The Safety Beacon is for informational purposes. Unit safety officers are encouraged to use the articles in the Beacon as topics for their monthly safety briefings and discussions. Members may also go to LMS, read the current Beacon, and take a quiz to receive credit for monthly safety education.

July 2017

Record Heat!

You've seen the reports on the evening news and if you are involved in any of CAP's many summer activities you don't need me to tell you it has been hot out there. Many parts of the country have been experiencing record heat waves, and we need to make sure we are doing everything we can to minimize the effects of that heat. That excessive heat, and what we can do about it at our summer activities, NCSAs, and Encampments, is one of the focuses of this edition of the Beacon. We'll take a look at how a good understanding of real-time risk management will help us make the right decisions.

What Else Is In The Beacon?

- **WHAT CAN WE DO ABOUT THE HEAT?** There's more to the heat than just staying hydrated. We'll take a quick look at the real risks associated with high temperatures … heat can be a killer.

- **PARKING AIRPLANES:** You've all heard that the flight isn't over until the airplane is parked, and secured. Unfortunately the process of parking the airplane can result in mishaps. We'll take a look.

- **MISHAP CLOSEOUTS:** We've got a summary of some mishaps that were closed out last month, this time with some examples of how these mishaps illustrate some basic risk management terminology.

- **WHAT KIND OF MISHAPS SHOULD YOU WRITE UP AT ENCAMPMENTS?** Not every little ache or pain needs a mishap write-up in SIRS. Or does it? Read the guidelines!

- **READ, SHARE, DISCUSS:** As always the Beacon is meant to be shared and discussed, and there are some great safety education topics in this edition. Make sure you are discussing and asking questions.

HEAT Can Be a Killer!

George Vogt, CAP/SE

Heat is on everyone's mind right now. Let me go to one of the authorities on the subject to share some important information. OSHA sets the standards for industry when it comes to how to handle the effects of heat, and how to mitigate the risks that come with heat.

One of the most important lessons, very bluntly, is that heat can kill if we don't take the proper precautions. In CAP risk management language, heat is a "hazard" that carries the "risk" of illness or death, and our activity plans need to include "controls" to reduce that risk to an acceptable level. The most important part is that we "supervise and evaluate" to make sure those controls are working, and if they aren't, we have to make changes to the plan!

Check out this OSHA Link on Heat Exposure. Note that this link talks about the affects of heat. It does not talk about dehydration. Let me emphasize that HEAT and DEHYDRATION are two different, but related, issues. Sufficient amounts of water and sports drinks will prevent dehydration and *help* the body cool itself, but liquids alone will NOT solve the heat problem! When the heat goes up it is understandable that we see a bit of a rise in heat-related mishaps at encampments. These mishap reports usually note how much water was consumed (or not) by the cadet but say very little about the activities, the time spent in the sun, etc. We occasionally see reports of light-headedness, dizziness, and headaches, which are all symptoms of heat illness. Note that OSHA considers confusion, fainting, and seizures symptoms of heat *stroke* … we don't ever want to see it go that far!

PLAN AHEAD! Be prepared for the heat! This OSHA Link talks about how to prevent the heat issues and illnesses, and all of these "risk controls" should be worked into your event plan when possible. Work (and play) schedules need to allow for shorter periods in the sun and heat, with regular breaks in air conditioned environments. There must be regularly scheduled rest breaks.

CHANGE YOUR PLAN. You may have a detailed encampment plan that maximizes learning and fun for your cadets, and it worked perfectly last year when temperatures were "normal." But this year, the temperatures might be in record-breaking territory. That means it is time to change your plan! One of the most important parts of the Risk Management process is to "Supervise and Evaluate." That means activity directors, safety officers, leaders of cadets, wingmen, and members themselves need to be actively reviewing whether or not the plan is as effective we thought it would be. If we see an increase in heat-related issues, we need to figure out why and make changes to the controls we put in place. Call "knock-it-off" and get everyone in a cool spot or the shade. Change the schedule. Spend less time marching in the sun. March in shorts. Only run half the obstacle course. These are ALL suggestions that will minimize exposure to the heat and reduce its effects.

