

The

Safety

Wire

October 2016

Self-Monitoring Fails



Photo courtesy of Damian Orihuela

us too often to be a trusted means of ensuring our safety. Recently, I went to the doctor for some sinus issues. The doctor prescribed Prednisone. I had heard of Prednisone, but never taken it before. I was not scheduled to fly the next two days, but I asked the doctor if there were any restrictions for flight. The doctor said that there were not. Later, the pharmacist also said there were no restrictions. Over the next two days, I continued to feel fatigued, had a light headache and was concerned about the mice I thought I was seeing out of the corner of my eye scurrying around my house. At the end of the second day, my wife, a nurse, looked at me and asked how I felt. When I told her I felt, “like crap,” she looked at the medications I’d

brought home. “Prednisone??!! 40mg a day!!” she proceeded to explain what the possible side effects were, which helped me understand why I still felt the way I did. It also explained the mice infestation (hallucinations are one of the possible side effects). I was upset that the doctor and pharmacist told me there were no restrictions. What if I’d been scheduled to fly?

I decided that in the future I need to find out for myself if the meds are really okay for flight. My first stop was the FAA; however, they do not publish a list of approved medications. They do have some guidance for Aviation Medical Examiners (see link below), which has some useful information, especially the section on allergy medication. There was nothing about the medication

I was looking up, so I moved on to the military. I found a list from the US Air Force, but didn't see Prednisone. The Navy did not list it as aviation approved medication. The list from the US Coast Guard did list it, but only required liver function be monitored every six months. All three documents had very extensive lists of other medications that are worth a look.

Problem	Type of Medication	Example	Potential side effects
Colds, congestion, and allergies	- Decongestant - Antihistamine	Pseudoephedrine (Sudaphed®) Diphenhydramine Benadryl®)	Palpitations, jitteriness, anxiety, drowsiness
Cough	- Cough suppressant	Dextromethorphan (Robitussin DM®)	Dizziness, drowsiness
Fever	- Antipyretic	Aspirin	Ring in ears, upset stomach
Pain	- Analgesic	Ibuprofen (Motrin®)	Dizziness, upset stomach
Nausea / Vomiting	- Antinauseant	Dimenhydrinate (Dramamine®)	Drowsiness
Diarrhea	- Antidiarrheal	Loperamide (Imodium®)	Drowsiness
Acid reflux	- Antacid	Ranitidine (Zantac®)	Headache, nausea
Constipation	- Laxative	Various	Abdominal cramping, diarrhea
Overweight	- Diet pill	Ephedrine (Ephedra)	Palpitations, jitteriness, anxiety, heart attack, stroke
Insomnia	- Sleeping pills	Diphenhydramine (Tylenol PM®)	Prolonged drowsiness and impairment of reaction times

Source: FAA – *Medications and Flying*

I looked at the AOPA website and finally found some guidance. They listed it as FAA 'allowed'. The Aviation Medicine Advisory Service medication database said the same. How could this be? One part of the answer was a note on both listing the maximum daily dosage as 20mg or less. I had been taking twice that.

However, the most important note was, "no adverse side effects." This brings us back to the FAA's reluctance to create a definitive list of medications. To be safe when it comes to medications, we must not forget these points, which were included in almost every resource I found:

1. Any medication can create adverse side effects that could jeopardize flight safety. We should allow an observation period of at least 24-48 hours after taking medication to check for adverse effects, especially if we have not taken it before.
2. Even if the medication is flight approved and produces no adverse effects, the underlying medical condition we are taking them for could still inhibit our ability to perform our jobs safely.
3. Even well intentioned doctors can fail to give critical flight safety information to us if they do not have aeromedical training. Our aviation medical examiners, flight surgeons and other aviation medical professionals are the resource we need to turn to.
4. All of this applies to maintenance staff as well!

The Federal Aviation Regulations address these points in §61.53, prohibiting anyone from acting as pilot in command, or in any other capacity as a required pilot flight crewmember, while they:

1. Know or have reason to know of any medical condition that would make the person unable to meet the requirements for the medical certificate necessary for the pilot operation; or
2. Are taking medication or receiving other treatment for a medical condition that results in the person being unable to meet the requirements for the medical certificate necessary for the pilot operation.

What about just sitting in the other seat and acting as a tactical flight officer instead of calling in sick? For that answer we can look to §91.17, which says: “No person may act or attempt to act as a crewmember of a civil aircraft - (3) While using any drug that affects the person's faculties in any way contrary to safety.”

