Division *of*
Risk Management

Transcript for State Risk Symposium Presentation: "UDOT Safety – Generating Awareness"

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Speakers: Keith Bladen (Employee Safety Manager – Utah Department of Transportation)

Introduction and Speaker Welcome

Host: We are excited to hear our next presentation with Keith Bladen with the Utah Department of Transportation. Keith, come on down. He's got a great wealth of information and experience to share with us, so we're looking forward to this presentation. He's certified with the National Safety Council and ATSSA in the fields of worker safety and traffic control, and Keith has worked for UDOT for over 32 years now, where he spent 25 years working with employees to improve safety. He enjoys other things outside of work, but I appreciate his statement here: he wants to help people stay safe so that they can return home and enjoy their personal lives and their family. So with that, let's welcome Keith, please.

Keith Bladen: Right. Thank you. Appreciate that, and appreciate the opportunity to present to you. I was asked to talk about UDOT's Near Miss Reporting Program. It's a hard act to follow when we're talking about safety with regard to active shooters or, in our case, probably more like disgruntled employees, but I appreciate being able to hear from everybody that's presented so far. And hopefully I can give you some stuff that will be beneficial to you and to the work that you perform. So, just a little bit about our near miss program. What we're trying to do is help generate awareness with our employees. And so we're looking at ways of generating that through the things that get reported to us.

The Battleship Analogy: Safety as an Integrated System

Keith Bladen: So looking at this battleship, fortunately, my son-in-law, he served—he's serving in the Navy right now—and he was assigned to the USS Russell, which was in San Diego. We got to go visit, and this picture really resonated with me on the way that these ships function. But up at the top of the battleship in this case, it has an IMS system, an integrated mass system. What this does is it helps provide early warning. It has radar detection, it helps with targeting and navigational methods, also communicating, and any sort of meteorology where things might affect the way that ship functions or their purpose of being out there in the field or in the ocean in this case. But basically, what this IMS is, is a modern-day crow's nest, which you might see in old pirate ships where somebody is standing up above looking out around, identifying what might be a hazard or a concern for the ship.

So if, in my case, if UDOT or your organization or higher ed or K through 12 were a ship, where do you consider safety and risk being stationed on this ship? We look at this as the IMS, this integrated mass system, where we're charting the course for the ship. Also helping steer the ship, maintain propulsion systems, and then provide feedback to the crew. And also we probably feel like we're swabbing the deck with a lot of things that we have to do, but our main focus is to look out for others and help navigate through this situation that we're dealing with.

The Iceberg Analogy and Heinrich's Law

Keith Bladen: As a ship is traversing along the waterway, it might come across icebergs. And we see this quite a bit in risk, this analogy of an iceberg. Most of the time, they're a lot larger underneath the surface than they are up above it. So I wanted to utilize this analogy by looking at things that we know versus the things that we aren't aware of yet. So the tip of the iceberg, we have our major injuries. Just under that, we might have some minor injuries. Below the iceberg is what we're calling our near misses, and then even below that, we can have some risky behaviors or conditions that employees tend to engage in.

So I'm going to compare this iceberg with the Heinrich's Law. Heinrich basically said that for one injury that occurs in a workplace, 29 minor injuries are happening, and then 300 near misses or no-injury events are occurring for that one major injury.

So this Heinrich individual, Herbert Heinrich, back in 1931, he was working as an assistant superintendent at Travelers Insurance Company, and he came up with this theory where, again, that one major injury could have 29 minors and then the 300 near misses. Up until recently, UDOT didn't have any way to identify what those 300 events were. What is happening out there, we weren't reporting it or capturing it in any method per se. And so, under our Risk Management Director's intuition and knowledge and evaluation of where we were at, we decided to come up with our Near Miss Program.

Visualizing Risk: Incident Heat Maps

Keith Bladen: But with that, back to the one injury or the 29 minor injuries... when an employee at UDOT gets involved in an incident, whether it be a vehicle crash or a personal injury, what we have is they report that to us. We get the lats and longs from them. And with that lat and long, we put that on a map. So on the left side, this is a heat map of the incidents that have been reported to us over the last five years. And then to the right of that, we can make it that—we can look at it by the different types of events that are occurring. So one just kind of helps us identify where the majority of our events are happening, and then the other one can be more specific. The nice thing about this map is that...

