decades of additional research shows that mirror neurons also allow people to simulate not just the action but also the emotions of those actions. Basically, sensing what others have told you can activate the same brain circuits the doers experienced. UCLA's Maro Iacoboni, known as Mr. Mirror Neuron, also calls mirror neurons empathy neurons. This may explain why one does not have to be present to also experience stress, grief and perhaps even ASD and PTSD.

Life-changing, catastrophic injury

For families and friends left behind, a loss is exceptionally painful, but let's consider another situation of serious loss sometimes caused from avalanches. There are some victims who suffer catastrophic, life-changing injuries. Typically, these injuries include traumatic brain, spinal cord injuries, or even amputations. Their situation, and for those immediately around them, can be very complex. Grieving is part of their life. Research on people who suffered catastrophic injuries shows that some heal and adapt well, and some struggle. The injuries change peoples' lives in positive and negative ways. The same applies to their families and friends. For some they can realize new opportunities, but others cannot. A friend with a very bad spinal cord injury describes his situation as similar to the movie "Groundhog Day." He and his caregivers face the same challenges day after day; a loop that is very difficult or perhaps impossible to break from.

Dealing with stress

As I mentioned at the beginning I am not a trained therapist or clinician, so I am not qualified to diagnose and give specific recommendations. This essay is not psychological or behavioral advice. There are professionals who do that. I am an observer who has seen and experienced a lot. In my review of literature, talking and listening to professionals, and from my own experiences I have learned that most people are resilient, and trying to hold, control, or repress painful emotions and experiences can lead to more distress. It can even be harmful too.

A good way to deal with potential traumatic stress—and it is not practiced in the avalanche profession—is to be proactive with pre-incident education or training. Pre-incident stress training has been shown to be effective not only with paramedics, nurses, and police officers, but also in the general workplace. In Wilson and Raphael's 2013 book the *International Handbook of Traumatic Stress Syndromes*, they cite a 1981 paper by Hemenway that a large life insurance company estimated a return of five dollars on every one dollar spent on stress-management training.

Since accidents and traumatic experiences are inevitable, maintaining mental and emotional health of those left behind well means post-event action, but I use the term action very loosely. The general advice of having a strong support network of friends, family, and co-workers, eat well, and stay physically fit works well for most.

Most of the formal and anecdotal information about efficacy of stress interventions of emergency responders comes from domains of police, fire, and ambulance. While ski patrollers and mountain rescuers work in a different realm, they can share some similar experiences. Before introducing interventions that are helpful, some words need to be said about a disproven but still widely used method of psychological debriefings also known as critical incident stress debriefings (CISD).

Introduced in the early 1980s CISD (and later known as management [CISM]) became popular in the late 1980s and continues to be widely used, especially by emergency services programs, despite a lack of documented efficacy in randomized controlled trials. More troubling is the evidence that CISD/M adds to trauma and complicates recovery in the general public. In fact, the US Institutes of Mental Health and the World Health Organization strongly recommend not using psychological debriefing on adults exposed recently to a traumatic event. The British National Public Health Service goes even a step further and lists CISD as "contraindicated."

Most damaging research about CISD comes from the esteemed Cochrane Collaboration, an international non-profit organization dedicated to making evidence-based reviews of healthcare interventions. The reviews rely on the results of randomized controlled trials. Cochrane recommends that CISD should not be used for the public. For emergency services personnel Cochrane found the benefit to be neutral to negative.

Oddly, while the scientific community all but dismissed CISD/M more than a dozen years ago, CSID/M thrives. Why? Because it is big business, and because many who go through it perceive it to be beneficial. Participants feel satisfied because they think they are getting support from their organization and because they did not suffer PTSD. Remember, however, that relatively few will suffer even if there is no intervention, and that satisfaction has no relationship to CISD's effectiveness to preventing problems or promoting recovery. The claim of big business is easy to discover with a simple online search, and the suggestion that CISD was more business than intervention goes back to 1996 when senior editor Laura Ostrow in the Journal of Emergency Medical Services questioned if CISM was "worth it" and that "EMS should know what it is buying."

If CISM does not work, what does? The answer is relatively simple for most people. Remember, Bonanno pointed out that most people deal with grief and stress quite well and quickly. Simply talking with colleagues works very well and has likely worked very well for millennia. In a 1989 Norwegian study of 115 volunteer and professional firefighters involved in a major hotel fire, 47% described the experience as the worst they had ever seen. Firefighters who went through formal debriefing did no better than firefighters who simply talked to their colleagues.

TAR to Dale: Thanks so much for all your work on this issue, both on the article and today. Powerful and humbling, in my opinion. How have you kept it from being overwhelming, having seen everything you have seen in your career? Such important work.

When simply talking with colleagues is not helping, there are more structured techniques of psychotherapy ("talk" therapy). Psychological first aid (PFA) was developed about ten years ago by the National Center for Post-Traumatic Stress Disorder. PFA is evidence-based, and today is practiced by the International Red Cross and the World Health Organization for disaster workers to reduce the incidence of ASD and PTSD. People known as helpers who have received special training provide PFA, and the helpers can be laypeople. One does not need to have a psychosocial or mental health background to offer PFA. The training is structured but short and can even be taken online. PFA allows people to cope in their own way on their own terms. PFA seems to overcome the shortcomings of CISM, but its efficacy has not yet been tested with rigorous research.

For people who are still struggling, cognitive behavioral therapy, including acceptance and commitment therapy (and numerous other related techniques), have demonstrated to help people in deep grief, or with ASD or PTSD. These methods are not about closure, but are about making room for the painful thoughts and feelings and improving coping skills. For some who suffer significantly from PTSD, medications may be used along with psychotherapy.

Final words

Avalanche accidents and rescues are inevitable, and while most people get away with a harrowing story to tell, some don't escape. Those left behind are the ones who have the memories and stories. Perhaps they were directly involved in the accident or rescue, or perhaps they were indirectly involved and only heard the distressing news and stories. Their trauma is just as real as those that were there. Fortunately, most people cope quickly and just fine; some support and even lending an ear, so to speak, from a colleague or friend is all that is needed. A few who struggle may need the guidance from a professional.

Our profession is not proactive in recognizing and discussing the very real and all too-frequent consequence of death or catastrophic injury and what that means for those left behind. We can do more. Something I do at the start of my avalanche talks is to have participants remember or imagine their best powder day ever. If they are not skiers or riders, asking them to remember a recent pleasant day in the snow works, too. After confirming that memory, I then ask them to think of and imagine the faces of two or three people who are most important in their life. These special people are typically spouses, children, best friends, or work colleagues. Again, I pause and confirm that they have those images in their minds. Then I drop the bomb (metaphorically speaking), and say that you have just been caught and killed or have suffered a catastrophic injury in an avalanche. This news is followed up by a simple question. I ask them to consider how their death and loss will affect those most-important people.