GUIDANCE IN YOUR POCKET. When is it time to limit your outdoor activities? What are the symptoms of heat illness? How do I treat it? When it is an emergency? OSHA has a tool to help you out! This link will take you to OSHA's Heat Safety Tool app. This app will automatically download the temperature, humidity and heat index for your location, and let you know what precautions you should take. You can go to your Apple or Android app store and search for OSHA Heat Safety Tool. Just click on the arrow and it will tell you what precautions to take, how to minimize exposure, how to respond to heat illness symptoms … how to change your plan!!

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“He fainted!”

“So did she!”

A Lesson in Risk Management and Mishap Reviews

George Vogt, CAP/SE

We looked at how heat can be a big big factor in our safety planning and how careful and vigilant we need to be when heat starts climbing to record levels. One of the symptoms of excessive heat can be fainting, so I want to take a look at how safety officers and commanders ought to be looking at those fainting episodes when it is time to perform a mishap review.

In addition to the heat, there are quite a few things that can lead to fainting, so it’s a good time to review an article from last year’s May edition of the Beacon Newsletter (check out page 5). Just like any other mishap, when a fainting episode occurs, we need to look into *why* so we can properly care for that cadet and so we can ensure that our plans are adequately addressing all the possible causes.

I recently discussed an event with one of our safety officers and I’d like to relate a little of that discussion with you. There are a lot of good learning points. Right off the bat I want to commend everyone involved in this mishap; they were doing their best to plan a great, safe event. Some of this happened as written, with a few “hypotheticals” thrown in for discussion. One of the parts of the risk management loop that I constantly emphasize is the need to review how well we did (“evaluate”), so we can continuously improve, and that is what we’re doing here.

The unit was assembled outdoors, in the sun, for a ceremony. The cadets were looking sharp in their full blue uniforms. It was hot. Part way through the event one cadet fainted. Five minutes later another cadet felt light headed and took a knee. Five minutes after that a third cadet fainted. Thankfully all were okay and they bounced right back after a little rest. The goal now, in my mind, is to see where the plan might have gone wrong and to see how we can improve it.

“It was hot.” One safety officer said simply the “cause” of the mishap was the heat…review over. Does that sound right? He quoted a legal term, saying that “but for” the heat, it wouldn’t have happened, so the heat must have been the cause. I’ve heard that before, so let me explain why that isn’t the case. (Note that I am NOT a lawyer so this is meant to be a layman’s explanation) In tort law or when determining liability the “but for” rule (“sine qua non” in the Latin legalese) means that “but for” a certain *act* by a person, the injury would not have occurred. It is an “act” that causes the injury, not the environment. Beyond that, safety takes a totally different approach when it comes to determining what caused an event or mishap.

In safety, we don’t have to look for that one single act, or failure to act, that caused a certain mishap. We want to look at ALL the possible contributing factors. The best way to do that is to look at all the guidance, rules, plans, decisions and “acts” that led up to the event and see what could be changed that would have prevented it from happening. In other words, what “hazards’ were there, what “risks” did those hazards bring, and did we do everything we could to adequately “control” those risks? A good mishap review is almost like doing risk management in reverse.

The review process in a nutshell: In this case, “heat” was the biggest hazard. That hazard brought some “risks.” Did we put “controls” in place that would adequately address those risks, and if not how can we do better?

- One common type of risk control is to "*limit the exposure"* to the hazard. When we saw the hot forecast, could we have changed the time of the event? Could we have shortened the event?

- Another way to minimize the risk is to "*reduce the effects"* of the hazard. Could we have called the cadets the prior day and told them to start hydrating now, and get good rest? Did we pick a uniform appropriate for the weather?

- *"Improve the task design"* is another common risk control method. Knowing it was going to be hot, could some of the event been done in seats? Was shade available? Could some of the ceremony been done in a formation that allowed movement? These are just things to consider.

