

TOP KNIFE FIGHTER SURGEON COURSE

173 Fighter Wing
Kingsley Field Oregon

RSV-1A
MISHAP RESPONSE AND
INVESTIGATION

Criterion Referenced Objectives

- Recognize the flight surgeon's responsibilities on the Interim Investigation Board (ISB)
- Recognize how the flight surgeon fits into the overall scheme of the ISB
- Recognize the flight surgeon's responsibilities on the Permanent Investigation Board

Interim Board Flight Surgeon Responsibilities

Overview

- The Interim Board
- Guidance and Preparation
- Initial Response
- Survivors
- Fatalities
- Role of the Chief of Safety
- Closing out/handoff

Convening an ISB

- Convened by the Wing/Group Commanders
- Normally for a Class A or B mishap within their AOR
- No time for “spin up,” must be trained and ready

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The ISB members are among the first on scene after it has been declared safe by the on scene commander or fire department. I like to use the acronym PIG to remember their role in life. They must preserve evidence, identify witnesses, and gather factual data. To meet that end, they may want to consider using technical specialists in aircraft egress systems and human performance factors early in the investigation.

Class A - \$2 mil , Fatality or permanent total disability, or Destruction of Aircraft

Class B - \$500K, permanent partial disability, or hospitalization of 3 or more personnel

And people often get this confused with Formal SIBs; they don't need formal training. They do need to get training from you folks at least once a year and it should be documented.

ISBs are not limited to Class A and B mishaps. If you even suspect the event may be a serious mishap, form the ISB.

It doesn't hurt to preserve evidence and keep it available if the mishap were to be upgraded. (Site recent New Orleans mishap).

Purpose of an ISB - 1

- Interim Boards do not solve mishaps
- Functions IAW AFI 91-204
 - Preserve evidence
 - Identify witnesses and conduct interviews
 - Gather factual data

The word “investigate” does not appear anywhere in the ISB’s charter!!

Purpose of an ISB - 2

ISB Relationship to the IC

- The IC owns the **mishap site**
 - Rescue – save lives (always the #1 priority)
 - Fire, Safety, Security
 - EOD/Composites/Bio/Pathogens
 - Logistics
 - Clean up/Recovery
- The ISB owns the **wreckage**
 - To gather and preserve evidence

ISB Composition

- Minimum Suggested Composition:
 - President – OG or equivalent
 - Investigating Officer – trained FSO
 - Pilot member – Pilot in mishap A/C type
 - Maintenance member – Mx officer or senior NCO
 - Medical member – Flight surgeon
 - Recorder – Junior officer or senior NCO familiar with admin duties

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President: In most cases, the ISB president will be the Operations Group commander of the mishap or supporting wing. For this reason, it is not a good idea to try to combine the duties of On-Scene Commander (OSC) and ISB president into a single individual. The OSC is usually the supporting Support Group Commander. OSCs are specially trained and legally responsible to state and federal authorities for controlling accident sites, and need to spend the bulk of their time taking care of business at the mishap scene. By contrast, an effective ISB president is primarily a manager of those actions necessary to gather and preserve evidence, much of which is not at the crash scene. Moreover, if the aircrew involved in the mishap is from the ISB president's base, the ISB president must also perform duties associated with command, such as next of kin notification.

Investigating Officer: A trained flight safety officer whose principle function is to ensure preservation of physical evidence at the scene of the mishap and is the ISB counterpart of the SIBs investigating officer. In most cases, the ISB IO will be the first trained safety officer to reach an accident scene. Installations with more than one full-time FSO assigned should ensure that the individual designated as the ISB IO is conveyed to the scene as quickly as possible, and that a second FSO is assigned to help the ISB president perform his/her initial duties as quickly as possible. If only one full-time FSO is customarily on station at any given time, local ISB checklists must be constructed in sufficient detail to allow other ISB members to work autonomously, freeing up the FSO to go to the scene as quickly as possible. This is particularly important in the area of witness identification and initial interviews, since only those individuals officially appointed as ISB members should be involved in that process.