(Slide transition) We also have the ability to filter that. And so in this case, my main priority is employee injuries and being able to help them recognize the ability to report, the importance of it, and then getting them the care that they need, and getting them into recovery from that injury. So looking at this, again, filtering out the different types of events that we have, we can see where those events are occurring. This

helps with trending and understanding what's happening out there, but again, this comes back to the things that we know. They're actually happening and they're reporting them to us.

Defining a "Near Miss"

Keith Bladen: So what is a near miss? Also known as a close call. A near miss is an unplanned event or situation that had the potential to cause harm, but it didn't result in any actual injury, damage, or disruption to our operations. It's a close call where an incident was narrowly avoided.

So somebody running a red light—this happened to me the other day. I got up there to the intersection, waited, got a green, but I have this tendency to wait a little bit. And sure enough, a red light runner went right in front of me. So I could consider that a near miss. Had I not waited for a few seconds to make sure the intersection was clear, that could have been detrimental.

But some characteristics with near misses is the potential harm. So an example of that would be a worker almost falls due to a previously unnoticed walking surface defect. Maybe a trip, slip, or fall. We talked about those in risk, sent out some surveys regarding that. So recognizing that that's a concern.

Another key characteristic is no actual harm. A piece of equipment malfunctions but doesn't cause any damage or injury. This might be in relation to like a truck bed that—for us, a dump truck bed that might not come down. I have a near miss that I'm gonna share with you about that. So if you see something that's not working properly, make sure you consider the potential of that and report it as such.

And then also being able to have a learning opportunity. So stored energy during a guardrail repair almost causes a significant injury or even worse. We see this with our cable barrier. You might see this more and more as you're driving on our roadways, but we're using this cable barrier, which is very effective, but when it gets damaged and our employees have to go out and do those repairs, there is stored energy in that. With the long runs that they have, you can see where it's maybe laying on the ground or caught on something at that impact point, but further down the road from that, that energy is being stored and maintained. And once they go out and start working on that, then there is the potential of concern.

Activity Prep: Asking for Volunteers

Keith Bladen: So I got a near miss that I'm gonna show at the end of the class. I have three trinkets that I'm wanting to pass out here when we do this, but with this, I'm gonna ask for three volunteers. We have this event that happened. As we talk more about this, what I'm gonna ask of you to do is, from your perspective of these three individuals, what is your story? If you were to write in your journal every night of what happened to you during the day, what would you write in your journal? How would you tell the story? So I've got one... so the three people I've got a driver. Is there a young man or a male in the room that's willing to look at this and be the driver and share your perspective?

No takers? Okay, over here, what was your name? **Zach:** Zach. **Keith Bladen:** Zach. Alright, Zach, you'll be our driver, okay? So we'll be talking about this a little bit later in the presentation. I need a female pedestrian, the one that's wearing the dress. Anybody willing to do that for me? **Darcy:** It's Darcy. **Keith Bladen:** Darcy. Alright, Darcy will be doing that. And then I have another female pedestrian wearing some pants. Another lady that's interested in helping me? **Heidi:** Heidi. **Keith Bladen:** Okay. Alright, thank you. So Zach, Darcy, and Heidi. So just be mindful, as we're going through this, we're talking about it, be thinking about how you're going to respond, what you're going to how you're going to tell your story when we see this event a little bit later.

Real-World Near Miss Example: The Skyroof Incident

Keith Bladen: Okay, so here's an example of a near miss that UDOT had on our MCF building. This used to be a flat roof. They went in and put a pitch to it. Put a slope on there, and when they did that, probably didn't think much of what some of the repercussions could be. One of the employees sent us an email and said, in the wintertime, said, "Hey, noticed that we have ice and snow that collected on here during a snowstorm." And then over time as that warmed up and melted, it now became basically an avalanche. We have a walkway right here where that slid down—not sure if it actually slid down in front of them or maybe behind them, but they brought up the concern.