For those of you who fly outside of the United States, it is likely that there are similar regulations covering your operation. But legal compliance is not the main reason we should follow these rules. The best reasons are the answers to the two questions we should be asking ourselves: “How do I feel? Do I know that the medication I took is not effecting me in a way that would keep me from doing my job safely?” To answer the second question, we need to turn to our aviation medication professionals...not the family doctor, and not the best guesses of our coworkers.

Answering the first question is often difficult. As I mentioned before, we often do a poor job of evaluating our own levels of fatigue, mental health and medical condition. Either because we don't realize it, or don't want to admit it...we have to learn to be suspect of our self-assessments. This is where we need to count on each other.

When you are doing a FRAT (Flight Risk Assessment Tool) and are asked if you are sick, how many hours you slept, or have taken medication in the last 24 hours, give an honest answer. You are giving your crew a chance to save your life.



For the managers out there...what are you prepared to do if someone calls in sick? If there is not a plan in place, your people will not feel compelled to make the right choice for fear of letting down the team. The seasons are changing, bringing allergies, colds, flus, etc. Watch out for one another.

Aviation Medicine Advisory Service – Medication database:

https://www.aviationmedicine.com/medication-database/?amas_search_term=Prednisone&amas_search_category=&amas_search_purpose

FAA - AME Guidance on medications

https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/pharm/

FAA – *Medications and Flying* brochure

http://www.faa.gov/pilots/safety/pilotsafetybrochures/media/Meds_brochure.pdf

USAF Approved flight medications:

http://hprc-online.org/dietary-supplements/files/ctb_140148.pdf

US Navy medications list:

http://www.med.navy.mil/sites/nmotc/nami/arwg/Documents/WaiverGuide/18_Medications.pdf

US Coast Guard medications list:

<https://www.uscg.mil/h1n1/docs/pdf/APLMEDICATIONS.pdf>

AOPA Medications Database (members only)

<https://www.aopa.org/go-fly/medical-resources/medications-database>

“When everything seems to be going against you, remember that the airplane takes off against the wind, not with it.”

~ Henry Ford

Follow up...

In response to last month’s article about performing preflight inspections, I received this input from two ALEA members. Thank you for the input!

Another thing that I like to do is to stand back far enough from the helicopter that I see the entire picture at a glance. Does it look like an aircraft is supposed to look like? Sometimes being too close to the aircraft you don’t see the big picture.

Paul Bonnacarrere - Chief Pilot Hoover Police/Jefferson County Sheriff Aviation Division

As I read your recent article about preflight inspections, I was remembering a study that was conducted by Transport Canada several years ago about the effect distractions can have on our ability to follow standard procedures and maintain focus on certain types of tasks.



Photo courtesy of Robert Steht

One of the interesting findings coming out of the study was that while working methodically through a checklist of tasks such as a routine daily inspection, even though we are paying the appropriate amount of attention to the specific item being inspected, our subconscious brain is jumping ahead to the next item on our list in anticipation of the next step.

The result of this phenomenon is that if we are interrupted in the middle of a normal and familiar process by some sort of distraction, once the distraction is

dealt with, we have a strong tendency to return to the task not where we left off but to the next step following the item we were previously working on. The brain tricks us into returning to the task one or two steps ahead of where we were because we were subconsciously jumping ahead of

ourselves without even knowing it.

So it is for this reason that when I am performing a daily inspection on our helicopter and some distraction takes me away from the task at hand, I always return to the task at the place where I was in the process, and then back up several steps. It results, no doubt, in some items receiving extra attention at times, but it ensures that I guard against this danger and don't miss any important items.

Garry Duncan - Winnipeg Police Service

ALEA Online Meetings

The schedule for upcoming ALEA online meetings is below. Meetings are conducted through an online conference call you can join using your computer or phone. They are open to any ALEA member. Contract maintenance providers to ALEA members are welcome on the maintenance meeting.



UAS:

Wednesday, Nov 9, 2016

1:00 PM - 2:00 PM EST (1700 UTC)

Maintenance:

Monday, Nov 14, 2016

1:00 PM - 2:00 PM EST (1700 UTC)

Safety Officers:

Monday, Nov 21, 2016

1:00 PM - 2:00 PM EST (1700 UTC)

To receive meeting information and be added to the mailing list, send an email to:

safety@alea.org

Resources

We are now able to offer FAA Wings Program credits at ALEA events! During the recent Western Region Safety Seminar in Desert Springs, California, attendees were able to earn up to 6 Wings credits. The same two classes will be offered at the upcoming Central Region Safety Seminar in Austin, Texas.

There are numerous online courses available as well. Check out www.faasafety.gov/WINGS for more information about this free program. Remember, you can use the program to satisfy the requirements for your biennial flight review.