Pilot Member: The interim pilot member's charter is to assemble all crewmember and mission-related documentation associated with the mishap. Interim pilot members are not required to be current and qualified in the mishap aircraft the way permanent SIB pilot members are, although such expertise is valuable in assessing the kinds of records that may be available and germane to the investigation. However, if the mishap aircraft and/or crew are assigned to the installation assembling the ISB, the interim pilot member generally should not be selected from the same unit as the mishap crew and aircraft unless there are no other qualified individuals available. In such cases, especially in cases of fatal or extremely destructive mishaps, the interim pilot member should spend as little time as possible at the crash scene itself, confining his/her efforts to the assembly of relevant records.

Maintenance Member: Like the interim pilot member, the interim maintenance member need not have experience with the specific weapon system involved in the mishap, although such familiarity is helpful.

Flight Surgeon: Like the ISB safety officer, the interim medical member is responsible for capturing a significant amount of highly perishable evidence. However, an interim medical member's first responsibility

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Recorder: AT MAJCOM option, units may wish to train one or more recorders as a part of their interim board cadre. Recorders are customarily drawn from the installation experiencing the mishap (or supporting the mishap investigation), so interim board recorders, if appointed, could be of significant help in bridging the gap between the ISB and SIB.

ISB President

- Usually Ops Group Commander (OG/CC) or Deputy
- Ensures initial board responsibilities carried out
- Evidence is preserved
- Installation is prepared to provide all necessary support to the SIB upon their arrival

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duties associated with command such as next of kin notification. The following guidelines

are recommended for ISB presidents as a means of managing workload and ensuring critical investigation-related tasks are satisfactorily accomplished:

A3.11.1. Preparation Phase. Become familiar with the responsibilities of the other interim board members.

A3.11.2. Notification/ISB Phase. Ensure the following tasks are accomplished as soon as possible, preferably in the order given:

A3.11.2.1. Initiate ISB notification if not previously accomplished by the Crash Net, Chief of Safety or Command Post. ISB members should be directed to report to the ISB president's office or a designated work center as prescribed in the base MRP.

A3.11.2.2. Ensure ISB members understand their initial responsibilities (see individual member checklists below); set a proposed time for the first group meeting of all ISB members (preferably 4-6 hours after initial notification).

A3.11.2.3. Ensure the OSC has established strict control over the mishap scene as soon as containment and control actions are complete; set up a procedure for providing him/her a list of personnel authorized access for investigative purposes.

A3.11.2.4. In case of both survivors and fatalities consider assigning two Flight Surgeons to the ISB. One to care for the survivors, the other to deal with the field work and fatalities

A3.11.2.5. Consider calling in for toxicological testing all personnel who serviced the aircraft in the past 24 hours. Note: this is perishable evidence.

A3.11.2.6. Ensure the Readiness Flight and/or fire chief record, as possible, damage to and relocation of parts resulting from fire fighting and rescue operations.

A3.11.2.7. Ensure the ISB safety officer has taken steps to initiate plotting of the wreckage (if dispersed) and arranged for aerial photography if appropriate.

A3.11.2.8. Initiate required operational and safety reports.

A3.11.2.9. Initiate planning for removing wreckage, if required.

NOTE: Except for the CVR, CSFDR and other data recording devices, do not move any part of the wreckage unless absolutely necessary, i.e., on a runway, highway, railroad track, etc. Coordinate with convening authority and/or SIB president, if in doubt.

A3.11.3. SIB Arrival Phase:

A3.11.3.1. Stay abreast of travel plans of permanent SIB members, especially the SIB President.

A3.11.3.2. Ensure workspace and billeting arrangements are in place for all expected out-of-town board members.

A3.11.3.3. Prepare a “handoff briefing” containing at least the following information:

A3.11.3.3.1. Location/condition of the accident scene, including collateral property damage.

A3.11.3.3.2. Actions taken by emergency response forces that affected the scene or wreckage.