So what happened is we recognized that this was a concern, it could be significant. And so we addressed that with DFCM, and a new roof was installed. And also some snow cleats were put on, and we also had a rain gutter put on it.

So notice in this image here, the squares are a lot closer to each other. One of the things with this is they just used regular angle iron to hold this in place, and they realized with the conversations we were having that that was not supportive enough to hold the weight of the snow or the ice that it would create.

So now, they actually ended up going in and replacing the entire roof, put a different slope on there, put some square tubing support underneath it to help hold the weight that it could bear, or might have the potential bearing. And then they also put some cleats in there so that it wouldn't have like that avalanche effect coming directly off of there as it warmed up. And then a little bit later, they ended up putting a rain gutter on there for when, you know, rainy situations, instead of that snow or ice event.

So with this example, we can see where we started from, the concern that was brought up to us, and then what was done with working with DFCM and our group to fix this concern.

Why Near Miss Reporting Matters

Keith Bladen: So why does this matter? Near misses are leading indicators. Since we implemented this proactive safety tool, we are now capturing specific events that could have been actual injuries. It helps save

life and limb for those that bring it up or might experience it. Research-backed, OSHA supported, supports this process that it can prevent serious injuries and save lives.

It also has the characteristic of being a proactive safety measure. A lot of the times, I look at what I'm doing, I feel like I'm completely reactive. But this is a proactive approach. Instead of acting to something that's happened, we're looking at ways of being proactive. And then also it helps minimize our unknowns. So we've got—we know what we have as things are being reported, we weren't capturing this, but as people are starting to utilize it, things that we weren't aware of are now being identified.

The UDOT Near Miss Reporting App

Keith Bladen: So what we have is our app. Has a QR code so that they can scan it with their smartphone, or we also have a website or a web address where they can go and use it on their laptop or their computer.

Some things to know about our app is scoped for our UDOT workforce, not necessarily the contractors that are working for us—unless there's something that happens with the contractor to our UDOT employee. The intent for this is to be for UDOT internal events only. It is voluntary and anonymous. People don't have to do it. They do already have the ability to report concerns to UOSH or OSHA if they feel like something is dangerous for them. But what this does is gives them another venue to report it and help us find out ways to overcome that.

Retaliation is prohibited. So we're not going to penalize somebody for reporting this. And then it also acts as a glorified email inbox. Instead of receiving emails and having somebody try and manage that, this app just gives somebody quick access to send that in and uses a web-based portal for us to manage it.

How the App Works: Workflow and Dashboard

Keith Bladen: So here's the simple workflow. They report the near miss through the app or through the website. It then generates an auto-email that comes out to our safety management team. There's a few on the team that see these. And then it goes into the portal and shows up on a dashboard. And then again, it helps us see that it's happening out there, and then leverage our efforts to resolve it and prevent it from happening maybe elsewhere. The thing I like about this is that most likely if this event that somebody experienced and reported is happening to them, the fact that we're across the entire state, it's more likely going to be happening or could happen to somebody else doing the same type of activity.

So just quickly on our website, we have the near miss access, we have feedback form links, the link to the actual portal where they can enter that information. We also have a one-pager that helps us relay to them the importance of it, so that they might be more involved in utilizing it.

The app is relatively simple. I think there's less than 20 questions on there. This is from my device. I took some screenshots, it's all on one page. It's not like you have to click next and go to a new page over and over

again to answer the questions. It's all on one page. And as they go through this, I was able to collect this in less than four screenshots. What it does is they enter the information, where it happened, and whether they're willing to have it divulged to others, if they want to be contacted, things of that nature.

So again, once they submit that, then it generates this email. We receive that, able to go into the dashboard.

Here's what our dashboard looks like. Identified the number of events that have been reported. Notice we have the different types of hazards that are out there, whether it's moderate, severe, high, or low. We can see our five different locations, and how many of them are reporting that. Our region 4 area, which is the southern Utah area, is really doing well with this. And so that gives us an idea of who's utilizing it. And then we can also, the bottom left corner is the frequency of how often these events are occurring. And then also, again, back to that idea of if that individual is interested in being contacted.