This little exercise really changes people's perspective and not just on their own risk-taking, but also on the consequences of their loss to others. It is worth some time to listen to, at least, a few comments from the group. The exercise can be a buzz-kill, but a simple quip, say about changing topics from avalanches to tropical beach vacations, warms participants and lightens the mood and lets me get back to the topic of avalanches.

After a rescue, if you want to console, you do not have to say much—and please never say anything about closure. As Frank Ochberg said in an interview about the first anniversary of 9/11, "Closure is a myth but progress is not." To that hurting person, a simple, "I am so sorry" is an expression of empathy or sympathy and lets them know that you know they are hurting, and as Pauline Boss says, it is okay to hurt. If you are the one hurting, talk to a colleague or friend on your terms. You should never be forced into talking or sharing feeling about the event.

If you ever find yourself in that difficult and unfortunate position of having to tell someone their loved-one died, try very hard not to do this solo. Many cities and counties have advocates who are specially trained to guide families. They know the challenges and uncertainties a family or close friend

Dale: Thanks for your kind words. Hmm... sometimes it is overwhelming. Perhaps I have been lucky, as I have only lost a night of sleep after some incidents. I have learned that when the memories return I let them in. Then I'll think/reflect about the memory for a moment or two (sometimes longer) and usually they slip back into my brain until another time.

Avalanche training at Big Red, BC in 2016. *Photo Dale Atkins*

will face. You know avalanches, and together you make an effective team. Be ready to answer questions. The person or persons before you will likely want to know how it happened and why, and maybe if their loved-one suffered or was alone. Answer their questions truthfully and be fair. The hurting do not need to know that their loved-one actually ripped their finger nails off clawing at the snow. When they start asking questions, their grieving is starting. Also be ready to listen. There is a good chance they may want to talk about the person they just lost. If so, be a good and active listener. This is a very personal time and the experience will be enigmatic; a mixture of pain and tears combined with occasional smiles and short periods of joy as they remember things about the person they just lost. These are the good encounters, but every situation and person is different. Sometimes the person may be incapacitated with grief, sorrow, dread, or any combination of all sorts of painful emotions. At some point in the future they may want to talk, and do not be shy. However, if the accident happened within a commercial or organized activity, lawyers get involved and their interest and job is to protect the company or organization.

Julia Samuel's recent book, *Grief Works: Stories of Life, Death and Surviving*, shows how to live with and learn from loss. The UK website *Sudden* (www.suddendeath.org) is aimed at professional care givers and therapists; however, it is a source of information for anyone who wants to know more about bereavement after a sudden death. Another resource is the *American Foundation for Suicide Prevention* (www.afsp.org) that offers all sorts of information for those struggling with suicide and for those left behind. When the thoughts and memories are not manageable, or even if you just would like some support sorting through the experience, please seek assistance from a professional.

To most people, saying "I am sorry," is simply a message of sympathy or concern, however, in law an utterance to express remorse with the hope of diminishing pain and suffering can be seen as an admission of guilt with legal consequences. There are ways to express regret that are not an admission of guilt, and most states have "I am sorry" laws to protect health care providers. If you are involved in commercial or organized ventures, you should contact your organization's attorney for the correct interpretation of both state and federal statutes. Preplanning what can be said can be protection for the organization and enable healing for the hurt.

Rescuers help people by initiating healing, and sometimes even rescuers need rescuing. Rescuers do not give closure. No matter how one got left behind, it is possible to live with grief, to heal and find joy, and still remember what happened. That is a good message. ▲

Simulated CPR during the staged rescue scene in the 1992 video *Avalanche Rescue: Not A Second To Waste*. *Photo Halsted Morris*

After The Rescue

Dave Richards

As I rolled the young man over out of the snow that day in 2006 I would never have suspected that the vision of his broken body would haunt me some eleven years later.

Avalanche rescue can be a very rewarding job. However, like all first responders, avalanche workers can and likely will be affected in some way by the things which they may see during these rescues. Particularly gruesome damage to the human body incurred during avalanche accidents will frequently leave lasting images imprinted in the mind. This is simply human nature.

During the early part of my career as an avalanche worker I felt as though the death and dying that I was seeing was easily dealt with. In fact, only once was I asked after a recovery if I myself was ok. I would simply shrug off accidents and their victims through dark humor and beer-fueled informal debriefings with the crew. For some this is enough and they will not be negatively affected by accidents as they move into the future.

In my case however, something was building within me that would eventually cause my brain to explode. In hindsight, I was not actually dealing with these visions so much as I was simply shutting them out temporarily. Little did I know that in the fall of 2016 these memories would rush back and manifest themselves in a manner which would result in my brain nearing total overload.

Post-Traumatic Stress Disorder or PTSD is real; and is now very much on the tip of Americans tongues due to the fact that many American soldiers are returning from the field of combat with very troubled minds. Traumatic stress however is not limited to those who have dealt with battlefield experience. PTSD can manifest itself in anyone; from the victims of car accidents, to those who have lost loved ones and certainly to first responders such as avalanche rescue workers.

Jake the dog digging out an avalanche victim in the Wasatch. Just the head and hand are becoming visible. The image of the victim once recovered would haunt me for years. *Photo Dave Richards*

In the fall of 2016 I responded to a construction accident which involved an outside contractor working on our hill. When I arrived, I found the body of a man who had been crushed by a multi ton excavator rolling over his body. My only statement over the radio was that I had one deceased victim with "injuries non-compatible with life." It would be the second time in my career that I had used this statement.

For a couple of days, the vision of that body haunted me but did not seem to affect my mood or work. Soon though my mind switched. I was no longer simply seeing the aftermath of the recent event but also visions of avalanche accidents over my career. It started with the image of a young man who had lost the back half of his skull during a two-thousand-foot ride down a narrow chute and over cliffs. This was soon followed by the memory of another victim who had grabbed a tree, but unfortunately had done so at eighty plus miles an hour. His body was crushed. This continued until my mind was literally becoming overloaded by horrible memories of unfortunate and preventable avalanche deaths.

For two weeks, I sat and stared at the wall of my office. I accomplished nothing. People noticed. Eventually I was approached by a concerned coworker, then directly by our company's general manager. I was not asked if, but instead told that I needed to deal with whatever was going on. I agreed; I needed help.

Soon I was introduced to a therapist who specialized in treating PTSD, which had become my diagnosis. There are many approaches to treating PTSD. These span from medication and talk therapy to newer and less known (but equally successful) treatments such as EMDR or Eye-movement Desensitization and Reprocessing. The most basic way to describe EMDR involves following a light or sound from side to side while discussing a traumatic event and working to process that memory.

It was decided that I was a good candidate for all types of treatment but it was the EMDR which proved to work. Over the course of weeks, I was treated twice a week and slowly worked my way through a whole myriad of haunting memories. I learned that images cannot ever be completely driven from the mind, but that they need not dominate my thoughts. I can now openly discuss my experiences and the deadly results without becoming overloaded and shutting down. That treatment was the greatest gift that I have ever been given.

