

# Civil Air Patrol Safety



## *Conducting a Mishap Review*



# CAP Mishap Review

- **Have you been appointed as a mishap review officer?**
- **Are you helping with a mishap review?**
- **Do you want to know more about the mishap review process?**

**This training is for you!**



# Objectives

- **By the end of this course you should ...**
  - ... understand *why we do mishap reviews*
  - ... understand the basics of *how to review a mishap*
  - ... know how to *gather mishap information*
  - ... understand the basics of *writing a mishap review report*
  - ... know *where to go for help*



# Why We Review Mishaps

- ***Find out what went wrong, and how to prevent it!***
  - That's an over-simplified answer, but ...
  - We can almost ALWAYS find a variety of things that could be improved
- ***Look in the mirror***
  - Our chance to see how well WE are doing ... how well is our plan working?
  - A risk assessment in reverse ... identify hazards and risks that we need to control



# “Review” or “Investigation?”

- ***We do REVIEWS ... we don't do investigations!***
  - “Investigation” implies finding the cause so we know who is “at fault”
  - Safety reviews determine what put our member in that situation
- ***We want to find out WHAT happened...***
  - ... so we can find out HOW it happened ...***
  - ... so we can find out WHY it happened***
- ***We don't look at who to blame ...***
  - ... we figure out what led up to it and how to prevent it***



# Getting Started

## *“The Call”*

- This training assumes you have gotten “the call” from your wing commander, advising that you have been appointed a review officer for a recent mishap that has already been reported in SIRS.
- Establish your point of contact for the mishap and review the SIRS entry for initial information
- Then ... follow the steps



# Mishap Review Steps

**NOTE: Some reviews are more complicated than others. Some may take more effort than others. They ALL deserve your attention, so follow all the steps until you are SURE you have all the information you need.**

- *Establish Contact with the mishap members*
- *Mishap Summary - Determine WHAT happened*
- *Data Collection - Determine HOW it happened*
- *Analysis - Determine WHY it happened*
- *Contributing Factors and NFWODs*
- *Writing the Review*
- *Posting the review in SIRS*



# Establish Contact

- **Review the SIRS entry for initial information on type of mishap**
- **Contact the member(s) involved in the mishap**
  - Could be a pilot, an injured member, or vehicle driver
  - If you're not in the same unit, it is a courtesy to notify the unit commander
  - Get contact information for everyone involved
    - Victim, Pilot/Aircrew, Driver/Passengers, Witnesses, Supervisors, etc.
- **Begin to define what happened**
  - What is the "mishap" you will be reviewing?



# Define the Mishap

- **Your initial task is to define WHAT happened**
  - This will help guide your data collection ...  
... your search to find out HOW and WHY it happened
  - This will also provide the opening for your mishap review report
- **Just the Facts ... no conclusions**
  - A short, factual summary that will introduce the reader to the mishap
- **This is similar to the initial account that went into SIRS**
  - Clarified and edited



# Define the Mishap

- **Examples**

- “After a simulated short-field landing on Rwy 24 at Podunk Field, pilot applied brakes and left main tire went flat.”
- “Senior member, with three cadets and another senior member as passengers, backed a CAP van into a light pole while attempting to back out of a parking space in the dining hall parking lot at Noname AFB.”



# Data Collection

- **Introduction to Data Collection**

- Collect information about results of mishap (photos, injury descriptions, etc.)
- Collect information about what happened leading up to the mishap
- Any information that could *possibly* affect the mishap should be considered
- What are all the things that created the situation where the mishap occurred?

- **Keep an open mind**

- Resist the urge to postulate at this point, as it can affect how you gather evidence.

