

January/February 2022

FAA BRIEFING *Safety*

AEROSPACE MEDICINE

and
YOU



Federal Aviation
Administration

8 BasicMed is
Turning Five!

11 How to Fast-Track
Your Medical

22 Who's Who in the Office
of Aerospace Medicine



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of Transportation

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FAA **BRIEFING** Safety

The FAA Safety Policy Voice of Non-commercial General Aviation

DEPARTMENTS

- 2 **Jumpseat:** an executive policy perspective
- 3 **ATIS:** GA news and current events
- 5 **Aeromedical Advisory:** a checkup on all things aeromedical
- 6 **Condition Inspection:** a look at specific medical conditions
- 26 **Checklist:** FAA resources and safety reminders
- 27 **Drone Debrief:** drone safety roundup
- 28 **Nuts, Bolts, and Electrons:** GA maintenance issues
- 29 **Angle of Attack:** GA safety strategies
- 30 **Vertically Speaking:** safety issues for rotorcraft pilots
- 31 **Flight Forum:** letters from the Safety Briefing mailbag
- 32 **Postflight:** an editor's perspective

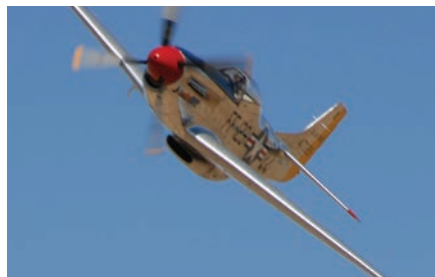
Inside back cover

FAA Faces: FAA employee profile



22 Who's Who in the Office of Aerospace Medicine

A Behind-the-Scenes Look at the FAA's Aerospace Medicine Decision Makers



11 Smooth is Fast

How to Speed Up Your Medical Certification

15 The Human Factor

How The FAA's Medical and Human Factors Research Helps Aviation

8 BasicMed is Turning Five!

How It Works, and How It's Making a Difference

18 Courses, Sources, and Training Resources

What Pilots Can Learn from the FAA's Aerospace Medical Education Division





PILOT MAINTENANCE

If you are anything like me, you probably think of going to the doctor with the same kind of reluctance you might have for, say, launching into lousy weather. But where avoiding bad weather in a small GA airplane can help you stay alive, skipping or delaying visits to your doctor could have the opposite effect.

A key part of remaining physically healthy is an activity that is similar to the things you do to keep your airplane mechanically sound: constant monitoring and regular maintenance. One of the earliest skills we learn as pilots is to recognize and address small signs (e.g., why is that gauge reading low?) before they become big problems (e.g., my engine just quit!). Regular visits to the doctor are an important part of keeping your flying physiology in top form, so you can find and address little problems before they become more serious.

Many pilots, though, have perhaps been hesitant to fully communicate with their doctors for fear of complicating issuance of the all-important medical certificate. But we have all benefited from several developments over the past few years.

Continuous Improvement

First is the hard work the FAA's medical certification staff has done over the past few years, not only to speed consideration of special issuance but also to expand both the range of certifiable conditions and the avenues available. These include AASI (AME Assisted Special Issuance) and CACI (Conditions AMEs Can Issue). The list of CACI-eligible conditions is expanding and, as you will read elsewhere in this issue, all kinds of other improvements to the medical certification process are in the works.



Second is the FAA's Compliance Program, first introduced in 2015. The Compliance Program is the enabling guidance for the FAA's risk-based oversight approach to compliance. It stresses a problem-solving approach where enhancement of the individual or organization's safety performance is the goal. It promotes communication, collaboration, and proactive risk management to find safety problems before they cause an accident and use the most effective tools to ensure a positive, permanent fix. This approach certainly applies to managing your health. It has always been the case that the FAA expects compliance on medical requirements, and it has always been the case that compliance includes honest communication about issues that affect your health, and thus your ability to operate an aircraft safely.

Third is the advent of BasicMed. BasicMed leaves no excuse for anything but a full and frank discussion with your state-licensed physician about your health. BasicMed (as well

as the traditional avenues to medical certification) is about using open communication with your provider to find any health problems that could adversely affect your ability to operate an aircraft safely, to use the most appropriate treatments to fix those problems, and to monitor results to ensure that any health/safety issues are fully resolved.

Questions?

There are lots of resources available nowadays from both the FAA and aviation community organizations. If you think you might have an issue, here are some things you can do.

Get the facts. Use all available resources to learn as much as you can about the certification implications of your particular medical condition. A good place to start is the medical certification home page on the FAA's website (www.faa.gov/pilots/medical). You can also access the FAA MedX-Press form from this page.

Use your resources. The Aircraft Owners and Pilots Association (AOPA), the Experimental Aircraft Association (EAA), and many other aviation organizations provide medical certification information, advice, and advocacy for their members.

Resolve the problem. Work with your physician to resolve any issues that might delay issuance of your medical certificate.

Document. Learn exactly what the FAA needs to certify your condition. Have your physician document your condition, your treatment, and your prognosis in precisely the format and level of detail the FAA requires. Doing your part will speed the FAA's evaluation and get you back on the flight deck as quickly as possible.

AVIATION NEWS ROUNDUP

Open and Close Flight Plans via Phone

Leidos Flight Service released a new feature that allows pilots to activate and close VFR flight plans via the Interactive Voice Response (IVR) system without talking to a specialist. This upgrade makes opening and closing VFR flight plans easier than ever and saves pilots valuable time by eliminating hold times.

The enhancement is available to all pilots who have a free online 1800wxbrief.com account linked to a primary phone number. To sign up for an account, click *Create Account* and enter a primary phone number associated with your account.

When you call 1-800-WX-BRIEF, the system will automatically search to see if you have a flight eligible to *Activate* or *Close* and provide menu options. The system will not offer these menu options if there is no flight plan on file. You can activate your VFR flight plan up to 30 minutes in the future to ensure that you have enough time to get into the air before the flight plan is active. You can easily close a flight plan when your flight has concluded by calling Leidos Flight Service from the primary phone number linked to

your account. If you call from a different phone number, the system cannot look up your flight plan.

Note that the IVR system will not offer services if it detects more than one proposed flight plan with the same departure time, and pilots will be unable to use the system to close flight plans that have entered *Search and Rescue* status. Visit 1800wxbrief.com to learn more about the IVR feature and future updates.

Dangerous Laser Strikes Continue to Rise

Shining a laser at an aircraft is a serious safety threat that continues to rise. As of Oct. 14, the FAA has received 7,186 laser strike reports for 2021, exceeding the 2020 total of 6,852. This marks the highest number of reports since 2016.

Several types of high-powered lasers can completely incapacitate pilots, many of whom are flying airplanes with hundreds of passengers. People who shine lasers at aircraft face FAA fines of up to \$11,000 per violation and up to \$30,800 for multiple laser incidents. In 2021, the FAA issued \$120,000 in fines for laser strikes. Violators can also face criminal penalties from federal, state, and local law enforcement agencies.

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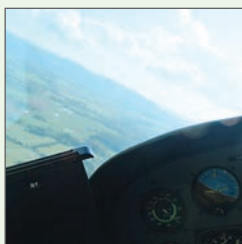
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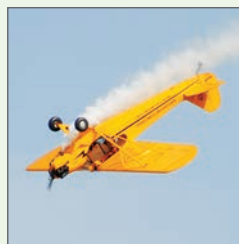
SAFETY ENHANCEMENT TOPICS

Please visit bit.ly/GAFactSheets for more information on these and other topics.



JANUARY

ADM and Startle Response —
Understanding the human startle response and effectively coping with unexpected events.



FEBRUARY

Stall/Spin/Upset Recovery Training —

How training and education in stalls, spins, and upset recovery can help reduce loss of control accidents.



To identify laser strike trends, the FAA developed a visualization tool using the Tableau software platform that shows laser strike data from 2010 to 2020 and highlights trends by geographic area, per capita data, and time of day and year. The FAA shares the information to draw attention to the dangerously high rate of laser strikes on airplanes. You can download laser report data by year from the FAA's website at faa.gov/about/initiatives/lasers/laws.

The FAA remains vigilant to raise awareness about the dangers of pointing lasers at aircraft and encourages the public to report laser strikes (bit.ly/LaserRpt) to the FAA and local law enforcement agencies.

Increasing Aviation Safety in Alaska

Last October, the FAA released recommendations (faa.gov/alaska) on how to increase aviation safety in Alaska after a year-long, sweeping examination of safety issues specific to the challenges of flying in Alaska, where more than 80% of its communities are accessible only by air.

Among the recommendations are: increasing and improving weather

data reporting and forecasting — including continued testing of Visual Weather Observation Systems (VWOS), expanding satellite-based Automatic Dependent Surveillance-Broadcast (ADS-B) air-traffic control coverage to more areas, and improving navigation charting. The FAA will begin developing a roadmap for implementing the recommendations in the near- and mid-term, focusing on initiatives with the greatest safety benefits.

The FAA will develop a draft roadmap by mid-February 2022, identify the resources necessary to implement it and seek aviation stakeholder feedback on the roadmap through May 2022. The FAA will continue those initiatives already underway and incorporate parts of the new initiatives by summer 2022. The agency will submit a progress report to stakeholders by September 30, 2022.