Avalanche work can have sad and at times very ugly results. I love my job as an avalanche worker and recognize that avalanche rescue is part of that job. I will continue to enjoy the work but will inevitably be forced to deal with more unfortunate deaths in my career. Now however, I recognize that the human which you are working to recover is not the only victim of the accident. I now use the tools which I have learned to better cope with these events and eventually process them in a healthy way, as well as to help coworkers to do the same.

I plead with my fellow rescuers to be open with themselves and others regarding the mental scars that our work can leave. There is an undeniable stigma around admitting that you are struggling with the effects of a traumatic experience.

Be willing to fight that stigma. In my experience, it will not be held against you, nor should it be. Be open to treatment should you need it. Help is there for you without judgment or question. Remember that your patient may not be the only one in pain. ▲

Psychological First Aid

Liz Tuohy

When I was 25, my supervisor, Lynne Wolfe, hitched a ride on a sheriff's helicopter into the Absaroka Mountains to help my NOLS course. Upon landing she gave me a hug and said something like, "We are here to help you. You are still in charge. You can tell us what to do, you can give over any responsibility or decision-making to us, but you are still the leader."

Internally, I paused. The river was vocal behind us, the slope before us too steep for the tent camp pitched there, and people circulated around us in groups, moving to a rhythm of tasks assigned or volunteered for. The night before a helicopter had picked up the body of Katy Brain, our student and travel mate for the previous 24 days. She died of a head injury after losing her footing in the South Buffalo Fork of the Snake River. The sheriff had flown in to take statements. He was generous enough to offer to bring Lynne and another NOLS employee to join us for the two-day hike out.

Looking back after 21 years, I wonder with compassion and concern how at that age I possibly managed such an intense and heartbreaking situation. I think of my young students and co-instructors and wonder the same. But by now I have talked to enough people to realize how capable humans are of stepping into situations they really haven't the capacity yet to manage.

While I paused internally, in reality, I kept moving quickly. "Thank you for coming." I gave her a briefing on what we had been doing, how our students were, and our plans. She told me what would happen once we were picked up at the trailhead. Then she started doing some of the same things we had been doing intuitively to support our students. Multiple quick check ins and updates, regular reassuring brushes on a shoulder. Simple positive feedback, reaffirming things I was doing to help our situation. Things we never would normally congratulate each other for, like moving a tent, or making a clear announcement. But in a situation in which planning a final crossing of the Buffalo Fork felt like climbing Mount Everest, these small gestures reminded us that bit by bit, we were getting closer to home, and we were doing it ourselves, with familiar work in which we were practiced.

Since Katy Brain's death, I have continued to work for NOLS. I have deep gratitude for the way the NOLS administration and community supported me and my group. And despite the good support, I worked through seven years of post-traumatic stress injury. As responders we can't prevent trauma in others, but we can help them in meaningful ways.

The methods are simple and don't require a mental health degree. Below I will outline Psychological First Aid treatment principles, illustrated with examples from my fatality experience in the Absarokas. These principles are well-regarded concepts in the mental health community and are taught by NOLS Wilderness Medicine. While the specific language of the treatment principles is more recent than the incident, they give definition to what I and my students found to be helpful. You can use these principles when working with victims and rescuers immediately after an avalanche fatality or serious incident- you will just adjust the examples to the people and situation. My intent is to give you a toolkit that you can employ with compassion and confidence.

This photograph of the course practicing river crossing in the Absarokas first appeared in an article entitled "Going Back In," by Andrew McCarthy, in *Adventure Magazine* August/ September 2009. *Photo Liz Tuohy*

Stress Injury

Stress occurs whenever the mind/body has to adjust to a change. Substantial increases in stress typically result in heightened physiological and emotional states. Acute Stress Disorder is a set of specific physiological and psychological trauma symptoms that are limited to one-month duration. Post-Traumatic Stress Disorder (PTSD) is diagnosed when these symptoms last more than one month. There is an association between unrelieved early symptoms (acute stress) and long-term effects or Post-Traumatic Stress Disorder (PTSD). Between 10 and 30% of people with acute stress fail to recover and develop PTSD.

Treatment Principles of Psychological First Aid

Psychological first aid (PFA) is a non-therapeutic response to a person who may need physical and emotional support immediately following an extremely stressful incident, mass violence or natural disaster. It focuses on simple pragmatic interventions that we good caregivers already do: listening, assuring safety and basic needs are met, reducing stress and helping the victim to engage with support groups.

Create a sense of safety by

- Mitigating the scene by reducing chaos and removing patients from perceived threats.
- Reflecting evidence of safety.

Examples: Lots of short updates and check-ins made the situation feel more predictable and orderly. We still needed to cross the Buffalo Fork to get home, and we did multiple briefings for the group about our plans and contingencies, in order to minimize surprises. We also showed the group on maps that our route out had no additional river crossings. Sending in additional NOLS personnel provide an extra layer of security for both students and instructors.

Create calm by

- Calming yourself first.
- Emphasizing the present, the practical, and the possible.

Examples: We ascribed to the "one hour at a time" model. Thinking forward even a full day contained too much unknown, so we focused on what we would need to do for the next hour. We used kind voices and eye contact, said please and thank you, and took deep breaths together. We gave each other hugs and stopped to cry when we needed to, validating every feeling as it came up. And then we calmly continued the task at hand.

Create self and collective efficacy by

- Involving the person in problem-solving, self-care, and rescue–Asking people what else they can do and what they should not do.
- Recognizing and reminding people of existing strengths.

Examples: Our students moved our camp to Katy's body while we waited for evacuation support, and proceeded to cook and make hot drinks seemingly nonstop for the next two days. In doing so they were able to stay busy and provide both comfort and nourishment to our group. It can be an easy mistake to "help" people by doing basic tasks for them while they sit and watch. Don't rob them of small, meaningful distractions. If needed, help them break the tasks down into smaller steps. Similarly, one of the most powerful gifts Lynne gave me was continued leadership – with the option for help. On the way out, we had to decide between two route options. I asked her to decide. She chose, the route worked well, and I was able to let go of one more responsibility.

Create connection by

- Building an on-scene relationship.
- Helping people contact friends, family, loved ones (including pets).

Examples: On our hike out, Lynne led our students in deciding that we would best honor Katy by giving remembrance to the entire month-long experience. We stopped regularly to voice memories- funny pooping stories, frustrating post-holing stories, beautiful moments, regretful disagreements, and in doing so shared our emotions and solidified relationships in new ways.

Create hope by

- Reflecting specific, accurate, positive facts and predictable, realistic steps.
- Personally maintaining and communicating hope

Hope doesn't mean saying that things will be okay, but might look like taking a pause to notice a small thing that disrupts the notion that nothing is okay.

Examples: Hope doesn't mean saying that things will be okay, but might look like taking a pause to notice a small thing that disrupts the notion that nothing is okay. We stopped to watch sunsets and bears. We kept using the same funny voices we had used throughout our expedition, learning that somehow laughing and tragedy can exist at the same time.