- Other common control methods are to *"warn"* or to *"prepare"* the participant. In the military, when there is a big mission or deployment coming, they will often meet the day prior to go over the plan, discuss hazards and risks, and make sure people are physically and mentally prepared. The day of the mission, they go over it yet again and make sure everyone is ready. That is where our mandatory "pre-activity risk safety briefing" becomes an important part of the event. Did we get everyone together right before the event, have them drink more water, remind them to keep their legs moving, and tell them what to do if they began feeling weak?

In the case of this particular event, the region and wing actually have very strong published guidance on the importance of hydration. All units were reminded of this by mass e-mail quite recently. But, we have to ask how well that over-arching guidance, or mass e-mailing, translates to the day of the event and the actual participants.

In my opinion, that is where ***real-time risk management*** becomes so important…

- Was it part of the plan to check the forecast and then make changes to the plan if required?
    -- That is something we can learn for next time
    -- Make it part of the plan to check on the plan

- When leaders began to sense that it was a bit hotter than they expected, were actions taken?
    -- Someone ought to be assigned the responsibility of monitoring how well the plan is working and whether or not our risk controls are adequate. Safety Officer? Cadet leader? Unit commander?

- Did anyone consider a "knock it off" call when the first cadet went down? The second?
    -- We should all think about what we will do "if…."

A couple final concepts we can learn from this discussion…

"Life Happens." I hear that phrase, and a similar but more colorful one, when mishaps occur. And yes, no matter how good we are at controlling risk there will sometimes be mishaps. That is because we cannot eliminate ALL risk. But we have to keep trying, keep improving, and make the effort to learn from each time "life happens."

"The average cadet didn't have any problems." I hear this occasionally, whether we're talking about PT, or obstacle courses, or drill training, or standing in the heat. Let me emphasize, we have no "average" cadets and our risk management plans shouldn't just be for "most" of the participants.

Do our risk controls address all the hazards, all the risks, and all the vulnerabilities of all the participants? We may never fully succeed, but we will keep pushing towards that goal. It would be great if all units would discuss this article to see how you might handle similar situations.

"A good mishap review is almost like doing risk management in reverse."

Aircraft Parking and Risk Management

- or -

"Where did that (*name your obstruction*) come from?"

Col Robert Castle, CAP/SEA

It was a challenging mission. The weather was worse than forecast, but you and the crew accomplished all the objectives. The soft chirp of the tires on the pavement let everyone know that you made a beautiful crosswind landing. Now all that's left is get the good ol' bird tied down and head to the house. Your squadron doesn't have the luxury of a hangar, but the airport provides a primo tie down close to the FBO. All you have to do is swing it onto the spot and you won't even have to push it back for the tail tiedown rope to reach. After all, you've done it hundreds of times before, right? All you have to do is clear the fence behind the spot and you're home free. The Mission Observer is heads down completing the flight log, but you know there's plenty of room to get by the parked airplane on the right, when …. SCRAPE! The sound of metal on metal reverberates through the cockpit.

Sound farfetched? Unfortunately, this scenario and ones similar to it have happened to CAP airplanes.

Over time, like other General Aviation pilots, CAP pilots are equally susceptible to mistakes. Pilot have hit light poles, dragged the wing over the top of a chain-link fence, hit construction cones and other parked airplanes.

One thing some of these airplane-versus-obstruction mishaps have in common is trying to maneuver the airplane to *pull into a tie down spot designed to be pushed into*. Or, an attempt to position the airplane for push back into the hangar by pulling close to the hangar and then turning away. In other words, the crew thought they'd save themselves from pushing or pulling the airplane by hand with the tow bar and wound up damaging the airplane.

Let's do a quick review:

Risk Management. The first step is to **"identify the hazards."**

This list of hazards is by no means all inclusive, simply a place to start: Other aircraft (parked or taxiing), ground vehicles (tugs, fuel trucks, etc.), construction barriers, other fixed objects (hangars, fences, poles, fueling stations, etc.), loose gravel, tie down ropes and chains.