Proposed Medical Requirements for Commercial Hot-Air-Balloon Pilots

In November, the FAA proposed a rule requiring commercial hot-air-balloon pilots to hold medical certificates when operating for hire. The rule

would mandate a second-class medical certificate, the same standard required for commercial pilots.

Currently, commercial balloon pilots are exempt from the medical requirement. In the FAA Reauthorization Act of 2018, Congress directed the FAA to revise the medical certification standards for commercial balloon pilots. The draft rule also addresses a NTSB recommendation that the FAA remove the exemption.

The FAA in recent years took steps to increase the safety of hot air balloon tourism by working with the Balloon Federation of

America (BFA) on an accreditation program. The program includes voluntary standards for pilots and operators and offers multiple tiers of BFA safety accreditation.

You can find the draft medical rule in the Federal Register at bit.ly/NPRM-balloon, and the public comment period closes on Jan. 18.

Three Military Airports Now Eligible for Funding to Add Civilian Operations

The FAA has selected three airports to be eligible for grants to add civilian aviation operations at former and current military airfields, adding system capacity and helping to reduce congestion at existing airports. Kelly Field in San Antonio, Texas; Mobile Downtown Airport in Mobile, Ala.; and Salina Regional Airport in Salina, Kan., can now apply for Airport Improvement Grants.

The Military Airport Program (MAP) provides funding as a set aside of the Airport Improvement Program (AIP) to help increase civilian aviation capacity at current or former military airports. MAP funds projects such as surface parking lots, fuel farms, hangars, utility systems, access roads, cargo buildings, and other airfield-related infrastructure.

The MAP allows the FAA to designate up to 15 joint-use or former military airports to participate each fiscal year. Three of the 15 airports may be general aviation airports, and the remaining 12 must be commercial service or reliever airports. Selected airports are designated for a period of one to five years. Previously selected airports may re-apply to the program.

The airports in this program have unique project-eligibility rules to convert them to civilian or joint use, thereby increasing the capacity of the National Airspace System to serve the flying public. Since 1991, the FAA has provided approximately \$764 million to more than 35 airports through the program.



MIND YOUR MEDS!

Pilots often ask which medications are permissible for flight and where they can find this information.

Let's check out some of the top prescription medications in the United States (according to GoodRx.com) and review how we consider them for medical certification. Here's a link to the Pharmaceuticals (Therapeutic Medications) section of the AME Guide for further guidance (bit.ly/AMEGuideTherapeutics).

Usually Acceptable:

Atorvastatin (Lipitor®): this medication is used for high cholesterol and is allowed if the user experiences no significant side effects. Like any acceptable medication, wait at least 48 hours (some need a longer ground trial) after the first dose to make sure you have no problems with the medication.

Lisinopril (Prinivil, Zestril): an angiotensin converting enzyme inhibitor (ACE-I) used for high blood pressure or heart failure. Most high blood pressure medications are allowed after a seven day ground trial. Review the disposition tables here (bit.ly/HeartHypertension) to see what information you need from your personal physician for your AME to issue a medical certificate under Conditions an AME Can Issue (CACI). Another resource is this FAQ page (bit.ly/HeartHypertensionFAQs) (PDF) which you'll also find helpful for these next two medications.

Amlodipine (Norvasc®): a calcium channel blocker (CCB) used for high blood pressure. If you take it for any other reason, let your AME know why.

Losartan (Cozaar®): an angiotensin II receptor blocker (ARB) used for high blood pressure. It also reduces the likelihood of stroke and protects

against kidney disease in individuals with diabetes. It can be acceptable for all of these conditions.

Albuterol (Accuneb®, Ventolin, Proair®, Proventil®): this medication is used to treat wheezing and shortness of breath from asthma or COPD. Review the CACI Asthma worksheet (bit.ly/CACIAsthma) (PDF), and bring a copy to your personal doctor, so they know which medications are acceptable for flight. Be sure to tell your AME what you use, how often you use it, and why.

Levothyroxine (Synthroid®, Unithroid®, Levoxyl®): this medication is used for hypothyroidism. Review the CACI Hypothyroidism Worksheet (bit.ly/CACIHypothyroidism) (PDF). Provide a copy to your personal doctor to help ensure that their clinical note includes the information we need for medical certification.

Metformin (Glucophage®) for Diabetes: check out the Acceptable Combinations of Diabetes Medications (bit.ly/ComboDiabetesMeds) (PDF). This two-page chart lets you, your AME, and (if you bring them a copy) your personal physician know what medications the FAA allows for pilots and how long you must wait to return to active flying after starting, adding, or changing diabetes medication.

Unacceptable for Flight:

Gabapentin (Neurontin®): used for seizures, nerve pain, or shingles pain, this medication can make you drowsy or dizzy, may slow your thinking, and cause loss of coordination. In fact, the prescription insert warns you not to drive a car or operate heavy machinery. Neurontin and similar sedating medications are referenced on the Do Not Issue —

Do Not Fly list in the AME Guide (bit.ly/NoIssueOrFly).

Hydrocodone/Acetaminophen (Lortab®, Vicoden®, Norco®): these pain medications can cause sedation and/or dizziness and are unacceptable for flight. Besides, if you need a narcotic pain medication, you shouldn't be flying. These medications are also found on the DNI-DNF list and in the Medications and Flying brochure (bit.ly/MedsFlying) (PDF).

Diphenhydramine (Benadryl®): this is a common component in over-the-counter (OTC) sleep medications, many cough and cold combination medications, and some allergy medications. It is the most common medication seen in fatal aircraft accidents. If you take it, you should not fly for 60 hours after the last dose. If you need a medication for a cold, flying is not a good idea anyway. For acceptable allergy medications, check out the Allergy — Antihistamine page (bit.ly/AllergyAntihistamine) (PDF).

OTC Medication Example:

Omeprazole (Prilosec): this is an OTC medication used to reduce stomach acid in many underlying conditions like heartburn, GERD, or ulcers. It is also available as a prescription medication in a higher dose. If you need an OTC medication, start here: What OTC medications can I take and still be safe to fly? (bit.ly/OTCMedstoFly)

When in doubt about medications, ask your AME. Your personal physician might not understand the implications of many medications and/or conditions for flight safety. Ask them a simple question — Would they feel safe on an airplane if THEIR pilot was using this medication?



PILOTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD)

Safety experts agree that at least 70% of aviation accidents are attributable to the pilot. NASA scientists report that most accidents result from some failure in the pilot's cognitive performance, with distractions and errors in aeronautical decision making (ADM) most prominent.

For example, when a pilot decides to launch into marginal VFR conditions, continues as conditions deteriorate, enters IMC, and loses control of the aircraft, the fatal crash may be categorized as a "loss of control" event, but it was rooted in poor ADM. Even experienced pilots with no impairing conditions occasionally make errors in ADM or get distracted. That fact led to the emphasis on CFIs creating realistic distractions in flight to teach effective distraction management, as well as scenario-based training and formal risk assessment tools to improve ADM.

The likelihood of an accident rooted in distraction or poor ADM is heightened when the pilot has a condition that negatively affects such skills. Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder with symptoms of inattention and/or hyperactivity-impulsivity that interfere with functioning or development. ADHD occurs in approximately 5% of children and frequently persists into adulthood, affecting about 2.5% of adults.

Three subtypes of ADHD are based on the symptoms exhibited: a "predominantly inattentive" presentation, a "predominantly hyperactive/impulsive" presentation, and a "combined" presentation. All three include symptoms that pose a hazard to flight safety.

Inattention manifests behaviorally in ADHD as being disorganized,

easily distracted, wandering off task, and having difficulty sustaining focus. *Hyperactivity* refers to excessive motor activity or excessive restlessness, or talkativeness. *Impulsivity* refers to hasty actions without adequate consideration of possible consequences, despite a high potential for harm.

NTSB investigations of fatal accidents attributed to ADHD have documented that pilots with ADHD: failed to adequately prepare for flight (e.g., did not check the weather), continued flight when it was ill-advised (e.g., due to deteriorating weather), engaged in hazardous actions (e.g., low-level maneuvering to show off), and became distracted and made critical errors (e.g., failed to maintain airspeed, stalled, and spun while circling a friend's home at low altitude). Due to the risks to flight safety posed by ADHD, regulatory authorities worldwide consider ADHD a disqualifying condition for pilots.

Unfortunately, pilots sometimes fail to disclose ADHD to their Aviation Medical Examiner (AME). The result is that the FAA learns about the condition after a fatal accident when the toxicology results reveal the presence of medication used to treat ADHD. Notably, pharmacological treatments for ADHD are not approved for flying because they can cause harmful effects on perceptual, motor, and cognitive functions and impair the recognition of fatigue. Additionally, their effectiveness is time-limited, a particular concern if a dose is missed or flight time exceeds the therapeutic impact of the drug.

Complicating the picture is the fact that an inaccurate diagnosis of ADHD is not uncommon. Proper diagnosis of ADHD is a complex and time-con-

suming process. Medical providers, acting under time pressure and attempting to respond to the concerns of patients (or their parents), sometimes prescribe medication to treat ADHD or assign a diagnosis without adequate evidence of the disorder. The result is a subset of the adult population with a documented history of treatment for ADHD — some of whom truly had the condition and others who probably did not.