In summary, psychological first aid is a set of simple interventions that any wilderness recreationist can use. Thanks for watching out for each other. I write this with empathy for people whose lives have been thrown by stress injuries, and appreciation for the people who have been helpful along the way. I hope this curriculum helps.

Thank you to the following people who have provided expertise to this curriculum:
Laura McGladrey, PMHNP, FNP, MSN, RN, FAWM, Cynthia Stevens, MD, and Will Marling, former Executive Director, National Organization of Victims Assistance. ▲

Any Given Day

Elizabeth Lamphere

Ian: Hey, Bubbee: I think we should start a foundation to benefit the children of avalanche victims.
Me (shifting uneasily): That's a great idea.
Ian: Yeah….

An unexpected death is never met without resistance. We spend our time making hopefully good decisions about our health and well-being so we may live longer, and attempt to put off the inevitable. When an untimely death occurs, a tragic death, a death way too soon, we take pause. This pause can come on any given day. As recent events already this season have shown, the aftereffects of an avalanche trauma are relentless and can lead to the worst of outcomes.

My partner, like so many other fathers, brothers, husbands, and wives before him, was taken in an avalanche in 2013. He was an avid skier and backcountry enthusiast. Our business together was selling glueless climbing skins. His passing when our daughter was nearly nine months old was my worst nightmare come true. The short-term shocks and long term issues precipitated by his death for me are simply magnified over time when reflected in my daughter's eyes.

Initially the focus was on survival. How do I keep my breast milk flowing, make money, and take care of this tiny creature? How do I put the image of Ian suffocating out of my head? How do I attempt to keep myself healthy for my daughter? How many times can I run through my last week with Ian? How do I hold Madelyn and not sob? How do I get rid of the sinking feeling in my soul? There was not a lot of conscious thought that I can recall during this initial time period of six months. As time passes, I remember a few more tidbits of conversations and faces during that time. The mind does a brilliant job of protecting you from yourself when it has to. Within three days of the avalanche, family and friends had arrived into Denver and we took over a hotel. It was as if once the confirmation of death happened, a chain of events began that was unstoppable and never ending.

From the coroner's phone call, to making the arrangements to get Ian home, each step of each day became like groundhog day. The pesky news stations were trying to get ahold of me and friends would call in disbelief only to sit silently and say nothing as nothing could really be said. The early days were of course the most shocking but not the most difficult. So many people were in my space wanting to help and making sure I maintained my cool when I had to. I felt Ian's energy still present, which helped me immensely.

As time went on and the funeral had passed, the safe bubble of friends and family dissipated. Thankfully, I was still so busy maintaining Madelyn that my own thoughts often took a back seat. Until of course, nighttime. The best time of the day was the few seconds in the morning when I first woke up. Those blissful few seconds where I barely knew where I was, and my story was still slightly too faded into the background to be apparent. The rest of the time, I attempted to practice "mind over matter" and the "fake it till you make it" methodology to live my life. I could not have this happen to someone else without me trying to do something to prevent it, even if it meant telling my story over and over again. By making friends with the story, I could speak about it comfortably and hopefully with real impact.

I knew of no other young widows except for the other widows affected by their husbands' demise in the Sheep Creek Avalanche with Ian. We stayed connected for a little while and still reach out from time to time but my experience felt so different with Madelyn centered in my world. I did not feel like I had many tools to deal with what I was going through. It was partly the need to keep busy but mostly the desire to connect with other families impacted by a similar tragedy that led to the founding of the IAN fund, or International Avalanche Nest-egg.

Through my work with the IAN fund I could try to mitigate the devastation of some of the sobering realities of becoming a single parent. By helping another family in the same circumstance as my own, I could see progress in another's life even when I could see none in my own. This became so gratifying. Most of the help provided by the IAN fund was and still is in monetary form. We also try to educate the aspiring enthusiast by donating money for the purpose of enrolling students in avalanche safety courses. This year, we gave two thousand dollars to the South Burlington Back Country Ski Club. Additionally, I have spent many hours speaking with recent widows and hoping I could help them see beyond what they were experiencing in that moment.

Apart from the IAN fund, there are not many other avalanche event-specific tools (that I can find) for coping that are readily available for a victim or their family. PTSD is seen not only in the victim's family but friends and colleagues alike. It can come at any time and be largely unprovoked. One tool, however, is the Facebook group, "The Club That No-one Wants to Join: Teton Chapter," where we discuss our fears, our issues, our sadness, and sometimes our successes. I would guess that most of us likely seek outside help as well. But, apart from the fundraising sites where sympathizers can send cash, there is no ski community infrastructure set up specifically to serve the families and friends of avalanche victims. Had I not lived in the utopic community of Crested Butte, I would surely be processing this tragedy much slower and would struggle harder without the amount of support that I have grown to rely on here. As Vivien Bowers writes in her book *In the Path of an Avalanche: A True Story,* "confronting a violent death is significantly different from dealing with a normal death, around which our society has built a comforting regulation and ritual. In an accidental death, there is no regulation or ritual. There is terrifying disorder."

Madelyn's upbringing in Crested Butte has ensured her sense of community and family bigger than what I could have provided on my own. As a ski community, both local and global, I see a need for more focus on the aftermath beyond the technical details of an event. The sense of community support I feel here would ideally be mimicked in the broader ski community. The IAN fund is attempting to do just that. I would like to see more of a focus on helping connect professionals to the traumatized. I would like to see more peer monitoring and self-checking without looking through the tricky lens of the ego.

I always urge friends who partakes in the sport to talk amongst his/her friends and share not just the powder shots of your tour, but the hard yards, and the fears. By painting a more real picture to others, a better understanding comes to the individual as well. I would like to see more real life accounts being shared in the safety courses and avalanche seminars around the world.

The IAN fund is very much a family run operation. We fundraise with goods donated by our industry sponsors and try to help as much as we can when a request comes in. As time goes on, we would like to be able to maintain support. This can be done in the form of goods, money, gear branding and much more.

Because, on any given day, a circumstance, a smell, a word, a song can transport even the most stoic soul into a state of discombobulation and disturbance. I would love to start the conversation where we support our fallen friends instead of trying to fool ourselves by internally repeating the mantra "I would have never done that." Or "it won't happen to me."

I assure you, on any given day, it could.

Four and half years on, I have a beautiful, feisty five-year-old girl who looks just like her dad. I live in paradise and am able to support her myself. I know that Ian's death has been an opportunity to grow as a woman and as a mother. It has offered a perspective on life mainly bestowed on an older, more learned human being. This transformative event will always be a part of our story, and it has defined a chapter in our lives. My hope is that I am able to impart a sense of confidence in my daughter that will allow her to know that she can triumph over any circumstance that life presents to her. Most importantly, she will know how fleeting life can be and she will act accordingly.