- **Focus on what happened before and during the mishap**

- The review will look at what caused it and how to prevent similar situations



# The Five M's

*Use the Five M's to guide your data collection!*

- **Management** - the organizational factors that influence mishaps
  - *Review all the guidance, the checklists, the regulations ... any conflicts? clear guidance?*
- **Mission** - the planning and execution of the mission or activity
  - *Complexity? Risk Controls? Was the plan adequate or did it "break down?"*
- **Machine** - the airplane, vehicle, or any equipment that was used
  - *Suited to the mission? Well maintained? Did something break or malfunction?*
- **Medium** - the environment, weather, terrain, lighting, surface, etc.
  - *Did weather affect the plan? Did risk controls account for terrain? Was the surface right for PT?*
- **Member** - the people who were involved
  - *Trained? Physical limitations or illness? Fatigue? Distracted?*



# The Five M Worksheets

- **Available on [gocivilairpatrol.com](http://gocivilairpatrol.com) Safety pages**
  - Follow link to “[Mishap Reviews](#)” page
- **Five M worksheets/guides available for most “common” mishap types**
  - Fillable “Word” forms can be used to help you compile data
  - Save completed sheets and use when writing you review
- **Use these checklists to help guide the next steps of Data Collection**



# Data Collection

- **Statements**

- Ask each member to enter a statement in SIRS (see “How to Enter a Statement” training in the LMS)
  - Prioritize those members who were closest ... most involved ...
  - It is okay if member e-mails you a statement ... It can be in e-mail format, or they can create a Word document and e-mail it to you
  - Statements and e-mails can be uploaded as attachments
- Ask them to describe what happened, without conjecture on what caused it
- Request a sequence of events that led up to the mishap



# Data Collection

- **Interviews**

- Interviews can be a follow-up to statements or be conducted alone
- People may feel more comfortable talking one-on-one rather than writing

- **Interviewing a Cadet?**

- You must contact the parents/guardians and invite them to attend
  - Parents' contact information available in eServices
- Explain why the cadet is being interviewed
  - They may not be familiar with the mishap review process
  - We are *asking for the cadet's help* to reduce risk in our program
  - Ask the cadet what they would do differently to reduce the risk of a mishap



# Data Collection

- **Interview Techniques**

- Talk to witnesses one at a time ... they will speak more freely and tell *their* story
- It is NOT an interrogation ... make them feel comfortable and part of the process
- We are trying to learn how we can improve; let them know they are helping
- Take notes ... your memory is not as good as you think
- Encourage them to speak freely about everything they can recall
- Use follow-on questions ... it should feel like a conversation
- Ask for their ideas on how a similar mishap could be prevented



# Data Collection

- **Documentation**

- Take the time to gather all the information about the event/flight/vehicle/etc.
- Was a risk assessment done before the activity? Get a copy
- Was a risk safety briefing given before the activity? What did they talk about?
- If it was a flight, get the pre-flight risk assessment and FRO checklist from WMIRS
- If vehicle or aircraft, get the maintenance records if applicable
- Could weather have been a factor? Good websites for historical weather:
  - <https://www.ogimet.com/metars.phtml.en>
  - <https://gis.ncdc.noaa.gov/maps/ncei/radar>
- Upload the meaningful documents as attachments in SIRS



# Data Collection

- **Photographs**

- Take photographs from far away *and* up close for perspective as necessary
  - Work big to small
- Photograph the surrounding area for perspective
  - The PT field injury occurred? The parking area where the plane was damaged?
- Draw a diagram of the mishap site or obtain a google earth image if applicable
- Upload all applicable photographs and scans of documentation into SIRS
- In this age of smartphones and digital imagery, there's no reason not to take as many photos as possible and pick the very best to upload into SIRS
  - Remember to shrink the file size of your pics ... max file size for SIRS is 5 MB



# Mishap Analysis

- **Introduction to Analysis**

- You've got a good understanding of *what* happened
- You've gathered most of your data
  - Keep in mind you may have to go back and get some more information during the Mishap Analysis phase as you ask *why* it happened
- **Mishap Analysis** is where you determine ...
  - The Causal Factor(s)
  - The Contributing Factors
  - Non-Factors Worthy of Discussion (NFWODs)
  - Corrective Actions



# Mishap Analysis

- **Causal Factors**

- Usually the last event or action before the mishap
- Two main types
  - Material Failure - Something Broke
  - Action of a Person - A person did (or failed to do) something
- The test?
  - If you could remove that Material Failure, or that Action, from the mishap sequence, would the mishap have occurred?