To determine if the adverse impact of ADHD is present or not, the FAA requires a thorough evaluation by a licensed psychologist. It is most beneficial to see a psychologist familiar with the FAA's specific protocols and standards. AMEs have access to a list of FAA-eligible providers to assist with referrals. The FAA's evaluation requirements for a history of ADHD are available at the following link: bit.ly/AMEGuide.

Upon review, the FAA will either deny the pilot's application or grant an unrestricted or Special Issuance (SI) medical certificate. If the pilot receives a time-limited SI, further monitoring and assessment may be required. While time-consuming and costly, based on the safety risks posed by the symptoms of ADHD, the FAA has established this evidence-based risk assessment protocol to safeguard both the pilot and the national airspace system.

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BasicMed

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Five!



How It Works, and How It's Making a Difference

By Tom Hoffmann

On May 1, 2017, the FAA ushered in a new alternative to airman medical certification. BasicMed marked a tremendous shift in how some pilots can meet required medical qualifications for conducting lower-risk, non-commercial flying. Nearly five years later, more than 50,000 pilots (myself included) are currently flying under BasicMed.

While it has been popular for many pilots to pursue this alternative medical certification, some users still have a learning curve, especially as many near the first set of renewal periods for operating under BasicMed. We can help. We'll review key steps you'll want to consider for both starting and maintaining BasicMed coverage. We'll also look at some of the research the FAA has completed in its five-year look back report to Congress to see how the program is making a difference in the aviation community.

The Basics

BasicMed permits certain pilots flying certain aircraft to conduct certain operations without holding a current medical certificate. (*Don't worry, we'll be "certain" to explain those conditions below.*) It is important to recognize upfront that BasicMed is an alternative to the third-class medical certificate. It is not a replacement, and it is not a "fourth-class" certificate.

Relief measures that come with choosing BasicMed include using a valid U.S. driver's license as a means of maintaining medical compliance with the program (provided you've held an FAA medical after July 16, 2006) and using a state-licensed physician (like your regular family doctor) to perform the exam and sign off on your fitness for flight. Both provisions were aimed at lowering

costs and enhancing the convenience and efficiency of the medical certification process.

The Requirements

BasicMed has specific requirements for the *airman*, the type of *aircraft* you fly, and the type of *operations* you can perform. Here's the breakdown:

Airman: You'll likely qualify for BasicMed (most pilots do), but here's what you'll need:

- A current and valid U.S. driver's license.
- A valid FAA medical certificate, held at any point after July 14, 2006. If that medical certificate was associated with a Special Issuance, the expiration of the Special Issuance must be after July 14, 2006. Your most recent medical certificate must not have been suspended or revoked, and any Special Issuances must not have been withdrawn. Also, if you've since applied for another medical certificate, that completed application cannot have been denied.
- Pilots who have ever had certain mental, cardiac, or neurological health conditions will need a one-time-only Special Issuance medical certificate for each condition. Suppose you haven't had a Special Issuance for that condition, and you currently have, or you are newly diagnosed with, one of the cardiovascular, neurological, or mental health conditions described in the list of special conditions. In that case, you may not use BasicMed until you have been issued a medical certificate with an authorization for Special Issuance. For the list of special conditions, see Medical Conditions Requiring One Special Issuance at faa.gov/go/basicmed.

- **Aircraft:** Under BasicMed, you may fly aircraft that:
- Has a maximum certificated takeoff weight of not more than 6,000 pounds.
- Is authorized under federal law to carry not more than six occupants. Please note that in the last four years, supplemental type certificates are now available for certain aircraft certificated for more than six seats so that they qualify for BasicMed. Visit the main FAQ for more details at bit.ly/BasicMedFAQ.

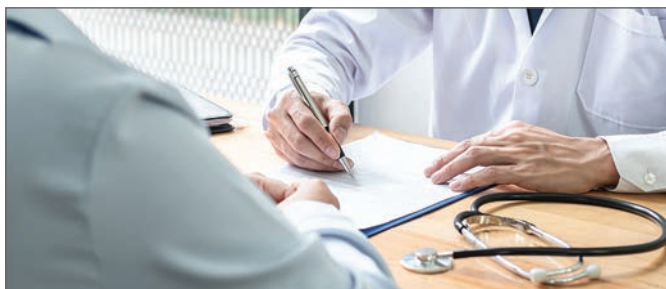


Operations: BasicMed permits flights of any distance or duration, any time of the day, under visual or instrument flight rules, but there are a few operational limitations:

- No more than five passengers, regardless of the number of seats.
- No flying above 18,000 feet mean sea level (MSL) or beyond 250 knots (indicated).
- No flights outside the United States.
- No operations for compensation or hire (*note: flight instructors may receive compensation for instructing while operating under BasicMed*).

The Appointment

Okay, so you've established that you, your airplane, and the types of flying you do are covered under BasicMed. Next up is an appointment with a state-licensed physician of your choice (preferably one who's familiar with your medical history). Before the appointment, you must first complete your portion of FAA Form 8700-2, Comprehensive



sive Medical Examination Checklist (CMEC) found here: bit.ly/BasicMedCMEC. If the section you're required to fill out looks familiar, it should — it's derived from a previous version of FAA Form 8500-8, the medical certificate application form that now exists in MedXPress.

Section 2 of the form requires you to answer questions about your medical history. Your physician will review your responses to those questions and address any medical issues or medications taken as they apply to operating an aircraft or motor vehicle. Your physician will also conduct a medical examination of the items listed in section 3. These items are similar to what an Aviation Medical Examiner would check for during a third-class medical exam.

If your physician is satisfied that you present no medical conditions that would interfere with your ability to safely operate an aircraft, they will complete and sign the form, including their state license number. Legibility is key as you will need this information to print your medical education course completion certificate. Store the completed CMEC in your logbook.

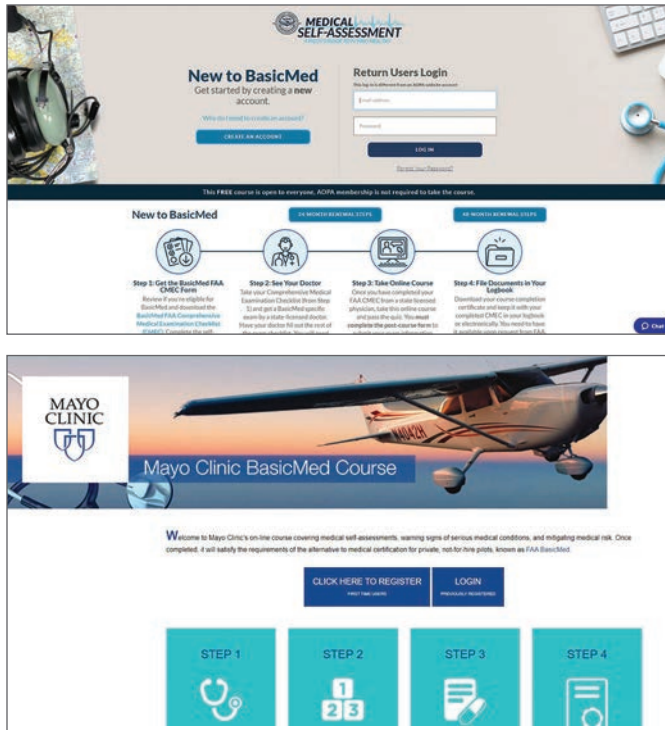
If you're considering BasicMed for the first time, or if perhaps you've switched doctors recently and need to get renewed, have a look at the article in our July/August 2017 issue titled "Doctor, Doctor, Let Me Give You the News" (spark.adobe.com/page/fjIC3oWxhMgcv). It provides excellent advice for how to approach your doctor about the BasicMed process.

Finally, remember that to act as PIC under BasicMed, you must have completed a medical examination in the preceding 48 months. As I write, I'm days away from my first BasicMed recheck with my doctor — a gentle prod from my BasicMed online course provider was a helpful reminder. Filling out the CMEC was easy. Just be sure to note any recent conditions (including COVID-19 infections), medication changes, and any visits you made to a health professional in the last three years. Your doctor should be able to complete and sign the form during your checkup.

The Online Course

The final step is completing the BasicMed online medical course and quiz. There are currently two course providers (AOPA and the Mayo Clinic), and links to each are on faa.gov/go/basicmed. The course is required every 24 months to remain covered under BasicMed, but it's not a bad idea to review the material more often. Once you complete the course, you will be required to enter information about yourself and the physician who completed the CMEC. You'll also need to electronically certify that you:

- Allow the FAA to access your driving records,
- Are being actively treated for any medical condition that affects your ability to fly,
- Have completed the CMEC, and



There are currently two options for the online BasicMed course — AOPA and the Mayo Clinic. Links to each are on faa.gov/go/basicmed.

- Understand your obligations under 14 CFR section 61.53 regarding the operation of an aircraft during a medical deficiency.

When you click submit, this information is transmitted to the FAA, and you will get a course completion certificate to retain in your logbook.

A Checkup on BasicMed

As part of the FAA Extension, Safety, and Security Act of 2016 that created BasicMed, the FAA, in coordination with the National Transportation Safety Board (NTSB), is required to submit a report to Congress that “describes the effect of the regulations issued or revised [...] and includes statistics with respect to changes in small aircraft activity and safety incidents.” In response to this mandate, the FAA and NTSB have just completed a report summarizing findings of the first three years of operations under BasicMed.