I hope that the IAN fund will be an even more valuable resource for our community as a whole as some of us are forced to confront unforeseen tragedy. ▲

Initially the focus was on survival. How do I keep my breast milk flowing, make money, and take care of this tiny creature? How do I put the image of Ian suffocating out of my head? How do I attempt to keep myself healthy for my daughter? How many times can I run through my last week with Ian? How do I hold Madelyn and not sob? How do I get rid of the sinking feeling in my soul?

Handling Rescue Stress for Avalanche Professionals

Aaron Parmet

"Where are you!?" The girl screamed into the frozen dawn. We staggered past her with our gear, bleary-eyed, having 'slept' in the rescue truck after the previous day's unsuccessful search.

Do you have a forever-moment like that? If you do not already have several, stay tuned: avalanche professionals are emergency responders. How do/will you deal with it? Immersion in traumatic situations is an often unaddressed cause of turnover, suffering, and death in emergency professionals. This problem can manifest in severe forms including acute stress disorder (ASD), post-traumatic stress disorder (PTSD), and their sequelae (e.g., suicide). Understanding the problem, building resiliency, and having a professional mindset are three ways to lessen the consequences of these experiences. I am no expert, but I have studied this topic during my 14 years as a healthcare provider in mountain rescue, critical care, EMS, and water rescue. I will share some evidence-based recommendations and personal anecdotes that I think will help the avalanche profession stay healthy during an emergency response career.

Summit County Rescue Group extricates an avalanche victim out of the debris field. *Photo Aaron Parmet*

Prevalence and Exposure

ASD and PTSD are marked by symptoms like intrusive memories (including flashbacks), negative moods, attempts to avoid memories, disrupted sleep, concentration problems, and exaggerated reactions (DSM-5, 2013). ASD presents quickly and lasts 3-30 days while PTSD can present later and lasts longer (DSM-5, 2013). They are common problems in some fields of healthcare. Emergency personnel around the world experience clinical PTSD at rates of 10-21% (Carmassi et al, 2016) and moderate symptoms at rates up to 94% (Iranmanesh et al, 2013). US EMS providers may suffer suicidal ideation at 1000% and suicide attempts at 1100% of the national average (Newland et al, 2015).

In the avalanche profession, we do not typically deal with loss on a daily or weekly basis. Infrequent exposure does not abate risk if it leaves us less prepared to cope (Wieskal, 2015). Nobody looks forward to events like losing a patient, terminating resuscitation, or exhausting extrication of bodies. In mountain communities there is a complicating stressor; rescuers are likely to know their patients.

Rescue Stress Pearls

Misconceptions reinforce dangerous stigmas. Most first responders are lucky to have had a short lecture on traumatic stress. I will skip the fascinating psychopathology and leave the detailed definitions to Atkins' excellent "After the Rescue." Here are some pearls I've learned about rescuer traumatic stress:

- We all process trauma differently. There is no one 'right' reaction, but there are harmful reactions.
- An individual can react differently to similar traumatic experiences.
- Healthcare providers can form meaningful relationships with a patient in a short time. (Wieskal, 2015)
- Grief is about adjusting to loss, not death.
- The 'five stages of grief' is dated; there are many paths.
- Rescuers do not have to be "in the thick of it" to be affected.
- ASD/PTSD are complex combinations of biochemistry, neuroanatomy, and psychology, NOT character flaws or 'weakness' (Falconer et al, 2008).
- Use caution with conventional wisdom - most of the research about PTSD studies populations exposed to combat, major disasters, or abuse.
- Tincture of time heals some wounds, but allows others to fester.

Resilience and Mindset

"Stop CPR." 36 hours into a no-sleep 72-hour shift is when I responded to a five-patient wreck that included a critical six-year-old girl and her dead pregnant mother. For weeks following, anytime I saw a young girl, visions of the patient invaded my mind. It was strange and distressing. I can now remember it clearly, but without distress. After that, I never worked longer than a 48.

Exhaustion and lack of sleep makes us more prone to error. They also heighten our emotional response and lowers our resilience. This is especially true of the vivid multi-sensorial experiences in rescues. Crew rest is important after a call to destress, process and contextualize experiences.

Resilience relies on self-care, outlook, and support. Self-care includes rest, relaxation, good nutrition, and exercise. An extra snack in your pocket that you can quickly shove in your face while dressing the probe line hours into the search can really make a difference.

"Don't burn out on us, OK? I'm here if you ever need. I get it."

We have all probably received 'that look' after telling stories to someone unfamiliar with emergency response. Finding someone you can talk to informally is important for some. They do not have to be in your agency. You can help others too! If you do not want to fill the role, you can certainly keep your eyes open. Some organizations offer resiliency training and peer support training. If yours does not, start it up! A variety resources and trainings aimed at first responders can be found at www.CodeGreenCampaign.org.

"An empty vessel," I remember thinking about my first avalanche victim laying on the snow bare chested except for AED pads. I was unaffected since we did all we could. Seeing the family at the trailhead is what affected me.

Realistic perspective and expectations about our roles and goals are the key to healthy reactions in tragic situations. For emergency responders, this means internalizing the mantra, "it is not my emergency; I am here to make things better." Adopting this view facilitates the cool professionalism and emotional detachment needed to perform in a crisis. "Make things better," can mean wildly different things depending on the situation. Understanding this point is needed to see realistic goals. 'Better' does not always mean a life is saved. Terminating resuscitation can be the 'better' you achieve… so can hauling a body. Failure to achieve the unachievable is not true failure.

A prepared mind with a healthy mindset is resilient, though not invincible. It is also important to reflect on what gets to you and why. It is different for everyone and it changes over time. You can adapt. After years of ICU practice, I became better at helping families during loss and I found more peace with losing patients.

Avalanche Professional, Mitigate Thyself?

"They are reluctant. Share a story so that others will know it's okay that they have stories." This PTSD researcher's request made me ponder barriers for avalanche professionals.

What is stopping you from getting help? Underneath our gruff veneer (thicker for some) avalanche professionals usually live to help others. We guard the lives of our teammates and clients. We expect each other to be self-sufficient and focused on each other's safety. We don't want to be seen as distracted or 'weak.' If there is a problem, we often stay silent due to stigma or a lack of options.

If, when, and how you get help is very dependent on you. Time, self-care, and relaxation might do it. Maybe a little talk with your mentor or peer support are what you need. What's next if your life is being disrupted?

Do not bottle it up (or crawl in the bottle). Also avoid the psychological debrief. Critical Incident Stress Management (CISM) was the prevalent, now discredited, form of preemptively mitigating trauma. The evidence suggests that CISM offers no net benefit and likely causes harm in some (Roberts et al, 2009). However, CISM persists in many areas like a sacred relic. CISM is supposed to be like an inoculation against PTSD and ASD. Persons with different coping mechanisms, experiences, personalities, and at different points in their process are placed in theoretically therapeutic environment where they may be exposed to more trauma (Bledsoe, 2003). (Note: a psychological debrief is not the same thing as an operational debrief, AAR, etc.).