Then we can also look at the map, like I mentioned. And if the employee is okay with this information going out to others to help educate and prevent this from happening in other locations throughout the state.

So with the map, we have the severe, high, moderate, and low conditions. We use different icons so that those are easily identifiable as we're working on this.

Specific Dashboard Examples

Keith Bladen: Here is an example of one where an individual was working with one of our snowplows. As they were taking the wing on and off, they got their finger almost got in a pinch point. I say almost because the glove is actually what got cut, but fortunately their finger was not. So there was no injury. The fingertip of the glove was cut off, and so they reported it. And we see this quite often, we have several lacerations to the hands and arms, and so this just helps realize that this is happening, and we're grateful that employees are willing to report it.

This is another one that we had here between 2:15 and 15 on 80. A supervisor was driving down the road, noticed that one of our truck beds—the bed was left raised up in the air. Got on the radio and reached out to other individuals, and was able to get that bed lowered. The employee didn't realize that the bed was still in the air after they had dropped off their load. And so this prevented that from hitting maybe structure or some power lines or things of that nature.

App Launch and Employee Engagement

Keith Bladen: So we have, just trying to get the word out to our employees, letting them know the availability of this and the potential of using it to help prevent things from happening to themselves again or to their co-workers throughout the state.

So we're just asking them to get familiar with the app, encourage them to utilize it, and then we also have a feedback channel where they can provide information to us. It's through a Google Forms survey, and then that feeds into a spreadsheet, and so we can populate that, we can sort it appropriately.

Closing Activity: Video Analysis of a Close Call

Keith Bladen: Alright, so here's our near miss close call. So we got Zach, right? He's gonna be our driver. We've got Darcy, you're gonna be the gal in the dress, and then we've got Heidi, going to be the gal in the pair of pants. Okay, this is only 30 seconds long, so I'm just gonna run this real quickly... see if this works.

[Keith plays video of the incident]

Keith Bladen: Okay, now that feels real to me. Some might say that that's AI generated. I've looked at that over and over again, and it's the same vehicle, it's the same people, anyway. But so with that, let's go to Zach. You saw what you were doing. You're driving the car. What would you write in your journal? What's your story?

Zach: I'm driving the car... I don't know how honest I am in my journal. I see a young woman walking, I try to take precaution. I collide with another car, and we all somehow survived this.

Keith Bladen: Okay, great. Thanks Zach. I thought you'd say, "Oh, I was looking at my phone, or I was eating a Big Mac," or something like that. Okay, that's what we see a lot—distracted drivers, maybe go off course, things of that nature. Okay, Darcy, so you watched the video, what's your perspective? What's your story?

Darcy: I think that I would write in my journal that I'm never going to not walk on the sidewalk ever again, because I think that could have—although maybe it would have made it worse if I was on the sidewalk. I don't know.

Keith Bladen: Okay, great. Thank you. So again, here we have the perspective of what was the lessons learned. "I'm going to use the sidewalk, right?" Why have not prevented the accident from happening, but it probably would be a lot more safer for you to use that area. Okay, Heidi, I saw the gal in the white pants. Sorry, we had a pop-up on that screen, but she was walking down the sidewalk. That was a near miss for her. What would you write?

Heidi: Um, I would probably start off with, "I almost died today, and another woman." Just probably explaining that I was thankful to be alive and I *was* on the sidewalk. So I was doing my part.

Conclusion

Keith Bladen: Great, thanks. So there's a lot of things that happen out there. Obviously, this was... if that vehicle were ours, we would report it as a vehicle crash, and Zach would send in his report for what

happened. But when it comes to the near misses, we think of those obvious ones all the time, and yeah, it's right there and I'm gonna write it down, I'm gonna report it.

But those near misses are the ones that you're like, "Man, I almost died today," but you don't tell anybody. You don't say, "Hey, I learned something today, don't do this. I don't want this same thing from happening to you that happened to me."

Anyway, so that's what I had. Just wanted to let you know that we're trying to help our employees. I believe this Near Miss [app] is a method of doing that. Not only does it help that individual that's reporting it, but it also helps us telegraph that out so that other employees throughout the state, throughout our department, can be safe as well. So thank you.