The report considered survey data for airmen, aircraft, and flight operations most closely correlated to operations conducted under BasicMed, and looked at shifts in accident trends in this same general category of operations. So did BasicMed lead to more pilots flying more airplanes in this category? Was there any measurable impact on safety?

In terms of aircraft, BasicMed did not appear to impact the number of aircraft most likely to be operated under BasicMed. There was modest growth in four years before implementation; numbers subsequently stabilized. There was also no measurable impact on the number of flight

hours, which showed an equivalent activity level before and after the study period.

In terms of airmen, the study indicates that BasicMed has returned approximately 30,000 airmen to flying status. Data also revealed that BasicMed pilots are older than the average pilot with a Class III medical (61 years) and are much more likely to have required a Special Issuance.

While this data could suggest that pilots using BasicMed are in a higher category of risk for incapacitation and medically-related deaths, that’s not the full picture. Notably, the study concluded there was no difference in the risk for BasicMed and third-class airmen to have an aviation accident. Their report also found no difference between these two groups when looking at the accident phase of flight, fatal versus non-fatal outcomes, and fatal injury autopsy results. It is still early, though, so the FAA will continue to monitor trends.

“BasicMed is a great example of the FAA applying risk-based regulation and oversight, shifting responsibility back to the pilot,” says FAA Aviation Safety Analyst Brad Zeigler, who is also the General Aviation and Commercial Division’s BasicMed program lead. “This responsibility allows the pilot to work openly with their physician to objectively assess medical fitness for flight.”

In the end, safety depends on the airman to accurately and honestly assess fitness for flight before getting into the flight deck, no matter how recent your last checkup was (use the IMSAFE checklist). Whether you operate under BasicMed, or with an FAA medical, remember that 14 CFR section 61.53 prohibits you from acting as PIC if you know, or have reason to know, of any medical condition that would make you unable to operate the aircraft in a safe manner.

If you have any questions or comments about the FAA’s BasicMed rule, please contact us at 9-AWA-AFS-BasicMed@faa.gov. You can also find answers to frequently asked questions at bit.ly/BasicMedFAQ. ▶

Tom Hoffmann is the managing editor of *FAA Safety Briefing*. He is a commercial pilot and holds an A&P certificate.

LEARN MORE

FAA BasicMed webpage
faa.gov/go/basicmed

Advisory Circular 68-1A, *BasicMed*
bit.ly/BasicMedAC

Aviation Medical Examiner Guide
bit.ly/AMEguide


AOPA BasicMed Eligibility and Renewal Tool
bit.ly/AOPABMRenewal



Smooth is Fast

How to Speed Up Your Medical Certification

By James Williams

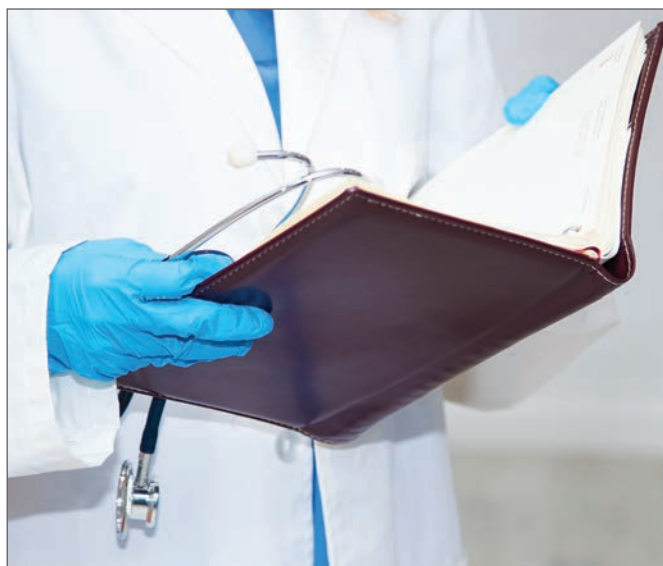


There is an idiom that says, “Slow is smooth. Smooth is fast.” The expression was made famous by special operations soldiers to emphasize that slowing down to smooth out the process will paradoxically often lead to a faster end result. As Tolkien said, “the hasty stroke oft goes astray.” Both sayings are very relevant to our medical certification. So by rushing the process, you may find yourself in a far more frustrating ordeal than is necessary. In fact, the vast majority of medical certificate applications that are not issued are based on a lack of response from the airman with the requested information, not a denial by the FAA. So, in a very real way, taking some time to slow down and ensure a smooth process could make a huge difference.

Smoothing Out the Process

“There are some very simple things a pilot can do to streamline the process,” explains Federal Air Surgeon (FAS) Dr. Susan Northrup. “First, make sure any documents you submit to the FAA are legible and have your name, a date, and any identification numbers that you may have on them.” She continued, “Make sure all letters, including summaries from physicians, are signed and dated. Ensure that your package includes all information requested by the FAA and keep a copy of what you’ve submitted for your

records. Also, make sure your contact information is current in MedXPress.” These tips help any pilot looking for a medical, whether for a renewal or an initial application (for more on what to expect from your first medical exam, see the article “What to Expect From an FAA Medical Exam” here: bit.ly/FAAMedExam).



Guiding Your Path



Dr. Northrup also has another piece of good advice. “The Guide for Aviation Medical Examiners (AME) is a great resource for pilots to see what the FAA requires to certify a pilot with any given condition.” The Guide for Aviation Medical Examiners is the AME’s manual for the medical certification of pilots. While the AME Guide was written for doctors, it is available to anyone online at bit.ly/AMEGuide. So if you want to know what your AME is going to be look-

Regardless of what certification path you end up taking, slowing down to ensure a smooth process will likely deliver the best results.

ing for, the guide is a great place to start.

“If you have any questions, or need more help, reach out to your AME, Regional Flight Surgeon (RFS), or one of the pilot advocacy groups that can provide more information,” said Dr. Northrup. If you have a condition listed in the AME guide, you can work with your primary care doctor to make sure that you have current copies of all of the reports and test results. It’s also essential to ensure that any tests ordered are correct, and in the format the FAA needs for certification. When in doubt, your doctor may contact your AME or RFS’s office. This ensures that you don’t have to repeat tests and are ready to be certificated when you walk into your AME’s office. But what if you don’t meet the medical standards?

Meet CACI

If you haven’t had a medical certificate before or haven’t had one in a while, you probably don’t know what a CACI is. Conditions AMEs Can Issue (CACI) is a program that allows AMEs to issue medical certificates to pilots that would usually have to be deferred to the FAA so long as they meet specific requirements. That means that you walk out of your AME’s office with a medical certificate without having to wait for the FAA to review and approve your medical. Also, these are regular medical certificates,

CACIs with Certification Worksheets

CACI Condition	CACI Condition
Arthritis (PDF)	Hypertension
Asthma	Hypothyroidism
Bladder Cancer	Migraine and Chronic Headache
Breast Cancer (PDF)	Mitral Valve Repair (PDF)
C-ITP (Chronic Immune Thrombocytopenia) (PDF)	Pre-Diabetes
Chronic Kidney Disease	Primary Hemochromatosis (PDF)
Colitis	Prostate Cancer
Colon Cancer/Colorectal Cancer	Renal Cancer
Glaucoma	Retained Kidney Stone(s) (PDF)
Hepatitis C - Chronic	Testicular Cancer

not Special Issuance certificates, that usually come with limited durations or additional requirements. These conditions include arthritis, asthma, hypertension, migraines, pre-diabetes, several forms of cancer, and more. For a complete list of conditions and the applicable worksheets, visit bit.ly/AMECACI.

Special Issuance, SODAs, and More

If you don’t meet the regular medical standards, there are a few other options. The most common would be a Special Issuance (SI). Broadly, SIs are performed when a pilot doesn’t meet the medical standards. Still, through some alternate means like additional documentation, shorter duration certificates, additional monitoring, or other mitigations, the FAA can issue an SI so the pilot can fly. Unlike a CACI, these medical exams must be initially deferred to the FAA and reviewed by the Aerospace Medical Certification Division (AMCD). Under the AME Assisted Special Issuance (AASI) program, some SI renewals may



Five Tips to Fast-Track Your Medical

Due to advances in treatment, medical follow-up, and FAA medical programs and protocols, the FAA now allows pilots to be issued medical certificates with medical diagnoses and/or medications that were previously considered grounding. However, pilots (and the FAA) still want the process to be as fast as possible.

The key is to come prepared for your Aviation Medical Examiner (AME) appointment.

In many cases, your AME will have all of the information needed to issue a certificate at your appointment. Still, if any item is missing or a question is unanswered, your medical (if deferred) will take longer. Here are five tips that can help speed things along.

1. List ALL Your Medical Conditions, Including Any Physician Visits Since Your Last Medical

A common mistake that applicants make is not including a complete medical history on their application. The FAA requires a complete list of your current medical conditions and history, so be sure to make a list of everything, including events that happened years ago and those you reported on previous applications. This list will also help you fill out your Application for Airman Medical in MedXPress (Form 8500-8) and give you a starting point to review what information the FAA will need for each of your conditions. (Remember, the instructions state “Have you **ever** in your life ...”)