Most rescuers do not suffer clinical disorders after a traumatic event; who does suffer is not predictable. This fact supports individual assistance as needed. Where to get it? There are many specialized professionals with deep education: psychiatric nurse practitioners (PMHNP), psychologists (PsyD), psychiatrists (MD/DO), counselors (LPC), social workers (LCSW), and clergy. How does one afford a healthy serving of this delicious acronym soup? Your agency may offer free and confidential access to professionals through an Employee Assistance Program (EAP). Your health plan, community mental health center, or religious organization can direct you. There are a variety of effective treatments such as CBT, EMDR, and medication.

Whether emergency response is a regular or rare part of your avalanche career, it is worth your building your resilience. Practice self-care. Reflect on your perspective. Build and be support. Fight stigma. Do not be afraid to seek help if needed. ▲

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Notes from Teton County Victim Services

By Tracy Trefren

We are a branch of the Police Department and the Sheriff's Department here in Jackson. We work with all victims of reported crime in Teton County. We are funded by five different state and federal grants as well as local government (town and county). Our time on SAR and similar cases, as it is not normally linked to a specific crime, is funded through the local government portion of our funding.

TAR: What is the role of victim advocates during and after rescues?

TCVS: Victim advocates in Teton County are called when needed to assist with family and friends during a SAR event. The advocates role is to support the friends/family during the crisis. Support is often keeping them informed as to what is happening within law enforcement on the search, assisting to locate resources such as places to stay and things to eat, networking to plug in relevant supports to them such as counseling, clergy, or other areas that are identified as necessary.

TAR: How do you ensure coverage and continuity for victims and their companions, families, both during and after an incident, for the long and short term?

TCVS: When we are called to respond by law enforcement, generally one of our two and a half staff members respond to the location. That responder becomes the go to advocate. We strive to not change an advocate mid event to provide the continuity of the go to person for the family. In the event that a volunteer is covering on call when an incident begins, the volunteer works closely with a paid staff to ensure the transition to a TCVS advocate is as seamless as possible. Our volunteers are in communication with staff while on scene as well through text and phone calls and often times a staff member responds immediately to the location with the volunteer. The advocate often will gather contact information for family and friends and will follow up with them after an event. It is not uncommon for family and friends to reach out to their advocate a year or more after the incident to provide updates on how they are doing.

Some of our staff is currently certified for Critical Incident Debriefing/ Stress Management. We are working with local groups to bring more CISM training to the area so all of our staff are trained in this skill and can assist the first responders to an incident with debriefing afterwards. ▲

Tracey Trefren has been the Victim Services Coordinator in breathtaking Teton County, Wyoming for five years, though she has been with Teton County Victim Services since 2005. She and her husband are raising their children to love the outdoor life and spend their free time in the mountains of western Wyoming. Tracey's hobbies include fishing, horseback riding, and teaching a monthly paint class.

Post-Event Tools for Rescuers

A Conversation with Nick Armitage

TAR: Let's talk about post-event debriefing systems for a bit. What types have you been part of?

NA: Some of the best stress management techniques have developed organically. With the Jenny Lake Rangers, we use an informal small group and peer to peer method. Initially it seemed too informal but it allows for a casual environment where the bigger issues rise to the top. Over time, I realized that this ritual mirrored more structured systems, where we start with identifying those with the greatest impact, later checking on each other, using a proactive buddy system. This can work well within a tight team that looks out for one another, even checking back with people many years after an incident.

My National Park Service training introduced me to CISM (critical incident stress management) which is a more formal system with multiple tools to help deal with stress.

1. *CISD (critical incident stress debrief)*. This CAN work well if the group is small and intimate enough to inspire the trust needed to truly relive the experience. If the group is too large and the guidance less than professional, it can perpetuate trauma.
2. *Town Hall Meeting (Diffusion)*. Anyone involved in the incident gathers to review timeline, dispel rumors, and discuss normal stress reactions. This is a good opportunity to assess the audience, see who might need further help.
3. *Small Group (Debrief)*. This can involve the people most directly affected by an incident and identify further need for follow up.
4. *Peer to Peer (Follow Up)*. Once someone is identified as needing more assistance, a peer or friend is assigned to connect with them.
5. *Mental or Psychological First Aid*. This technique allows people more space in their lives and to normalize a stress response. Examples for avalanche workers might include moving from field to administrative duty, taking a morning off of control route work, sorting gear rather than guiding clients, but not taking a financial penalty. This applies moderation to all the stressful aspects of life.

With any technique it is important to explain it is normal to have symptoms of traumatic stress like anxiety, difficulty sleeping, change in appetite, nightmares, and depression. Although many of these techniques are helpful in post-traumatic stress they are not always the cure. These tools are used to create understanding with traumatic stress, recognize symptoms, dispel myths, allow natural coping mechanisms to gain traction, and identify a need for further help.

The next line of defense is professional help, which can take the form of cognitive behavioral therapy, counseling, medication, or bihemispheric therapy. Some theorize that crossing hemispheres and using both sides of the brain and body can increase the body's coping mechanism. This may be as simple as walking and talking, or like the EDMR therapy discussed in Dave Richards' article on page 38. Many psychotherapists have resources of this caliber, especially those who work with returning military personnel.

TAR: Tell us about what kinds of briefings you've received or given over the years that deal with preparing for potential stressful or upsetting circumstances?

NA: Stories around the campfire of rescues or recoveries serve to counteract any romantic notions that a rookie might initially own about the job. By the third or fourth season, I began to realize that nothing made me immune from the decisions or circumstances that caused other people to be in accidents. We were often rescuing skilled climbers and skiers who didn't have huge risk tolerance, just bad luck or timing. This caused me to think about my family and realize that as a ski patroller or ranger I didn't have a silver bullet that kept me from harm. This has changed my planning for greater margins on my backcountry endeavors. ▲

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A few useful links:

www.ptsd.va.gov/public/treatment/therapy-med/index.asp
www.nytimes.com/2014/05/25/magazine/a-revolutionary-approach-to-treating-ptsd.html
www.apa.org/monitor/jan08/ptsd.aspx

Nick Armitage has worked as ski patroller at Big Sky, MT and as an educator with AAI . He is now completing his law enforcement training and soon to return working year round in Grand Teton National Park as a ranger where he lives with his wife and their two kids.

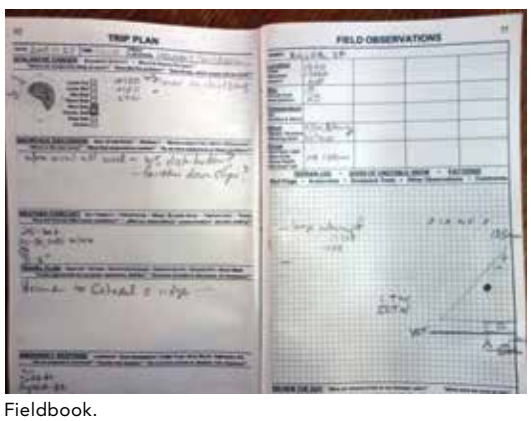
SNOOPY'S NEAR MISS

Celebrating the Near Miss

BY ROB COPPOLILLO

I roll cigs while belaying in a beret. I find the deepest untracked snow, even on the days you're diving tips into sastrugi and flailing like a newb. I know all the hutkeepers, shortcuts, and local dialects. And I am never, ever, even just a teeny-tiny bit—wrong.