A3.11.3.3.3. Location/condition of participants/survivors, including any bystanders killed/injured; include:

- A3.11.3.3.4. Status of toxicological testing, autopsies, etc.
- A3.11.3.3.5. Next-of-kin notification status.
- A3.11.3.3.6. Location/condition/status of wreckage, including all classified equipment (is there pressure to move?).
- A3.11.3.3.7. Presence of munitions, composites, or other hazardous materials at scene (including potential for blood borne pathogens based on presence of human remains).
- A3.11.3.3.8. Civil authorities involved in managing scene/casualties.
- A3.11.3.3.9. Status of records impoundment actions (refer to individual ISB member guidelines below for list).
- A3.11.3.3.10. Status of witness search/statement collection.
- A3.11.3.3.11. Reports issued to date.
- A3.11.3.3.12. Technical assistance immediately available/offered/en route.
- A3.11.3.3.13. Media interest/statements made to date.
- A3.11.3.3.14. Logistical arrangements in place for permanent board (work center, communications, transportation, billeting, personal equipment, etc.).

ISB Investigating Officer

- Usually a Wing Flight Safety Officer (FSO)
- Ensure preservation of physical evidence at the scene of the mishap
- Under ideal circumstances is supported by a second trained flight safety officer, who assists the ISB president in the systematic gathering of documentary and testimonial evidence
- Preliminary AFSAS message

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records.

Maintenance Member: Like the interim pilot member, the interim maintenance member need not have experience with the specific weapon system involved in the mishap, although such familiarity is helpful.

Flight Surgeon: Like the ISB safety officer, the interim medical member is responsible for capturing a significant amount of highly perishable evidence. However, an interim medical member's first responsibility

at any mishap scene is as a physician, caring for the injured. The flight surgeon has two main responsibilities: to ensure survivors receive appropriate and expeditious healthcare, and to preserve medical evidence. For mishaps involving more than one aircrew member, where there may be fatalities and survivors brought to different medical treatment facilities, ISB flight surgeons must prioritize where their presence will have the greatest benefit. In such cases, participation by several flight surgeons may be essential. Request assistance from the ISB president and MDG/CC, if necessary.

Recorder: AT MAJCOM option, units may wish to train one or more recorders as a part of their interim board cadre. Recorders are customarily drawn from the installation experiencing the mishap (or supporting the mishap investigation), so interim board recorders, if appointed, could be of significant help in bridging the gap between the ISB and SIB.

ISB Pilot Member

- Usually Sq/FSO or Wing DOV
- Assemble as much factual information as possible regarding the history of the mishap flight qualifications of the mishap crew.

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ISB Maintenance Member

- Usually Wing/Sq Mx Officer
- Assemble as much information as possible regarding the history of the mishap aircraft, its most recent servicing, and the qualifications of the individuals who most recently worked on it.

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Maintenance Member: Like the interim pilot member, the interim maintenance member need not have experience with the specific weapon system involved in the mishap, although such familiarity is helpful.

ISB Medical Member - 1

- Main function is to preserve perishable medical evidence
- Ensure evidence not associated with human remains is left undisturbed
- Assumes responsibility for the post-mishap medical history, examination, care and toxicological testing of mishap crewmembers
- Collects medical and dental records
- Ensure human remains are photographed, preserved and documented
- Coordinate medical care at the mishap site
- Advise the ISB on environmental hazards at site

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ISB Medical Member - 2

- Liaison between local medical authorities or coroners and military investigators
- Contact AFMES for path assistance
- Interim board medical officer guidance
 - Chapter 1 of AFI 91-204
 - AFI 48-123
 - AFPAM 91-211
 - The Society of USAF Flight Surgeon's checklist
 - HQ AFSC SEFL

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Flight Surgeon: Like the ISB safety officer, the interim medical member is responsible for capturing a significant amount of highly perishable evidence. However, an interim medical member's first responsibility at any mishap scene is as a physician, caring for the injured. The flight surgeon has two main responsibilities: to ensure survivors receive appropriate and expeditious healthcare, and to preserve medical evidence. For mishaps involving more than one aircrew member, where there may be fatalities and survivors brought to different medical treatment facilities, ISB flight surgeons must prioritize where their presence will have the greatest benefit. In such cases, participation by several flight surgeons may be essential. Request assistance from the ISB president and MDG/CC, if necessary.