Many pilots find it helpful to maintain a list of all doctors visited, including names, contact information, and specialty, along with the treatment received and the condition or reason for the visit. Keep in mind that after you have made an initial report, further reports can be very brief (e.g., “appendectomy, 2003, fully recovered”).

2. What Documents Do I Need to Bring to My Appointment?

Take a look at the AME Guide at bit.ly/AMEGuide to find out what documents and information your AME will need to see for each of your medical conditions at your appointment. It will also give you a starting point to help you fill out your MedXPress application.

A helpful tip is to use the CTRL-F key search function within the PDF file to find requirements for a specific condition. The disposition tables for each condition in the AME Guide will indicate what documents you need to provide. You should see this under the Evaluation Data section of each table. Watch this AME Minute video explaining disposition tables at bit.ly/DispositionTables.

Your condition may require your AME to follow the Conditions an AME Can Issue (CACI) worksheet, so be familiar with this document. Many pilots find it helpful to bring the CACI worksheets or disposition tables to their treating physician(s) to help them create a note or clinic summary that the FAA can use to make an aeromedical decision. You can find the CACI worksheets here: bit.ly/CACIWorksheets.

If your condition requires you to provide a “current status report,” please note that we are looking for a copy of the detailed clinical progress notes (actual clinical records) from your treating provider that should address each of the following topics:

- Diagnosis
- Treatment and Follow-up Plan
- Prognosis
- Specific Items on the Disposition Table

By Dr. Leo Hatstrup, FAA Medical Officer

Caution: A “Patient After Care Summary” is easily accessible on many Electronic Medical Records, but this DOES NOT contain what the FAA needs to make a medical certification decision. The FAA requires a copy of the actual clinical treatment records. Also, the FAA does not need a separate letter or note from your provider. It is just more work for the provider and usually does not include all the information that the FAA needs.

3. Help Your Physician Understand Airman Medical Certification

There’s a very good chance that the physician who takes great care of you and your medical conditions has no experience in airman medical certification. Here’s a few things that will help them help you:

- Explain that the FAA makes medical determinations based on the Code of Federal Regulations, which focuses on public safety.
- Let them know what information the clinical records must contain and that an FAA physician may review it.
- Bring a copy of the CACI worksheet for each of your conditions. Let your physician know that you need each item addressed in the clinical records.
- If the FAA specifically asks for an evaluation by your physician, make sure the clinical records are officially reviewed and signed by your **physician** and not just a clinical extender (e.g., nurse, nurse practitioner, physician assistant, etc.).

4. Work With Your AME

Unlike most physicians, AMEs are specifically trained by the FAA to know when to issue or defer a medical certificate. When a pilot has a condition requiring the AME to defer (such as a heart attack or stroke), your AME can help you understand which documents the FAA will need to review. Remember, while both your physician and the FAA are concerned about your health, the FAA also focuses on public safety. For that reason, we sometimes require testing beyond what is necessary just for patient care.

If you have a condition that requires a Special Issuance, in some cases, your AME will be able to issue a follow-up certificate. The FAA has a sub-set (30 conditions, so far, for all classes) for which the AME can issue a renewal of the Special Issuance. These are called AME Assisted Special Issuances or AASI, though the FAA will still review the evaluation. Assuming the evaluation is favorable, the pilot can walk out of the office with a certificate in hand rather than waiting for the FAA to complete the review. In the past few months, we added a group of the most common cardiac conditions to the list.

5. Don’t Forget to Submit Your Information to the FAA Within 14 days of Your Exam

Due to the volume of documents received by the FAA, if at all possible, send your documents within the 14-day window that AMEs are allowed for submitting examinations. Also, note whether you or your AME **will be sending in documents, and ensure your AME gets a copy. Advise the FAA of any delay beyond 14 days.**

Approach your medical certification the same way you prepare for a flight. Be prepared, use a checklist, and have all the tools and supplies that you need on hand to fast-track your medical to a smooth landing.



be handled by selected AMEs without first deferring to the AMCD, assuming specific criteria are met. AASI saves time by not processing on the front end and gets you back to flying status faster. Please see our Jan/Feb 2009 issue for the article “Getting your Special Issuance Medical” for a more detailed look at the SI process. See [Learn More](#) for a link.

A Statement of Demonstrated Ability (SODA) is a process that allows a pilot with a static, non-progressive condition that might otherwise be disqualifying to demonstrate that they are capable of operating an aircraft safely despite the disqualifying condition. The scope for a SODA is more limited than an SI, as the condition must be static but is valid until the condition changes or is revoked by the FAA. This process may require a special medical test flight (this might not actually include a flight) to determine that the pilot can operate safely and what, if any, limitations must be placed on the medical certificate. These tests are requested by the AMCD or RFS and generally carried out by the local Flight Standards District Office (FSDO).

Other means of medical compliance include BasicMed, Sport Pilot, and aircraft operations that don’t require a medical certificate. Each of those categories is an article in its own right, but it’s important to remember that Title 14 Code of Federal Regulations (14 CFR) section 61.53 still applies. This means that you must still ensure that you are fit for flight as pilot in command before each flight.

Regardless of what certification path you end up taking, slowing down to ensure a smooth process will likely deliver the best results. If you think you may have difficulty with the process, check the AME guide to see what the FAA needs. This is especially true if you have a CACI condition. Work with your personal doctor and AME to make sure everything is in hand, and be sure that’s what the FAA needs to see. If you have questions, ask your AME or RFS. Also, consider contacting a pilot advocacy group. Many have excellent advice for navigating the process.

Remember your medical exam doesn’t start until the AME pulls up the MedXPress application at your office

visit, so there’s no penalty for asking questions before that process begins. Hopefully, by knowing what to expect and being ready with any additional information, you can reduce a maddening waiting game of frustration to an easy visit to your AME that ends with a medical certificate in your hand. Even if that isn’t possible, having that additional information in hand and ready to send to the AMCD should reduce the need for time-consuming back and forth. This is where a good AME can make a big difference. For more on finding a good AME, see “Building the Right Team” on page 5 of our Sep/Oct 2018 issue. You’ll find a link in [Learn More](#).

A smooth and fast certification process is what everyone wants, and hopefully, this helps you get there. ▶

James Williams is *FAA Safety Briefing’s* associate editor and photo editor. He is also a pilot and ground instructor.

LEARN MORE

Guide for Aviation Medical Examiners
bit.ly/AMEGuide

“What to Expect From an FAA Medical Exam,” *FAA Safety Briefing* — Nov/Dec 2021, p. 6
bit.ly/FAAMedExam

CACI Worksheets
bit.ly/AMECACI

“Getting Your Special Issuance Medical,” *FAA Safety Briefing* — Jan/Feb 2009, p. 2
faa.gov/news/safety_briefing/2009/media/JanFeb2009.pdf (PDF)

“Building the Right Team,” *FAA Safety Briefing* — Sep/Oct 2018, p. 5
faa.gov/news/safety_briefing/2018/media/SepOct2018.pdf (PDF)

SODA Guidance
bit.ly/SODAGuidance



The

Human Factor

How The FAA's Medical and Human Factors Research Helps Aviation

By James Williams

What's the one thing that runs through all aspects of human endeavor? The human. Whether the human performs or doesn't dramatically impacts the outcome and safety of virtually everything we do. Paradoxically this becomes even more important as systems become more automated. A pilot's human performance is key to a safe national airspace system (NAS). That's why the FAA's Office of Aerospace Medicine runs research labs focused on both Human Factors and Medical Research.

The Fatiguing Nature of Fatigue

Fatigue has been a scourge on every facet of aviation from its inception. Whatever role you play in the system (pilot, maintainer, dispatcher, etc.), fatigue reduces your performance and creates risk in the system. But what's the difference between just being tired and being fatigued? And how could you tell if you are dealing with acute fatigue or chronic fatigue? Being tired might result from staying up too late to watch the end of the game, while acute fatigue might result from a busy week at work. Chronic fatigue is likely the result of an ongoing issue, whether professional, medical, or personal. The solutions to each of these conditions are different so understanding the difference between them is critical.

And that's been the challenge. Fatigue is hard to measure beyond simply asking the subject directly. It can be hard to spot the differences between these states or even identify fatigue, even with willing people. If a person is used to only sleeping five to six hours per night, they may not realize they are operating at a deficit. Because everyone is different and has different sleep needs, and this changes throughout life, diagnosis is a challenge. If someone has become accustomed to being fatigued, what they are experiencing is "normal" for them, and they are unlikely to mention it to a doctor.

Defining the Indefinable

The question with a condition like chronic fatigue is how do you detect it, especially when the person may not even know that their condition is chronic and that they need to report it to a doctor? That's where a more indirect approach may be helpful, and biomarkers can play that role.