You see, I am an IFMGA mountain god, oops, guide. Damn autocorrect, even my smartphone thinks I'm awesome.



Fieldbook.

Joking aside, we've all been there—running a route, pulling off a hard climb, or sending a burly ski line, we attribute the success to our limitless skill. Rarely do we pause and say, "I'm only alive because of dumb luck!"

Truth is, the avalanche game does involve luck and sometimes in greater quantities than we'd like to believe. On those days when we "got away with it," we should probably be asking ourselves, "Was that skill or just a near miss?"

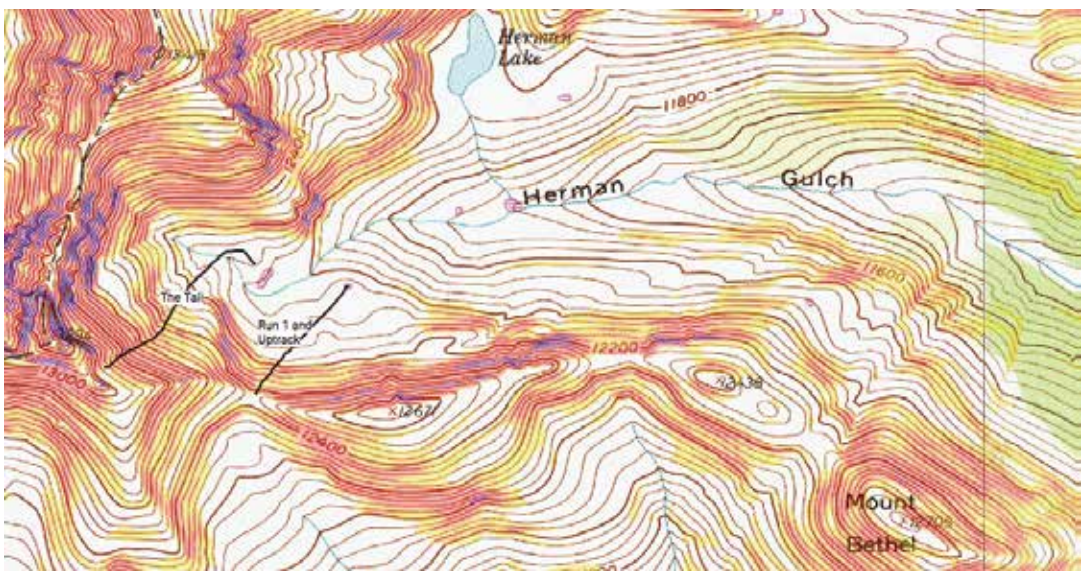
Celebrating the near miss gives us the opportunity to learn from an accident—one that didn't happen—without incurring any of the carnage. It's wisdom minus the hard-earned element. I'm writing to encourage all of us to begin sharing our near misses, so to get this thing started I'll share one of mine.

November 21, 2015

Colorado's Front Range received its usual mixed bag of weather that fall—bit of precip, lots of sun, and finally a crust in the snowpack during the second week of November—what we were calling the Veteran's Day crust. Lingering snow from stingy early storms became 10 cm of 2mm depth hoar on north-northeast-northwest aspects, with the Vet's Day crust above, then a gong show of different layers depending upon aspect and elevation.

Avalanche danger on the Front Range had notched down from considerable in the alpine and at treeline to moderate in the alpine on the 19th, and then moderate at treeline on the 20th. By the time we parked at the trailhead at Herman Gulch on November 21, the forecast was moderate in the alpine and at treeline, and low below treeline—and strong winds forecasted so I'd jotted "WS (wind slab) distribution?" in my fieldbook.

The Tour.



We hadn't toured more than once or twice on the year, but the trend was decreasing danger. Winds had had been strong all week, with gusts into the 50s and much of the snow available for transport had indeed transported—onto NW, N, NE aspects, or out to the land of trickle-down economics and low taxes, Kansas.

The Tour

We left the Herman Gulch trailhead, two less-experienced but super-strong friends and me, in the morning and by 10 a.m. we were starting up the slopes on the east ridge of "Snoopy," or Citadel Peak (13,294ft.). Leaving the valley bottom (on

Coppolillo, left, and his touring partner, with The Tail pictured directly above and behind them. *Photo courtesy Rob Coppolillo*

Snoopy's Tail.

around our skis, but no more whumpfs, no shooting cracks, no avalanches. Indeed, on the uptrack most of the snowpack was minimally layered and pretty consistent. Could we sneak onto slightly more interesting terrain? My mindset quietly bent from "status quo" to "stepping out," and in hindsight without me consciously acknowledging it.

We toured up the ridge and eyeballed "The Tail," a run that drops NE off Snoopy into Herman Gulch (see map and photo), with a slope angle approaching 35 degrees in spots. The Tail starts gently, in the mid-20s, though, affording us a safe look into it and the opportunity to poke and test the snowpack a bit.

Probing into the feature we found surprisingly right-side-up snow, down approximately a meter to the Vet's Day crust. I slid into the feature a bit further and dug on 26-degree terrain: CTN and ECTN. No obvious signs, save for the collapse in the meadow. Snowpack tests negative. If we skied the "gut," we'd have little chance of initiating the layer on low-30-degree terrain, right? I returned to the ridge and we discussed.

One at a time, regroup in a safe spot below and to the side, I'd stomp on the gradually steepening slope as I entered—and just like we'd suspected, a great run, nothing happened. Man, we killed it. Did I mention I'm a mountain guide? Of course I did, because, you know, I'm a mountain guide.

That Night

Ah, the happy afterglow of having nailed it … and then the phone rang.

"Were you comfortable all being on that slope?" a longtime mentor asked.

"Yeah, we were off to the side of The Tail when we regrouped."

He responded, "We got a few avalanche observations from that zone today. Two skier-triggered on Berthoud, a natural on Loveland, and an unknown on Jones Pass."

My afterglow dimmed to fidgety self-doubt. Four avalanches peppered around our tour (one a remote-triggered, size 2.5), all within five miles as the crow flies. The ego barked justifications and snowpack test results. The smarter, quieter chunk of my brain raised its eyebrows: mountain god, eh?

We chatted and decided to head back to the zone the day after next, where we dug several pits (goo.gl/HLzKz4 for video of our results), performed tests, and then observed a skier-triggered persistent slab on Mt. Trelease, immediately to the south. Another avalanche and a full propagation result from a modified ECT—not exactly a ringing vindication of our decision to ski The Tail two days prior.

Near Miss

I had to be honest with myself and my partners: we'd had an event during which nothing went wrong, but somebody could've gotten hurt or killed- the definition of a "near miss."