# Mishap Analysis

- **Causal Factors - Important Note:**
  - Environmental Factors - Weather, terrain, darkness, etc., will never be the sole cause of a mishap
    - Weather can definitely contribute to a mishap, but ...
    - The primary cause of a weather related mishap is usually a failure to adequately assess and control the risk associated with the weather
    - You still need to ask “why”



# Mishap Analysis

- **Causal Factors - Another Important Note:**
  - Mechanical or maintenance-related failures, or malfunctions of the powerplant, are a leading cause of general aviation accidents
    - We need to ask *why a* piece broke or *why* a component malfunctioned
  - Mechanical or Material Failures?
    - No such thing as “just a mechanical” or “stuff breaks”
    - You still need to ask “why”



# Mishap Analysis

- **Contributing Factors**

- In the last step you determined of the Causal Factor(s)
- Now it is time to ask WHY that causal factor occurred
  - What factors “contributed” to that cause?
  - What conditions led up to that mishap event?
- **Contributing factors** are the things you can address with corrective actions
  - They are the things you can “fix” by adjusting your risk controls, or...
  - They represent new risks that need to be addressed with new risk controls



# Mishap Analysis

- **Contributing Factors - Asking “why”**
  - Look at each of your causal factors
  - Ask WHY that causal factor happened. Ask again. Keep asking until ...
    - You find something you can improve with a corrective action
  - Hypothetical Example ...
    - WHY did the member ding a wing while moving an airplane?
      - He didn't know how ... why?
      - He wasn't trained ... why?
      - The required training doesn't address that situation ... Bingo!
    - Asking **WHY** revealed that the training needs to be improved!!