A crew not fully focused on the task at hand, is also a **"hazard"** when their goal should be to get the airplane safely secured. Taxiing is not the time to be doing paperwork. To reduce the **"risk"** of hitting something, all crewmembers should be vigilant and call out any hazards noted along the taxi route (a risk **"control"**). A pre-mission crew briefing to define the roles and responsibilities of each crew member is essential to good crew coordination. Reminding your crew of their duties before you begin taxiing to parking is a good way to **"Implement Controls."** The post mission debrief should cover what went as planned and what can be improved upon (**"Supervise and Evaluate"**).

See if you can identify the steps in the following examples...

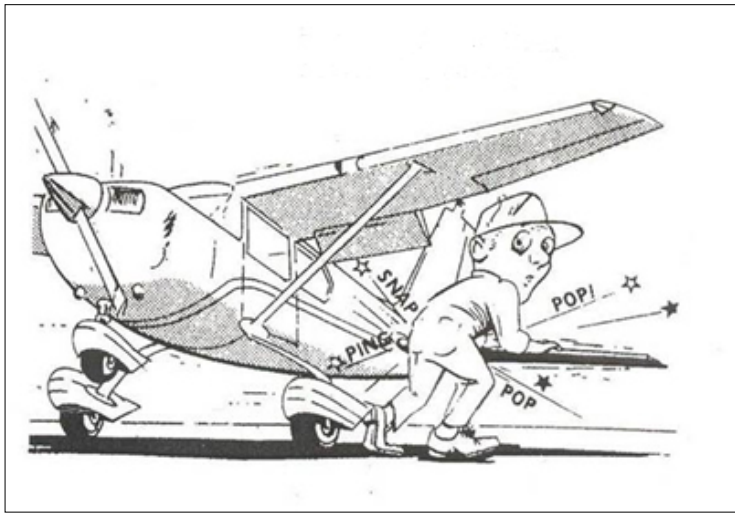
Time pressure is a huge problem. The rush to get things done as quickly as possible can lead to taking shortcuts which can result in bypassing some of the safeguards we put in place to help prevent mishaps. When you start to feel rushed, that's the time to tell yourself to take a step back and slow things down.

We can reduce the risk of hitting a fixed object, by …. not taxiing so close! Rather than taxiing around other parked aircraft, or across tie down ropes that can be sucked into the propeller, stop the airplane parallel to the tie down or hangar, shut down the engine, and use the tow bar to push the airplane into the parking spot (using spotters on each wingtip of course!).

If your squadron has the use of a hangar, the centerline should be well marked. Painted index marks to indicate the fully opened position of doors is a great idea. Crews still need to verify that the doors are fully open *before* starting to move the airplane into the hangar. Believe it or not, there have been mishaps where the doors were not fully open despite having all the markings in place. Does your squadron have a parking plan? A checklist for how to park the airplane in your hangar and where to leave it if parking becomes too difficult? If not, you're behind.

Hangars can also make great storage locations for squadron equipment: extra uniforms, boots, mission equipment, etc. Sometimes it seems that leaving room for the airplane is an afterthought. If your hangar is so full of non-airplane related stuff that extra caution must be used to get the airplane in or out of the hangar without hitting something, then the storage plan needs to be adjusted.

One last point about ground handling: Always use a towbar. Each CAP airplane should have one. If it's missing, get it replaced. Some pilots have been taught to push down on the horizontal stabilizer to lift the nosewheel off the ramp to pivot the tail. **Pushing down on the horizontal stabilizer is a big no-no!** In fact Cessna even provides a note in the Pilot's Operating Handbook for the 172, 182 and 206 specifically addressing the potential for damage. The structure is designed to take aerodynamic stress evenly across the surface, not for a concentrated applied force in a small area as when pushing down on the tail. This can cause cracks in the structure and costly repairs. Always use a towbar!