Video on seeing sUAS from the air:

<https://www.youtube.com/watch?v=ApNs5wwjyzI&feature=youtu.be>

New Advisory Circular on Autorotation Practice:

http://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_61-140A.pdf

Police Aviation News:

<http://policeaviationnews.us4.list-manage1.com/track/click?u=e3f664fb1d0245baf07ab374f&id=ce6c710de7&e=99cabea956>

Air Safety Foundation - Nall Report:

<https://www.aopa.org/training-and-safety/air-safety-institute/accident-analysis/joseph-t-nall-report?>

"I have not failed. I have just found 10,000 ways that won't work"

~ Thomas Edison

Reality Check...

Note: The following reports are taken directly from the reporting source and edited for length. The grammatical format and writing style of the reporting source has been retained. My comments are added in red where appropriate. The goal of publishing these reports is to learn from these tragic events and not to pass judgment on the persons involved.

Article about a US Army Blackhawk crash:

http://kdhnews.com/military/exclusive-pilot-error-caused-black-hawk-crash-at-fort-hood/article_eee938ca-7ad0-11e6-82f6-4f04e95168.html

Aircraft: Cessna 310H

Injuries: 3 Fatal

NTSB#: ERA13FA133

http://www.nts.gov/_layouts/nts.aviation/brief.aspx?ev_id=20130215X10538&key=1&queryId=819e4173-0cbf-4add-940b-a87488b15b25&pgno=3&pgsize=50

The noninstrument-rated pilot, copilot, and the passenger were attempting to return from the Bahamas to Florida; a weather front was passing over Florida at the time. The copilot had contacted flight service before the initial flight and learned of thunderstorms in the area; the flight had to divert from its planned destination. The copilot contacted flight service before a second flight, and the flight service specialist advised that visual flight rules flight was not recommended due to low cloud ceilings and visibility. The pilot decided to land at an airport closer to his destination. At that airport, the copilot again contacted flight service and remarked that he was

trying to figure out how to "scud run" to get home. He also spoke to his wife, who told him that the weather "was bad" at their final destination, and she reported that she thought they would delay their flight until the next day. Even though his calls to the weather briefer and his wife indicated adverse weather along the route of flight and at the destination, the copilot likely advised the pilot to continue the flight. About 20 minutes into the flight, the copilot contacted the Orlando approach controller and reported that they had inadvertently entered instrument meteorological conditions (IMC). The controller instructed him to set the transponder code to 0311 so that she could locate the airplane and then to contact Miami Center; however, no further communications were received from the copilot.

Review of radar data revealed that, shortly after contacting Orlando Approach control, while the controller was attempting to locate the airplane, it descended in three left circuits from 8,900 feet mean sea level (msl) to 1,800 feet msl. It subsequently made a right circuit, descended to 900 feet msl, and continued to proceed toward the destination airport, eventually descending to 200 feet msl. The last 3 minutes of radar data showed the airplane flying at an altitude between 100 and 200 feet msl. The final radar target was recorded while the airplane was in a left circuit at 200 feet, about 1/8 mile southwest of the accident site. The wreckage was located the following day in a heavily wooded, deep water, swamp area, and no debris path was observed. Given the radar data and the existence of marginal visual conditions, moderate rain, and the pilot not being instrument rated, it is likely that the pilot experienced spatial disorientation.

Two toxicological tests revealed measurements of diphenhydramine in the pilot's blood at levels within or well above the therapeutic range indicating that the pilot likely took the drug about 2 to 3 hours before the accident. Diphenhydramine causes marked sedation and is also classed as a depressant and used as a sleep aid. Altered mood and impaired cognitive and psychomotor performance may also be observed. Therefore, it is very likely that cognitive and psychomotor impairment caused by diphenhydramine contributed to the pilot's poor judgment about flying in marginal weather conditions and may have further impaired his ability to appropriately cope with relatively unfamiliar flying conditions when he flew into IMC.

The National Transportation Safety Board determines the probable cause(s) of this accident as follows: The noninstrument-rated pilot's improper decision to continue visual flight rules flight into instrument meteorological conditions and his subsequent spatial disorientation. Contributing to the accident was the copilot's improper evaluation of the weather conditions after receiving several weather briefings for the flight. Also contributing to the accident was the pilot-in-command's cognitive and psychomotor impairment due to recent use of an overthecounter sedating antihistamine and the pilots' personal pressure to get home.