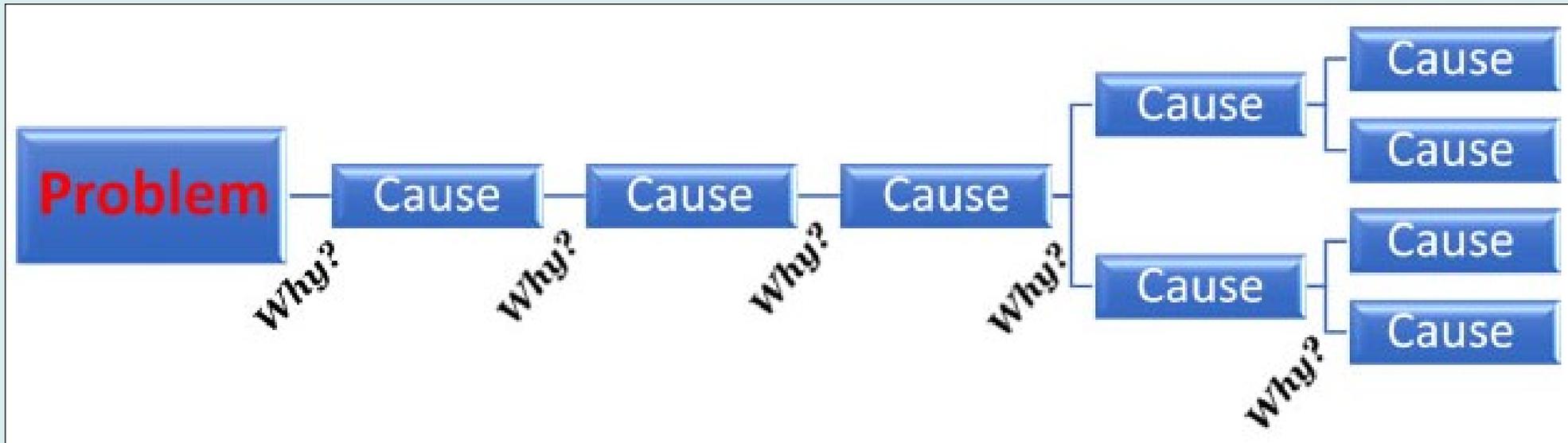
# Mishap Analysis

- **Contributing Factors - Asking “why”**
  - Use the WHY technique for each of your causal factors
  - Use the WHY technique in multiple areas
    - Use the Five M’s - Management, Mission, Machine, Medium, Member
      - Was guidance outdated? Why?
      - Member wasn’t trained? Why? Training not available? Why?
      - Vehicle broke? Why? Maintenance overdue? Why?
      - Surprised by weather? Why? No up-to-date forecast? Why?
  - **Remember**, look for ALL the contributing factors for EVERY mishap so we can improve our risk controls and reduce the chance of similar mishaps



# Mishap Analysis

- **Contributing Factors - Asking “why”**
  - The diagram below was borrowed from CAPP 163
  - It illustrates that each time you ask “why” you may get multiple answers or reasons why a certain event occurred ... explore them all!





# Mishap Analysis

- **NFWODs - Non-Factors Worthy Of Discussion**
  - *While you are looking at your documentation, and interviews, and statements ...*
  - *While you are asking WHY for each cause and each of the Five M's ...*
  - Note any other areas that could be improved or newly discovered hazards!
  - NFWODs could be...
    - A hazard or error that didn't affect this mishap, but could cause others
    - Areas of interest like poor application of risk management or CRM
  - Make sure these are included in your review so they can be tracked and fixed!



# Mishap Analysis

- **Recommended Corrective Actions (CA)**
  - CAs are based on the information provided by the mishap review
  - The review officer has determined what factors contributed to the mishap
  - The review officer is in a good position to recommend corrective actions
  - Corrective Actions should ...
    - ... be targeted at specific contributing factors or NFWODs
    - ... include specific recommendations for actions or changes
      - Vague recommendations like “discuss” or “emphasize” won’t bring lasting change ... you’re looking at something you can fix



# Mishap Analysis

- **Corrective Actions (CA)**

- The actual CAs will be directed by the wing commander, and entered in SIRS
- It must be specific enough ...
  - ... to assign a specific person to complete it
  - ... to assign a way to verify when it has been completed
  - ... give a deadline for completion
- The wing director of safety (or region in case of region mishaps) should monitor all open corrective actions on behalf of the commander



# Writing the Review

- **Follow the Mishap Review Template**
  - Did you follow each step of this training?
    - The you should have everything you need
  - Template available on Safety's [Mishap Reviews](https://www.gocivilairpatrol.com/safety/mishap-reviews) page on [gocivilairpatrol.com](https://www.gocivilairpatrol.com)
    - Fillable Microsoft Word product
    - Follow instructions available with the template
  - Save the document using the SIRS mishap number
  - Upload it as an attachment in SIRS mishap you are reviewing



# Resources

- **CAPR 160-2, *Safety Reporting and Review***
  - Find the requirements and general information for conducting a review
- **gocivilairpatrol.com ... Safety pages ... go to the “[Mishap Reviews](#)” page**
  - Find this briefing and other training links
  - Templates for writing you mishap review
  - Helpful checklists for conducting your review
- **Your wing or region director of safety**
  - They should be the experts and help you with all your review questions
- **[safety@capnhq.gov](mailto:safety@capnhq.gov)** - drop us a line if there’s a question you can’t answer!



# Conclusion

- ***Thank you for completing this training!***
  - *We want to give you best tools possible to complete your duties*
  - *Let us know if there is any way we can improve this training*
- ***How:***
  - Feedback: [safety@capnhq.gov](mailto:safety@capnhq.gov)
    - Can you go out and put this to work?
    - What did we miss that YOU need?
    - How could we say it better?