More guidance for the interim board medical officer can be found in:

Chapter 1 of AFI 91-204

AFI 48-125

AFPAM 91-211

The Society of USAF Flight Surgeon's checklist

HQ AFSC SEFL

ISB Recorder

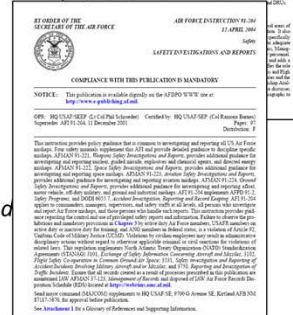
- Ensure the administrative and logistical needs of the ISB are met
- If interim recorder is appointed, he or she may be retained as the ISB recorder with MAJCOM and local agreement
- A good recorder is the key to a smooth ISB

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ISB Guidance

- **AFI 91- 202, *The US Air Force Mishap Prevention Program***
- **AFI 91-204, *Safety Investigations and Reports***
- **AFPAM 91-211, *US Air Force Guide to Safety Investigations***
 - **Best source of info**
- **AFM 91-223, *Aviation Safety Investigations and Reports***



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Preparation – Planning

- If you are a potential ISB member, read your base CEMP and visit your Wing Safety Office
 - Search and rescue (SAR) agencies – with whom will you work?
 - Checklist for mishap response
 - Communication – Radio? Cell phone?
 - Jurisdiction for fatalities – Check locally
 - Mass casualty plan
 - Armed Forces Medical Examiner System (<http://www.afmes.mil>) has replaced AFIP!

Preparation – Planning

- Mishap kit
 - Inventory regularly, ready at all times
 - Usually maintained by Wing Safety Office
- Personal gear
 - Available, no-notice
 - Maintained by YOU
- GPS – Safety office should supply
- After hours response plan

ISB Member Training

- Dictated by AFI 91-202 ANG sup 1
- Formal training not required
 - COS/FSO will train the identified members
 - Initial
 - Annual re-currency training
 - This must be documented
 - Handouts, PPT presentations, or both may be used



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Individual Checklists

- AFPAM 91-211 Attachment 3
 - Section A3C has extensive, specifically designed checklists for each ISB member
 - Broken down into 3 phases
 - Preparation
 - Notification/ISB
 - SIB Arrival
 - A3.8 is specific for MDG/CC – Familiarize yourself with it ***beforehand***; outlines entire process
- Unit specific ISB checklists should be built into your Aircraft Mishap Response Plan

Initial Response

- Recovery and treatment of survivors – First priority
- SAR mission
 - Land vs. water
 - How will you communicate with SAR personnel?
- Ambulance response
- Family Notification
- MAJCOM Notification
- Medical support at crash site
 - Local authorities? Military? Both? Know your local plan.

Mishap Response “Big Picture”





Survivors

- Medical and Dental Records
 - Crew mental health records, substance abuse records, family advocacy records, list of medications prescribed from the pharmacy
- Collect Life Support Gear
- Treat injuries, perform complete physical
- Ejection: Full spine x-rays
- Toxicology
 - Ship express to **AFMES** (not AFIP!)
 - Save extra blood

Survivors

- 72-hour history
 - Detailed
 - Crew rest, diet, stressors
- 14-day history
 - Less detailed
 - Look at changes in routine
- DNIF survivors
 - Do not rush RTFS

Survivors

- Telephone report to MAJCOM
- Recovery of egress equipment
- Preservation of life support and egress equipment

Survivors

- Wrap items in plastic and limit handling
- Wet items should be dry
 - Don't attempt to fit fractured metal surfaces together
- Do not alter attachments
- If items are soaked in blood or body fluids, spray with Lysol and let dry