Using the Risk Management process is easy and can be done in advance or on the spot as conditions require. While we can't always identify every hazard or eliminate every risk, we can lessen the likelihood of a mishap through the use of these steps.

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June 2017 Mishap Closeouts

Col Robert Castle, CAP/SEA

Here's the breakdown for mishaps that were closed out during June 2017. Bodily injuries increased a little as we are entering encampment season. More activity normally means more minor mishaps, but our goal is to constantly look at how our plans can be improved to address the risks that result in mishaps.

Closed out in June:
Bodily Injury - 31 Aircraft - 5 Vehicle - 5

Bodily Injuries

Six of the bodily injury mishaps came under the over-arching category of "slips, trips, and falls." We need to remind ourselves that the "categorizing" or review isn't done until we ensure that we take a look at what "caused" those slips, trips and falls. We need to consciously ask ourselves what could have been done differently to keep those particular injuries from happening.

Slow Down! Running on wet grass was identified as a contributing factor in one mishap. This wasn't part of an activity … this was a cadet running from one place to another. Wet grass is a "hazard." It increases the "risk" of slipping. This risk is further increased when you run. Yes, that is actually the thought process that should got through our heads when we ask, "What's the worst that can happen if I run across the wet lawn, and what can I do to reduce that risk?"

Slippery When Wet! In another, the member slipped in the restroom where the floor was wet. Let's go through the same analysis we used in the previous case. Bathroom floors can be slick; sometimes they're uneven. That's a hazard. The water (I'm going to assume it was water ☺) is another hazard. Together, they bring a very real risk of slipping and falling. "What's the worst that can happen, and what am I doing to reduce that risk?"

There were numerous sprained and twisted ankles during the month. They appeared to fall into a couple different broad categories for the type of causes. Remember, we are more concerned with the type of activity and what *caused* the mishap than what *type* of mishap it is. If we know what *caused* it we have a better chance to *prevent* it.

This is a non-contact sport! A few injuries happened because of a collision or legs getting tangled between two cadets during team competitions. I know we all get competitive, and want to win, but closing our eyes to what is going on around us is just plain, dare I say, unsafe. What if you had a way to make you concentrate on where other people were on the playing field so you could avoid hitting them? MAKE IT A RULE! In OTS and SOS, the Air Force actually has a "no-contact" rule in some of their games and sports. It is AGAINST THE RULES to make contact with another player! That idea works in soccer, or capture the flag, or ultimate Frisbee, or touch football. If you come in contact with another player, you go to the penalty box. Period. What if it isn't your fault? It doesn't matter; both players go to the penalty box. If it's reckless, or your second offense, you just may be kicked out of the game. Or perhaps your wingman gets sent to the penalty box with you. In either case it means you don't get to compete, and it means you have hurt your team. THAT should be incentive to avoid contact. A control like this, entered as a rule to the game, will reduce the risk while maintaining, or even enhancing, the mental side of your competitive juices.

Watch where you're going! A couple minor injuries were caused because of plain old distraction or inattention. One person ran into a water fountain when they were in a hurry and cutting a corner too closely … not watching where they were going. Another came when a member admitted to talking with another member while walking to the parking lot. They looked over their shoulder while walking and talking, and tripped on the curb. I won't laugh, because I've done similar things myself. Hopefully I've learned. It has been proven that humans really aren't too good at multi-tasking … when we're trying to do several things at once, we don't do any of them as well as we should. Make getting there safely your main priority.

I'm choking! One reported mishap was a cadet who began choking on a bit of food during a meal. An alert fellow cadet recognized the situation and performed Heimlich-like abdominal thrusts which dislodged the food obstructing the airway. Now THAT is a great wingman!

Aircraft mishaps:

On a cadet orientation flight, the pilot was allowing the cadet (at altitude) to see the effect of control inputs on the attitude of the airplane. The cadet abruptly and without warning pushed forward on the yoke which resulted in less than 1G flight. There were no reported injuries and no apparent damage to the airplane, but as a precaution the airplane was grounded pending a better look by maintenance. The aircraft was inspected and returned to service.