Biomarkers are measurable biological characteristics that can serve as indicators of some phenomenon, such as disease, infection, or environmental exposure. Comparable with measuring the height of a building by observing its shadow and calculating the angle of the sun, biomarkers allow you to detect or measure something that you may not otherwise be able to do. Biomarkers have a variety of applications



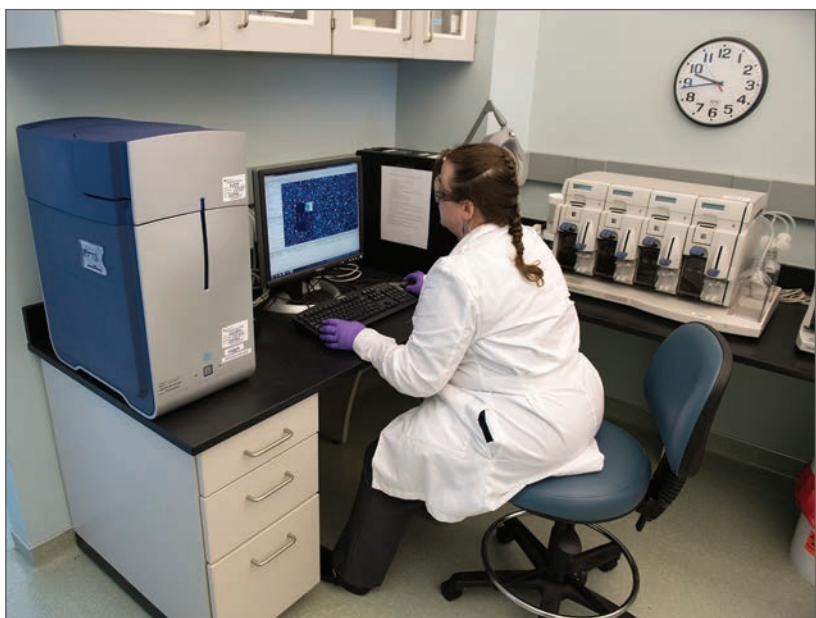
Vicky White loads samples for extraction of genetic material from blood, a first step in the measurement of gene expression biomarkers.

and could be a strong indicator of a condition like chronic fatigue, which lacks a standardized laboratory test. For those suffering from fatigue, having a reliable indicator would be a powerful tool for getting treatment. And for those in industries like aviation, any kind of objective early warning system would be invaluable in the number of lives it could save.

Several organizations, including the FAA, have been pursuing this research for some time. In 2015, units of the National Institutes of Health (NIH) held a conference titled Developing Biomarker Arrays Predicting Sleep and Circadian-Coupled Risks to Health. The workshop brought together many researchers interested in finding biomarkers related to sleep. In 2016, a number of Japanese researchers published a paper that showed promise in using oxidative stress measures to discriminate participants suffering from chronic fatigue from those who were not. But more work was needed to define this biomarker.

By working together with industry and academia, the FAA hopes to make fatigue a much smaller problem in the future.

In 2019, researchers from Stanford University developed a blood test that could accurately identify people with Chronic Fatigue Syndrome (CFS). While the study was small (40), the test detected the 20 participants with chronic fatigue without any false positives. The test works by measuring the participant's blood to determine its immune cell response to stress. The immune cell response from those participants suffering from chronic fatigue will be different from those who are not. The hope is that this



Susan Munster views a pictorial representation of gene expression information, towards identification of genetic biomarkers related to aviation safety.

biomarker can rapidly test drug candidates by rerunning the test before and after exposing the blood sample to those drugs. This would allow initial testing of drugs with minimal risk to any human subject.

In 2021, Ohio State University announced the identification of the protein deoxyuridine triphosphate nucleotidohydrolase (dUTPase) as “a key modulator of the immune response that contributes to the immunological and neurological abnormalities in some individuals.” It suggests that dUTPase could be used as a biomarker of CFS, at least in a subset of patients. Ohio State is also working to develop a high-volume test that would allow for large-scale screening and early detection of chronic fatigue.

The FAA has been investigating fatigue biomarkers for a little over a decade. In particular, the FAA's Functional Genomics Team within the Aerospace Medical Research Division is seeking molecular biomarkers associated with cognitive changes during sleep loss. The FAA published preliminary candidate biomarkers associated with attention impairment during sleep loss based on a collaborative study with Washington State University. Both ongoing studies and future planned investigations aim to improve and validate initial findings. Research is a highly detailed process, and vetting the results is both critical and time-consuming.

It's essential to have as much research from as many angles as possible to develop the best possible metrics. Especially with a complex phenomenon such as fatigue that has a variety of health and performance implications, having more than one approach may improve management or treatment options. By working together with industry and academia, the FAA hopes to make fatigue a much smaller problem in the future.

Ergo Ergonomics

Another area in which the FAA's Civil Aerospace Medical Institute (CAMI) has extensive research capabilities is in how humans work with aviation systems. Ergonomics is from the Greek word ergo, meaning work, and is the study of its efficiency. In more modern language, we've broadened the field to call it Human Factors, which is the study of how humans interact with their environment.

CAMI hosts two excellent labs dedicated to Human Factors Research: the NAS Human Factors Safety Research Laboratory (NHFS), which focuses primarily on Air Traffic Control and ATC systems, and the Flight Deck Human Factors Research Laboratory, which focuses on Human Factors in the flight deck.

Finding the Fit

The primary goal of the NHFS is to refine and improve the person-job fit for workers and organizations in the NAS through hiring, training, and technology. The lab explores all aspects of the work experience, from how the FAA screens applicants to developing air traffic procedures and systems. To that end, NHFS has a host of tools at its disposal, including ATC radar simulators, tower simulators, electroencephalography (EEG), eye-tracking systems, and more.

"Four years ago, I started a line of research about how controllers visually scan the air traffic environment to teach novice controllers, as well as experts, how to scan," said Dr. Jerry Crutchfield, an engineering psychologist with the NHFS. "The scanning research led to my recent involvement in identifying visual requirements for remote tower systems." It's just one example of how NHFS research leads to ATC system improvements.

The FAA is uniquely positioned to have the in-depth technical knowledge of the systems involved, complete access to the operational data, and unparalleled access to the air traffic workforce for this kind of research. With change on the horizon in the aviation industry and in the NAS, having a world-class ATC Human Factors lab is critical to ensuring safety in the system.

Simulation to the Rescue

The Flight Deck Human Factors Research Laboratory (FDHF) looks at how Human Factors are associated with aviation accidents. FDHF benefits from having access to the FAA's accident data, a large staff of skilled investigators, and simulator resources to replicate and test accident theories. FDHF's dedicated team of researchers can reconstruct portions of an accident sequence and re-fly them to spot factors that may have contributed to the accident. One area that will be especially important for GA is how helper systems like wing levelers and auto-land capabilities integrate as they make their way to the market. Finding the right way to work these systems into GA will require much work and



Dr. Dennis Beringer tests out some eye tracking equipment in a simulator.

careful monitoring. It will be an iterative fault finding and fixing process that ideally suits the FDHF lab in assisting the aviation community. For more information on the NHFS and FDHF labs, see our July/August 2020 issue on Human Factors, p. 22 at bit.ly/FAASB-Arc.

This article highlights just some of the many benefits the Office of Aerospace Medicine's research capabilities provide to the aviation community, particularly the GA community, with a world-class research capacity normally reserved for large universities or commercial organizations.

And its research is focused on one thing — making aviation safer. ➤

James Williams is *FAA Safety Briefing's* associate editor and photo editor. He is also a pilot and ground instructor.

LEARN MORE

The Humans Behind Human Factors
bit.ly/AvHumanFactors

Developing Biomarker Arrays Predicting Sleep and Circadian-Coupled Risks to Health
bit.ly/BiomarkerArrays

A Potential Biomarker for Fatigue: Oxidative Stress and Anti-Oxidative Activity
bit.ly/FatigueBiomarkers

Biomarker for Chronic Fatigue Syndrome Identified
bit.ly/BiomarkerChronicFatigue

Ohio State Researchers Isolate Biomarker to Test for Chronic Fatigue Syndrome
bit.ly/BiomarkerIsolated

Exploring Gene Expression Biomarker Candidates for Neurobehavioral Impairment from Total Sleep Deprivation
bit.ly/BiomarkerCandidates



Courses, Sources, *and* Training Resources

What Pilots Can Learn from the **FAA's Aerospace Medical Education Division**

By Jennifer Caron

Does anybody know what it feels like to lose cabin pressure mid-flight and experience the effects of a lack of oxygen? Luckily, most of us do not, and we think we don't need to worry about it because we don't fly high enough. Or, some of us believe that if we keep one of those pulse oximeters in our flight bag as a precaution, we can

grab it quickly to check our oxygen levels, just in case we start to feel a little woozy at higher altitudes. But unless you've experienced oxygen deficiency firsthand, how would you even recognize the symptoms, and would you know the steps you need to take to save your life?

Mid-flight is not the time to learn about hypoxia, the medical term for oxygen deficiency. It doesn't give you much warning, and if you don't detect it early enough, it can be a real killer. Some pilots believe that living at a higher altitude offers significant protection from hypoxia symptoms. That is only partially true. You need special training, education, and carefully monitored experience to learn and recognize the onset of hypoxia. That is where the FAA's Aerospace Medical Education Division gets involved.

Pilots can learn firsthand, safely, and on the ground what it's like to experience hypoxia in a state-of-the-art altitude training device and feel the effects of in-flight spatial disorientation in the Gyro, the General Aviation Spatial Disorientation Demonstrator. There are also courses in post-crash survival, including an option for simulated water landings.