Survivors – Interviews

- Who
 - Transient witnesses
 - Local eyewitnesses
 - On duty witnesses
 - Survivors/relatives
- Basics
 - Promise of confidentiality?
 - “Tell me what happened”
 - “Tell me what you saw”
 - Few follow-on questions

Fatalities

- Remains tagged, photographed and removed
 - Diagram location
 - Involve FS and SPTG/services
 - With large complex mishap -- may take days
- Local coroner vs. Flight Surgeon
 - Coroner/ME usually has jurisdiction on/off base
 - Dictated by MOUs & state laws
 - FS participates “over-the-shoulder”
 - Call in AFMES for complex mishaps
 - Autopsies and remains identification

Fatalities



Pre-Autopsy

- Photographs done at mishap site
- Secure personal effects and valuables after tagged, photographed in original location
- Total body X-rays
- Notify SIB flight surgeon of fatalities, disposition of remains
- Transportation of remains

Autopsy

- Secure life support equipment
 - With body until autopsy
 - Give to mishap board
- Obtain toxicology study results
- Death certificate
- Board president's approval necessary to release remains

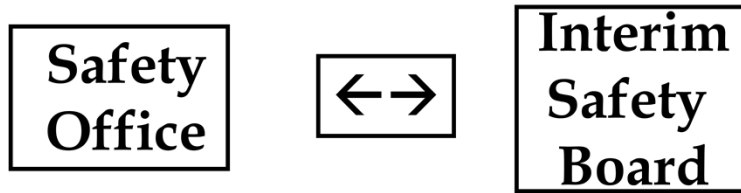
Chief of Safety - 1

- Preparation
 - Identify and train multiple potential ISB members for all board positions
 - Ensure pre-mishap planning is up-to-date, all required equipment is readily available, and a suitable work-center has been identified
 - Periodically exercise the ISB process, preferably in conjunction with a MARE.

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ANG Mishap Response Kit

Chief of Safety - 2



Chief of Safety - 3

- COS role during the ISB:
 - Ensure an appropriately tailored ISB is selected
 - Ensure a work-center is established, preferably in the same location as will be used by the permanent board, as quickly as possible
 - Work with the Incident Commander to restrict access and minimize disturbance to the scene once it has been declared safe
 - Make the gathering and preservation of physical and documentary evidence an absolute priority
 - Ensure reports are initiated and sent on time
 - Provide for a 24-hour point of contact for the ISB

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Chief of Safety - 4

- SIB Arrival
 - Ensure maximum possible support is provided to the incoming SIB, including transportation, billeting, personal and professional equipment, and workspace.
 - Arrange an orderly transition of custody of evidence and information gathered through both mass briefings to the entire SIB and one-on-one briefings conducted by their ISB counterparts, as appropriate.
 - Orient the SIB members to the installation and the crash site as quickly as possible.
 - Ensure ISB members withdraw promptly and finally when relieved by their SIB counterparts.

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Closing Out

- Chronicle SAR Mission
- Hand off to SIB Flight Surgeon
 - Notes
 - Pictures
 - Life support gear
 - Medical records
 - Dental records
 - 72-hr AND 14-day histories

ISB/SIB Handoff

- Handoff briefing IAW AFPAM 91-211
- ISB members not to offer any theories, conjecture, or conclusions developed unless specifically asked
- Your unit should have a ISB/SIB hand-off briefing format ready now for any future ISB President

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The Safety Investigation Board will relieve the ISB of their duties and is convened by the MAJCOM CC; usually for Class A mishaps.

Their purpose is to fulfill the requirement imposed by DoD directives to fully investigate major mishaps to prevent a repeat.

They will develop investigational analysis, findings, cause, and recommendations.