My buddies weren't as convinced we'd blown it, but I had to shelve the ego and take the opportunity. I'd be a fool to pass on free wisdom and opportunity for insight. I debriefed with my mentor and tried to glean what I could from the experience.

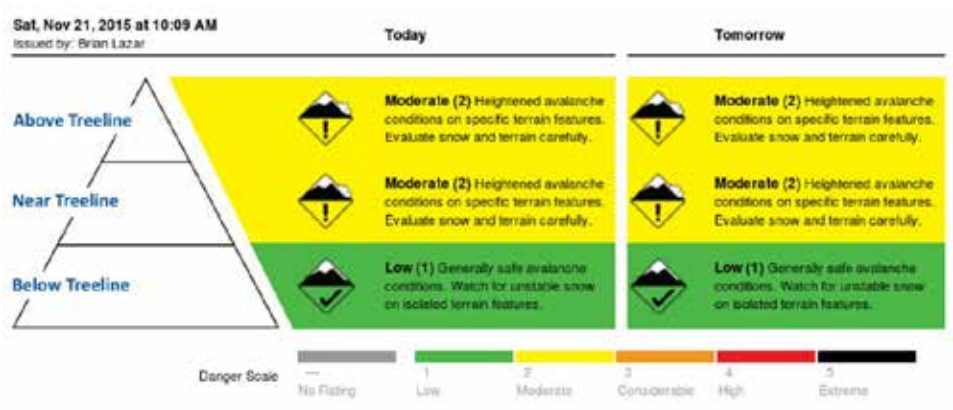
Many of us read accident reports, as in *The Snowy Torrents*, but if only there were a forum or database where I and others could share our moments of dumb-assery that conceal future nuggets of wisdom! Turns out there is.

what is boggy, willowy terrain in summer), we got a large rumbling collapse, roughly 150 feet square. We discussed it briefly, and discounted it, as we tend to get these collapses over shrubby meadowy terrain. We traveled to ridgeline, got in a run on low-angled (less than 30-degree; see photo) terrain without incident.

Winds at ridgeline indeed howled into the 50s, with some effect, but the local topography pushed them around to the S/SW, rather than W/NW as had been forecast. We recycled our skin track, hit the ridgeline again, noticing a few small cracks

Colorado Avalanche Information Center

Backcountry Avalanche Forecast
Front Range



Summary

Triggering a Persistent Slab avalanche large enough to injure or bury you is possible today. The most suspect slopes are those where the most recent storm snow drifted and built slabs on top of weak layers of old snow. The most likely place to find this combination are on slopes steeper than 30 degrees near and above treeline that face northwest to northeast through southeast. Pay careful attention to areas that have been recently wind-loaded by the northwest winds. The increased load from wind-drifted snow may be enough to tip the balance and overload the buried weak layers.

A secondary concern for today is Wind Slab avalanches on slopes lee to the northwest winds. Strong winds can redistribute the 8 to 10 inches of snow that fell since yesterday further down slope than expected. Look for evidence of wind loading in the normal places such as along ridgelines, in cross-loaded gullies, downwind of prominent terrain features. The wind has been loading the same slopes that have the worrisome structure for Persistent Slab avalanches. A triggered Wind Slab avalanche can lead to a more dangerous avalanche if it steps down to older snow.

Below treeline the snowpack does not have much in the way of weak layers or slab. The biggest hazard is hitting an obstacle blanketed and hidden by the recent snow.

Weather Forecast for 11,000ft Issued Saturday, Nov 21, 2015 at 10:09 AM by Brian Lazar

	Saturday Night	Sunday	Sunday Night
Temperature (°F)	15 to 20	25 to 30	15 to 20
Wind Speed (mph)	20-30 G50	20-30 G50+	15 to 25
Wind Direction	WNW	WNW	WNW
Sky Cover	Overcast	Mostly Cloudy	Mostly Cloudy
Snow (in)	0 to 2	0 to 2	0 to 1

Avalanche conditions can change rapidly during snow storms, wind storms, or rapid temperature change. For the most current information, go to www.colorado.gov/avalanche.

CAIC Forecast.

Avalanchenearmiss.org

Firefighters and law-enforcement personnel have long reported near misses on anonymized databases and now we, as avalanche professionals, have the same resource—avalanchenearmiss.org. A project of Avalanche Worker Safety, a 501 (c)3 not-for-profit group, avalanchenearmiss.org is the first step in a broad campaign to make avy professionals safer in the workplace.

Editor's note: For more on Avalanchenearmiss.org, please see announcement in TAR 36.1, and in sidebar to the right.

Submissions delete place names, individuals, and names of organizations, so there's no shame in contributing. (Those of us working within organizations, however, are reminded to get permission from the higher ups before submitting.) As we amass more near misses, we'll be able to glean stats and insights from the results. A search function will allow us to filter cases, too.

Luckily, most days we blow it we get away with it—remember, ours is a "low-validity" environment, meaning the feedback we get is sometimes not the feedback we should get. In the absence of reliable and accurate feedback, we need to debrief our process as much or more than the outcome. I actively discounted a rumbling collapse, failed to repeat my ECT, nor did I modify it to better access the weak layer. Taken at face value, the day yielded great turns with great friends—but if I'm honest and debrief my process, I had some holes in my method. Did I "talk myself into it?" Succumb to bias?

One of my favorite debrief questions is, "Knowing what we know now, what would we do differently?" On this day and considering the process more than the outcome, I have to look back and wish I'd done that modified ECT; that is, cutting off the top 40cm of the slab and then performing the test. I don't recall if I rechecked my mindset during the day, either, but a glance at my notebook and a reminder that I'd written "status quo" instead of "stepping out" might've persuaded me to err on the side of caution. Ruling out terrain described in the bulletin—no matter what I found in the field—would've kept me off the Tail, too.

As Daniel Kahneman writes in *Thinking, Fast and Slow*, "If repeated exposure of a stimulus is followed by nothing bad, such a stimulus will eventually become a safety signal." Recreating in the snow often doesn't teach us what we need to learn, so start celebrating your near misses with me and maybe we'll learn a thing or two. I promise to ditch the beret and attitude, mes amis. ▲

Rob Coppolillo co-owns Vetta Mountain Guides in Boulder, Colorado, and is the co-author of *The Mountain Guide Manual* (Falcon Guides, $24.95).

AVALANCHE WORKER SAFETY
www.avalancheworkersafety.org
Helping avalanche workers come home at the end of each day.

The AWS near miss project (www.avalanchenearmiss.org) focuses on worker safety, collecting data only on events that happen in the workplace. Causes of workplace accidents and near misses may differ from causes of recreational close calls (different motivated reasoning promotors, pressure to perform or please clients, operational constraints, a lack of ability to choose terrain, etc). At this time, AWS is not collecting data on events that occur outside the workplace.

From AWS founders Scott Savage, Ethan Greene, and Bill Williamson

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