Sounds like fun, right! More importantly, you'll learn to recognize your personal minimums during unexpected in-flight events and be better prepared. We'll introduce you to all the training, programs, and resources. But first, let's learn more about the FAA's Aerospace Medical Education Division and their dedicated work to promote pilot knowledge and enhance aviation safety.



Gyro, the General Aviation Spatial Disorientation Demonstrator.

Safety Lands When Education Expands

The Aerospace Medical Education Division is a vital component of the FAA's Civil Aerospace Medical Institute, also known as CAMI, the medical certification, research, education, and occupational health wing of the FAA's Office of Aerospace Medicine. Located in the FAA's Mike Monroney Aeronautical Center in Oklahoma City, CAMI features a staff of highly trained researchers, physicians, medical specialists, engineers, educators, and technicians. They study the factors influencing human performance in the aerospace environment, discover ways to understand them, and communicate what they've learned to the aviation community.

CAMI's Aerospace Medical Education Division (AMED) works to promote pilot knowledge and safety. "AMED offers educational programs and the safest and most technologically advanced hands-on training available in the United States today for pilots and aircrew to recognize and manage the physical and mental stresses of flight," says AMED Manager Dr. David Hardy. "We distribute aeromedical information to the civil aviation community through aeromedical safety brochures, publications, lectures, video series, and practical demonstrations," says Dr. Hardy.

In 2021, AMED educated and trained 572 commercial and 52 general aviation pilots and crew. They taught numerous courses to pilots, crew, and air traffic controllers at the Department of Transportation's Transportation Safety Institute, home of the National Aircraft Accident Investigation School.

AMED launched the new Pilot Minute video series, hosted by FAA Federal Air Surgeon Dr. Susan Northrup, which provides timely and relevant information to pilots on the medical certification process. Production continues on the award-winning, monthly AME Minute, a distance learning video series that helps educate aviation medical examiner (AME) designees through short videos posted on social media. Recipient of the United States Distance Learning Association's Innovation Award, the AME Minute addresses aerospace medical certification questions and fills in knowledge gaps in the AME community.

They also publish the quarterly Federal Air Surgeon's Medical Bulletin for AMEs and anyone interested in aviation safety and aerospace medicine (bit.ly/FAASMB). Each edition features an exclusive editorial written by Dr. Northrup, including current case studies, articles by leading experts in aerospace medicine, and information on seminars and online educational opportunities.

In addition to training pilots and crew, AMED also conducts AME training for doctors and students worldwide, members of the U.S. military, and personnel throughout the federal government. In 2021, they re-tooled the AME remediation and correction actions/terminations program and overhauled the Medical Certification Standards and Procedures prerequisite training program.

Dr. Hardy notes that "just this past year alone, AMED trained 752 AMEs in AME refresher seminars and courses, with 79 new AMEs trained at their AME Basic Seminars, 262 trained in medical certification standards and procedures, and 223 educated in clinical aerospace physiology review." AMED's medical reference library loaned 2,164 items, performed 72 literature searches, and answered 937 reference questions from researchers, physicians, AMEs, the aviation industry, the international community, and the general public.

AMED is also a leader in aerospace medical research examining emerging human safety risk issues brought on by factors such as the aging pilot population. They keep the aviation community current on the latest advances in pharmacology, therapeutic tools, and surgical procedures. In addition, AMED is constantly working to improve aircraft materials, equipment, cabin configurations, life support systems, and evacuation assistive devices, all of which could enhance survival from an aircraft accident.

But that's just the tip of the iceberg. Many pilots aren't aware of all the aeromedical information they can access through AMED and the extensive training courses and programs available. The vast majority of these are accessible online, and best of all — they're free!

The FAA's Aerospace Medical Education Division offers educational programs and the safest and most technologically advanced hands-on pilot training available in the United States today.

Courses, Sources, and Training Resources

You can find a wealth of virtual courses, videos, and instructional and learning activities at faa.gov/pilots/training/airman_education. Here's just a few examples of what you can find online.

Aviation Physiology Video Course: Learn the physical effects of flight stress factors such as hypoxia, fatigue, or spatial disorientation, the impacts of self-imposed stresses from medications or over-the-counter drugs, and the measures you can take to mitigate these concerns. bit.ly/AvPhys

Human Factors Videos: Learn the effects of stress on pilot performance and take a lesson in crew resource management. bit.ly/FAAHFVideos

Pilot Minute Video Series: Hosted by FAA Federal Air Surgeon Dr. Susan Northrup, you'll learn more on the medical certification process, available on YouTube at bit.ly/PilotMinute. You can also find medically-related articles in each issue of this magazine, written by Dr. Northrup and FAA medical officers.



FAA TV: Stress in Aviation



Now Playing

Published on: April 5, 2012

The negative effect of stress on pilot performance has been well documented over the years. However, not all stress has a negative effect. In fact some stress can be good and make a pilot more alert. This video explores the topic of stress and provides a keen insight into acute and chronic stress. The video examines stress and the effect on the Sympathetic Nervous System (SNS) and symptoms.

Category: Airman Education

AME Minute Videos: They're not just for doctors. Anyone can watch their monthly micro-learning topics online. To find the videos, go to www.faa.gov/tv and click the Training tab. Click here to subscribe (bit.ly/AMEMinute) and get notified of future videos. You can also view the archive of all AME Minute videos at bit.ly/AMEMinuteArchive.

Medical Certification: You'll find everything you need to know about how to obtain a medical certificate, including answers to frequently asked questions, where to find an AME, and the all-important FAA MedXpress Form 8500-8 at faa.gov/pilots/medical. Check out this handy guide to the MedExpress process: bit.ly/MedXpressPDF.

Aeromedical Safety Brochures: These brochures take an in-depth look at specific pilot safety topics like sleep apnea, pilot vision, and carbon monoxide.

bit.ly/AeromedSafetyBrochures

Making Waves in Pilot Education

CAMI has broken ground on a unique training opportunity for general aviation (GA) pilots. It's called the Wind and Wave Evacuation & Survival (WiWAVES) research and training facility. Inside the 45,000 square foot building, GA pilots will get the chance to experience a realistic envi-

ronment that simulates a water survival scenario. A large ditching tank will produce rough sea conditions, including strong winds of up to 26 knots, producing 10-foot-high open sea waves. These waves primarily move up and down rather than simulating those that crash onto the shore, creating a more realistic survival environment.

Pilots can practice water survival techniques and learn procedures for emergency egress and rescue and the use of flotation devices. The WiWAVES facility will also simulate a wide range of aircraft door sizes, including the fuselage of a passenger aircraft, and accommodate various escape slides and rafts. Large horizontal pointing fans will replicate wind gusts and rotor wash from helicopter blades. There are also plans to include a water rescue training tower to simulate helicopter rescue scenarios.

Construction of the new facility began in September 2021 at the Mike Monroney Aeronautical Center in Oklahoma City, and it plans to be fully operational by 2024.

While you're waiting for WiWAVES to splash onto the scene, check out AMED's pilot and Aircrew Survival Videos online, where you can learn basic methods and techniques to increase your survival chances after an aircraft emergency landing, ditching, or crash. bit.ly/FAASurvivalVideos



WiWAVES training facility breaks ground.



Rendering of proposed WiWAVES training facility.



Post-crash water survival training at the FAA's Civil Aerospace Medical Institute (CAMI) in Oklahoma City.

Don't miss the free online courses available on **FAASafety.gov** to learn what to do if you encounter an aircraft accident scene. Although these courses are primarily designed for first responders, they provide helpful information for anyone that comes across an aircraft accident. Pilots are highly encouraged to take these courses. In many instances, pilots are the first to help passengers, and they're often first on the scene, particularly at small uncontrolled airports. Course participants can earn credits towards a Basic set of WINGS in the FAA's WINGS Pilot Proficiency Program, the recurrent training program for GA pilots. Visit **FAASafety.gov**, create your free account, and search "aircraft accident training."

You'll also find online training videos for first responders or any potential rescuer at small aircraft or helicopter accidents at faa.gov/aircraft/gen_av/first_responders.

The Higher You Fly

Due to the COVID-19 public health emergency, in-person training at CAMI on simulator devices like the Gyro is on hold. However, you can still take a "flight" in CAMI's altitude training device to experience hypoxia firsthand.

AMED is planning nine possible road trips this year with their Portable Reduced Oxygen Training Enclosure, or PROTE, a traveling altitude training device. PROTE is an 80 square foot mixed gas hypoxia demonstrator with enough room to hold five participants and simulates altitude by reducing the oxygen percentage of the air. PROTE uses a mixed gas atmosphere of approximately 6.5% oxygen to simulate the hypoxia effects of 25,000 feet of altitude — without changing pressure.

PROTE is available to all pilots who are at least 18 years of age and hold a valid medical certificate (FAA Class 1, 2, 3, or BasicMed). Training sessions take 20-30 minutes, including five minutes for each subject to

gradually become hypoxic in the device's lower oxygen environment. During that time, pilots and air traffic controllers perform simple tasks to learn their personal minimums and recognize the onset of symptoms. PROTE staff carefully monitor the participants and quickly identify the mental confusion, impaired judgment, and vision problems that hypoxia brings, providing oxygen to anyone in need.