ISBs and the Press



Common ISB Errors

- Unit has not identified and trained potential ISB members
- Unit does not have the required equipment and work space readily available
- The unit does not practice convening an ISB
- Having an ISB that tries to “investigate” instead of protect and preserve evidence

Summary

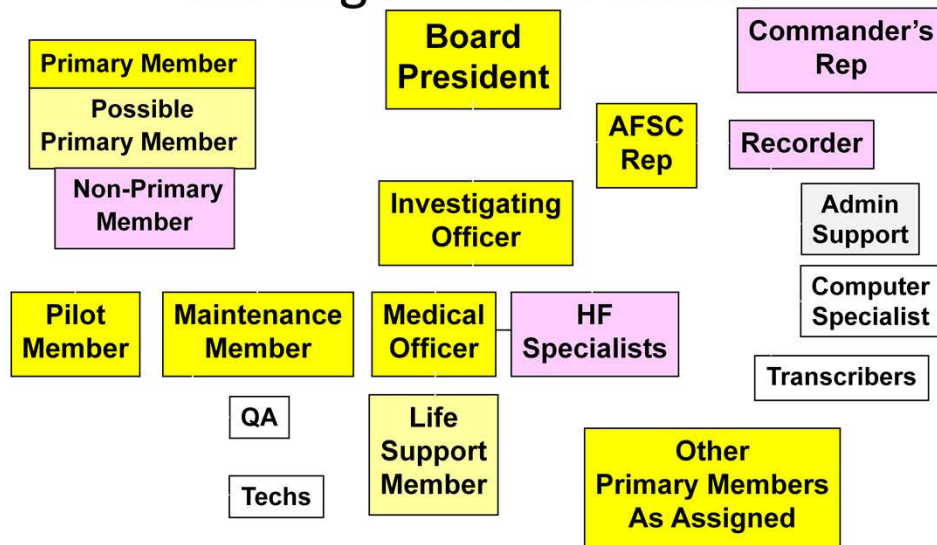
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- Guidance and Preparation
- Initial Response
- Survivors
- Fatalities
- Role of the Chief of Safety
- Closing out/handoff

Permanent Board
Flight Surgeon Duties

Overview

- Board purpose and composition
- Preparation
- Getting started
- First visit to the mishap site
- Integration into the investigation
- Consultants
- Writing the report

SIB Organization Basics



The Permanent Mishap Investigation Board

- PURPOSE: Prevention of future mishaps
- COMPOSITION
 - President appointed by numbered AF
 - Wing tasked to provide other members
 - MAJCOM tasks MDG SGP to provide flight surgeon
 - Required voting members:
 - President
 - Investigating Officer
 - Pilot Member
 - Maintenance Member
 - Flight Surgeon

3-Jul-15

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Career implications for the board president

Flight Surgeon appointed differently from other members

SGP must work out use of SME flight surgeon with the squadron commander

The Permanent Mishap Investigation Board (Cont.)

- Optional Voting Members:
 - Life Support Officer
 - Air Traffic Controller
 - Unit Representative
 - Munitions Specialist
 - Weather Representative
 - AFOTEC Representative
- Required Nonvoting Members:
 - Recorder
 - FAA or NTSB if they desire participation
 - Test Organization if involved

Permanent Board Products

- Messages
 - Final message at 30 days
- Briefings
 - Numbered AF
 - MAJCOM
- Report
 - Copies controlled
 - Limited use

Preparation - Supplies

- Useful References:
 - AFI 48-123
 - AFPAM 91-211
 - Flight Surgeon Checklist
 - Aerospace Medicine Textbook
 - Aerospace Medicine Telephone Directory

Preparation - Supplies

- Useful Items:
 - Camera with flash
 - Hand-held digital recorder
 - Ziplock bags and adhesive labels
 - Exam gloves
 - Work gloves
 - Moist towelettes
 - Graph paper
 - Tape Measure
 - GPS

Preparation - Supplies

- Personal Items
 - Flight suits, ABUs
 - Foul weather gear
 - Field boots
 - Field hat
 - Sunscreen
 - Insect repellent
 - Personal First Aid Kit