**Note: The following medications contain Diphenhydramine: Excedrin PM Triple Action, Benadryl, ZzzQuil, Banophen, Tylenol PM, Mucinex Fast-Max Night Time Cold & Flu, Tylenol Allergy Complete NightTime, and others.*

Aircraft: MD 369E
Injuries: 2 Uninjured
NTSB#: WPR14TA236

http://www.ntsb.gov/_layouts/ntsb.aviation/brief.aspx?ev_id=20140608X15119&key=1&queryId=a0c0261d-f3d3-4349-a7ea-eaacf595f54b&pgno=9&pgsize=100

A MD 369E landed hard following a loss of engine power during cruise flight. The helicopter was operated as a public aircraft flight. The commercial pilot and commercial pilot rated tactical flight

officer were not injured. The local flight departed at 2315 the night prior. Night visual meteorological conditions prevailed.

The flight was a routine patrol, and about 1.4 hours after departure, the pilot performed a series of flight checks in the vicinity of the airport. Once complete, they flew to the north and a short time later while travelling 60-70 knots, and about 700 feet above ground level, the pilot heard an uncharacteristic change in engine tone accompanied by a decrease in rotor speed. The pilot began to diagnose the problem, and a series of caution warning lights illuminated followed by the engine-out tone.

The pilot immediately initiated an autorotation, aiming for a tree-lined alfalfa field to the north. The helicopter cleared the trees, and prior to initiating the flare the pilot realized he needed to turn on the landing lights in order to properly see the ground. He was unable to turn them on in time, and he initiated the flare, landing the helicopter hard and level on the skids. The main rotor blades subsequently struck and severed the tailboom just aft of the tailboom mounting bolt access doors.

According to maintenance records, at the time of the accident the engine had accumulated 15,349.7 hours total time, and a Phase 4 (150 hour) inspection had been performed 8.5 hours prior.

Post-accident examination of the engine revealed excessive wear in the turbine-to-compressor coupling components. Specifically, the turbine-to-compressor coupling had moved, causing its forward splines to come into contact with the spur adapter gear shoulder and its rear splines to disengage from the turbine splined adapter. The disengagement caused a decouple of the turbine section from the compressor section, and subsequent loss of engine power.

Analysis revealed that the excessive wear was the result of a misalignment of the engines centerline shafting components. Two areas of misalignment were discovered, neither of which on their own were likely significant, however, cumulatively they produced enough misalignment to cause the wear. The first misalignment was caused by the incorrect placement of two shims at the interface between the rear diffuser and gearbox. These shims were placed during the last compressor section overhaul, about 2 years and 1,432.1 flight hours prior to the accident. The second discrepancy was between the forward and rear pilot diameter bores of the exhaust collector assembly, which exhibited excessive runout when compared to engineering drawings. The exhaust collector assembly was reworked in accordance with the manufacturer's maintenance manual, which did not call for a runout check of the forward to rear pilot diameters, but rather a runout check of both pilot diameters independently with reference to the bearing bore. At the time of rework the runout-to-bearing-bore values were within tolerance. Therefore it is likely that the discrepancy was latent, predating the accident by a long period of time, having not been significant enough to cause previous shafting misalignment.

Aircraft: **Schweizer 269C**

Injuries: **1 fatal**

NTSB#: **CEN16FA304**

http://www.nts.gov/layouts/nts.aviation/brief.aspx?ev_id=20160804X45514&key=1

On August 3, 2016, about 1047 central daylight time, a Schweizer 269C-1 helicopter, N1549W, was substantially damaged after impacting trees and terrain during a low-altitude cross-country flight near Jeanerette, Louisiana. The pilot was fatally injured. The helicopter was operated as a Part 91 pipeline patrol flight. Visual meteorological conditions (VMC) prevailed.

The helicopter was completing a scheduled bi-weekly patrol of a series of intersecting pipelines. After the helicopter failed to arrive at KPTN the operator became concerned and notified the Federal Aviation Administration (FAA). An alert notice (ALNOT) was issued which directed an extensive communication search for the overdue, unreported, or missing aircraft.

Coordination between FAA air traffic control (ATC), the U. S. Air Force Rescue Coordination Center (AFRCC), and volunteers from the Civil Air Patrol (CAP), resulted in several volunteer CAP cell phone forensic specialists being able to track cell phone data and determine the general area of the most recent location of the pilot's cell phone. After an extensive airborne search by numerous aircraft, the crashed and partially submerged helicopter was found on the following day in a remote thickly wooded cypress swamp in the Atchafalaya Basin about 15 miles east from Jeanerette, Louisiana. The closest official weather reporting indicated [VFR with additional] notations of the presence of lightning, thundershowers, and rain in the area.



There are no new ways to crash an aircraft...

...but there are new ways to keep them from crashing.

Safe hunting,

Bryan 'MuGu' Smith

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407-222-8644