On a Form 5 evaluation, the pilot being evaluated allowed a high sink rate to develop on a short field landing. The Check Pilot was a bit late intervening and they experienced a hard landing and some nose gear damage.

These two mishaps highlight the need for Orientation Pilots, Instructor Pilots and Check Pilots to be vigilant and guard the controls, particularly when flying with someone new to aviation or someone you're not familiar with. If you are in charge of that airplane, and someone else is flying, you need to mentally fly the airplane every second, and *anticipate* what might go wrong. If you are waiting for it to happen, you're waiting too long. "What's the worst that could happen? What am I doing to *prevent* it?"

In one case maintenance personnel discovered damage to the rudder of a C-182 most likely caused by high winds associated with severe weather. Another crew discovered on pre-flight that the nose wheel bearings had come out of the races. Thorough pre-flights are a must!

Vehicle mishaps:

In three separate mishaps, corporate vehicles were struck by POVs. In two of the events, the COV was stationary. In the third, the COV was making a U-turn when struck.

The remaining two mishaps involved damage to COVs while backing; perhaps one of our most common minor mishaps, and one of the easiest to prevent! Full size vans have large blind spots and many members fail to recognize or misjudge the amount of space between the rear of the van and other objects. Whenever possible, deploy spotters before backing. Make sure the radio is turned down and the windows are open so the driver can hear the spotter yell "STOP!" Using a spotter when one is available is required by the regulation. And "spotter" means the person is outside the vehicle, NOT helping you look from inside (don't laugh … it happened).

See you next month! …….

"What Mishaps Do I Report?"

"You mean I have to report EVERYTHING??"

George Vogt, CAP/SE

It's Encampment Season and that always brings up questions of what needs to be reported in SIRS. The questions come in regularly …

Do I need to report every little scratch?

Every bug bite?

Every little sprained ankle?

Well, every mishap *does* need to be reported, so I guess the first thing we ought to do is look at the definition of mishap in CAPR 62-2: *"Mishap" is defined as any unplanned or undesired, operational occurrence, or series of occurrences, that results in, or has the potential to result in, death, injury, or damage to equipment or property."*

In other words, anything that happens that results in an injury ***or has the potential to result in*** an injury needs to be reported. Another important part of this definition has to do with anything that is *unplanned or undesired.* In other words, was there a situation where the plan broke down or someone fell or something happened that wasn't part of the plan and could have caused an injury. Report it.

Do I report headaches? Tummy aches? That depends. The occasional headache or tummy ache is quite common, and doesn't necessarily mean a plan went wrong. However, headaches and nausea can also be symptoms of heat stress or dehydration or too much stress. Nausea also might be a result of eating too big of a breakfast before running…we can learn from that if we report it. Again, look for what might have caused it and if it wasn't just a normal occurrence, report it.

One trend I've seen, in the interest of "efficiency," is to have members in the health services office or medical tent simply transfer all the medical write-ups into SIRS. **Don't do that!** Those are for two distinctly different purposes. The medical logs do a great job of recording what treatment was given, but they don't report anything about what caused the minor mishap. Use the Mishap Reporting Checklist on the NCSA/Encampment Safety page. When it comes to mishap reporting, we need to know what caused it so we can learn how to prevent it! We're not just counting mishaps. We don't report them "for the record." We try to learn from each one.

In addition to what you see above, another source of information on some common types of minor bodily injury mishaps is found Attachment 3 of CAPR 62-2. It would be a good idea for every safety officer to take a look occasionally.

If I had to give a quick ***checklist on what needs to be reported***:

- ANY injury, period.
- Any unplanned fall, or collision, or tumble that might have resulted in an injury
- Any illness, sickness or malady that might have been caused by the activity or event or stress or the environment

For each thing you report ***here is what we need to know:***

- What happened that resulted in the injury
- How could it have been prevented … include things like better supervision, better briefing, etc.

Questions?

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