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Preparation - Travel

- Assigned unit pays for the TDY
- Orders
 - Usually depart within 24 hours of notification
 - Assigned unit cuts orders
 - Variations authorized
 - Rental car

Getting Started

- Contact Board President
- Contact Life Support Member
- Debrief IFB Flight Surgeon

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Surviving Aircrew

- Check on AFMES toxicology
- Spine x-rays if aircrew ejected
- Review medical records
- Physical examination
 - Review what has been done
 - Do your own exam
 - Include anthropometric measurements
 - Complete 72- hr and 14-day histories

Fatally Injured Aircrew

- Check total body x-rays
- Autopsy arrangements
 - Pathologist
 - Photographs
- Review medical records
- Attend autopsy
 - Secure life support gear
 - Discuss mechanisms of injury
 - Preliminary list of diagnoses
 - Arrange for receipt of reports & photos

Others Involved

- Others Involved in the mishap
 - Physical exam
 - Toxicology
 - 72-hr and 14-day history
- Search and Rescue (SAR) Information
 - How notified
 - Accurate times
 - Unit involved
 - Interviews

First Visit to the Mishap Site

- Big picture
- Visit site of aircrew recovery
- Look at egress equipment
 - With life support member
- If aircraft impacted water:
 - Check wreckage as it comes in
 - Look for egress equipment
 - Look for controls:
 - Rudder pedals
 - Throttle
 - Stick handle

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The Investigation

- Stay current on findings of other board members
 - *Attend daily debriefs*
 - Participate in or review interviews
- Be alert for new players
 - May need toxicology
 - May need 72-hr or 14-day histories

The Investigation (Cont.)

- Become familiar with critical human performance actions
 - Review pilot actions in simulator
 - Review maintenance:
 - Workload
 - Procedures
 - Ergonomics
 - Written guidance

Human Factors Analysis

- Board discussion of human factors
- Flight surgeon should offer to lead discussion
 - Start with your own list of potential human factors
 - Use a consultant as needed
 - Repeat the discussion as more is learned

Consultants

- When to consider getting a consultant
 - Theory you cannot confirm
 - To check your analysis
 - Out of ideas
- Only with the board president's approval
- Finding one
 - MAJCOM
 - AFISA life sciences
 - Direct

Consultants

- Most common consultant is from Life Sciences Equipment Lab, now at Wright Patterson AFB, OH
 - POC's for Mishap Investigations (as of January 2013):
 - Geoffrey Shidler (Aerospace Engineer)
 - DSN: 986-8985 Comm:(937) 656-8985
 - John Goines (Chief, LSEL)
 - DSN: 986-8981 Comm: (937) 656-8981
- 2060 Monahan Way, Building 17 Area B
Wright Patterson AFB, OH 45433-7808

Consultants

- Consultant report
 - Usually submitted in writing
 - Include in Tab Y
 - Or may be included in Life Sciences Narrative

The Report

- Two Parts
 - Part I - Tabs A-S
 - Part II - Tabs T-Z (limited use)
- Flight surgeon's responsibilities
 - Tab Y with assistance of life support member
 - Assist with human factors portion of Tab T
- Computers are wonderful things
 - Request a laptop
 - Let someone else sweat the formatting

Life Sciences Report – Tab Y Structure

- I. Part I
 - A. Brief Mishap Summary
 - B. Human Factors Related Issues
 - C. Life Support Issues
 - D. Injury Issues
 - E. Other Issues

Tab Y Structure

- II. Part II - Non-factors Worthy of Discussion
- III. Life Sciences Reports
- IV. Consultant Reports
- V. Appendices

— Figure A4.1, AFPAM 91-211

Summary

- Board purpose and composition
- Preparation
- Getting started
- First visit to the mishap site
- Integration into the investigation
- Consultants
- Writing the report
- Next slide for quiz instructions

- [Go to quiz](#)
- Enter your answers on the [answer sheet](#)
- Print only one answer sheet for entire course
- Press ESC to go back to main menu