"The PROTE is an instructive tool to educate and inform pilots about the dangers of hypoxia. It trains pilots to identify their personal symptoms and their duration of useful consciousness at an altitude of 25,000 feet," says Dr. Bruce Wright, AMED's airmen education team lead. "Hypoxia training is important for air traffic controllers as well, to help them recognize whether a pilot may be suffering from a lack of oxygen," says Dr. Wright.

Here's a partial list of when and where you can take a ride in the PROTE device this year:

- March 17-19: International Women in Aviation Conference, Gaylord Opryland Resort and Convention Center, Nashville, Tenn.
- April 5-10: Sun 'N Fun Aerospace Expo, Lakeland, Fla.
- July 25-31: EAA AirVenture, Oshkosh, Wis.

Several other locations are planned but not confirmed due to the COVID-19 public health emergency.

PROTE is in high demand, so stop by at these events early to get on the list. If you can't make it to any of these locations, you can do a quick internet search for commercial providers or reach out to your local FAA Safety Team member to find WINGS events that might be sponsoring a PROTE demonstration near you. ➤

Jennifer Caron is *FAA Safety Briefing's* copy editor and quality assurance lead. She is a certified technical writer-editor in the FAA's Flight Standards Service.



Who's Who in the Office of Aerospace Medicine

A Behind-the-Scenes Look at the FAA's Aerospace Medicine Decision Makers

By Tom Hoffmann

While pilots may not regard airman medical certification as the pinnacle of the aeronautical journey, “the medical” is a critical part of that process. For most pilots, getting a medical typically involves a visit with their aviation medical examiner (AME), some online paperwork and, provided you meet the requirements, voilà—you have a certificate authorizing you to fly within the parameters of your class or type of medical certificate. For others, the process may require a few additional steps to complete. In either case, rest assured that the FAA is focused on issuing a medical certificate to every airman who applies, provided it does not pose an undue hazard or risk to the National Airspace System.

Making the process as efficient and seamless as possible requires a lot of behind-the-scenes work. Whether it's processing medical applications, reviewing appeals, updating the conditions an AME can issue (CACI) list, reviewing new medications and vaccines, or even training the AME you regularly visit, the FAA's Office of Aerospace Medicine (AAM) has a number of tasks to help you get your medical while contributing to maintaining the world's safest airspace system. Let's meet a few members of this dynamic team and learn about the many ways they are working to help you.

Rules of the Game

Like all agencies, the FAA is bound by the Code of Federal Regulations (CFR). The ones specific to medical certification are laid out in 14 CFR part 67 ([bit.ly/Part67](https://www.ecfr.gov/current/title-14/chapter-I/subchapter-G/part-67)). It lists all of the medical standards an airman must meet for a given class of medical certificate and all the certification procedures. You can think of part 67 as the rules of the game — regulations that guide AAM in developing policies and procedures.

Now let's look at how AAM is structured. There are four main sections: the headquarters office in Washington, D.C., the Civil Aerospace Medical Institute (CAMI) in Oklahoma City, the regional medical divisions across the country, and the drug abatement program, which is a hybrid between HQ and three field offices.

Leading the team is Federal Air Surgeon (FAS) Dr. Susan Northrup, who took the position in January 2021. Dr. Northrup authors this magazine's *Aeromedical Advisory* department. Reporting to her are Deputy FAS Dr. Brett Wyrick and CAMI Director Dr. Melchor Antunano. These two doctors oversee AAM's eight divisions and nine regions.

It's a big organization, but for purposes of this article, we narrow the focus to three areas that pertain most to

the medical certification process: the Aerospace Medical Certification Division (AMCD), the Medical Specialties Division, and the Regional Flight Surgeon Divisions.

Before that, though, let's acknowledge that the AME is where the rubber hits the runway for most pilots. AMEs are physicians whom the FAA has designated to act on its behalf to grant medical certification to pilots in certain circumstances. They receive specialized initial and recurrent training from AAM's Aerospace Medical Education Division. An applicant for a medical certificate works with an AME to approve his or her application. This interaction is usually a straightforward process that results in the AME issuing an FAA medical certificate. That's precisely how the FAA wants it to work.

In some cases, though, an AME may not be able to grant the medical clearance. Don't panic! There is likely to be a delay in getting your certificate, but the delay does not necessarily lead to denial. When an AME is unsure how to handle a specific case, they may defer the decision to the FAA and transmit the application and examination. In this case, the file goes to either the Regional Medical Office or the AMCD for review. The AME may also call the Regional Flight Surgeon or the AMCD to discuss the case. Let's take a closer look at both.

The FAA's Office of Aerospace Medicine (AAM) has a number of tasks to help you get your medical while contributing to maintaining the world's safest airspace system.

The Regional Medical Offices

A Regional Flight Surgeon (RFS) heads each of the nine Regional Medical Offices. Larger regions also have a Deputy RFS. All Regions have staff to help with designee, airman certification, and air traffic controller medical issues. The RFS has the authority to issue or deny most medical certificates. In addition, the RFS and their staff can often provide a more personalized level of help to both airmen and AMEs.

"This is sometimes an overlooked attribute of the regional offices," says Northwest Mountain RFS Dr. Stephen Veronneau. "While COVID-related workload limitations may restrict a regional office's ability to assist with as many cases as before, if the information is ready to go and fairly concise, the RFS office can speed up consideration of the case and have it set up for the RFS to review." He explains that simply correcting an error or clarifying a misunderstanding can help move a case forward. On occasion, AMEs can also receive a real-time authorization by calling an RFS, or in some cases, via a pre-arranged agreement for

the airman to comply with all information requests. This can cut down on the need to defer a certificate.

Regional medical offices also have the distinct advantage of being, well, regional. Many are proud to take active roles in their local areas, participating and answering questions at airshows, flight club meetings, trade shows, FAA Safety Team events, and more.

Go to bit.ly/RFScontacts to find contact information for each regional medical office.

Aerospace Medical Certification Division

Located at the Mike Monroney Aeronautical Center in Oklahoma City, the AMCD shoulders the bulk of work with the national airman medical certification program, reviewing approximately 380,000 airman medical applications per year. This number includes 34,000 Special Issuances — certificates for airmen with disqualifying medical conditions who have obtained appropriate health care and risk mitigation acceptable to the FAS for flight duties. AMCD is also responsible for managing the information systems (MedXPress, the Aerospace Medical Certification Subsystem, the Document Imaging Workflow System) and a database that supports medical certification.

The AMCD works with the RFS offices to help identify a path forward for airmen with disqualifying conditions whose cases are referred by an AME. AMCD provides written notification to such airmen along with instructions for reconsideration or further review. According to AMCD Manager Dr. David O'Brien, most cases they review receive a Special Issuance. "When we find a pilot with a potentially disqualifying medical condition, our goal is to get to 'yes' on their medical application by ensuring the pilot is seeking appropriate care and minimizing any opportunity for sudden or subtle incapacitation," says O'Brien. In addition, O'Brien notes that they work extensively with AMEs, medical specialists, and the airman medical applicants to find a pathway to approving a Special Issuance. This might involve the use of new treatments or medications as well as technological advances. "While getting to yes is not always possible, one way an airman can help is to provide complete and detailed answers during a flight physical and timely responses to any medical information requests."

Medical Specialties Division

So what happens in the rare case where the medical certificate is denied? An airman may elect to appeal through the AMCD. Wherever possible, the AMCD works with the airman by requesting additional information or reviewing alternative treatment options. If they can't reach an agreement, the airman may further appeal through AAM's Medical Specialties Division. This division administers the medical policies and standards that the AMCD



FAA Office of Aerospace Medicine - Alaska and Northwest Mountain Region.

and regional offices carry out. The Medical Specialties Division will thoroughly review the case and work with the FAS to resolve it.

The Medical Specialties Division is behind many efforts to help airmen get to yes on their medical. Its work includes managing the Conditions an AME Can Issue (CACI) process, a way for pilots with certain common conditions to be certificated without FAA involvement. “The CACI process is a way of pushing down to the lowest level the ability to certificate airmen and minimize the hassle factor,” says Deputy Director Dr. James DeVoll. There are currently 20 conditions eligible for CACI (bit.ly/AMECACI), and the agency is actively researching more to add to that list.

The FAA’s Airman Medical Certification Division reviews approximately 380,000 airman medical applications per year.

Over the last several years, Medical Specialties has expanded its role to be a leading resource for behavioral health questions, including reviewing medical denials for individuals with psychiatric or mental health conditions. Medical Specialties manages the Selective Serotonin Reuptake Inhibitor (SSRI) program for allowable antidepressant medications and the Human Intervention Motivational Study (HIMS), a substance abuse treatment program. The division also has a new doctor of clinical pharmacy, who has been instrumental in helping AAM review new medications and develop policies on whether they are safe

to use in the aviation environment. This asset has been invaluable, especially during the pandemic.

As the arbiters of aerospace medical policy for the agency, the Medical Specialties Division is eagerly awaiting the final development of a new OneGuide information system that will consolidate and streamline protocols and processes for handling certain cases. “OneGuide will provide a single data set that pilots, AMEs, and FAA employees can access to see information that is useful to them,” says Dr. DeVoll. For example, a guidance change made

for migraines could be updated in a single place and be funneled down to all end users. “It’s one guide that will unify what we do for given medical conditions both internally and externally to ensure we’re all on the same page.”

Keeping it in the Family

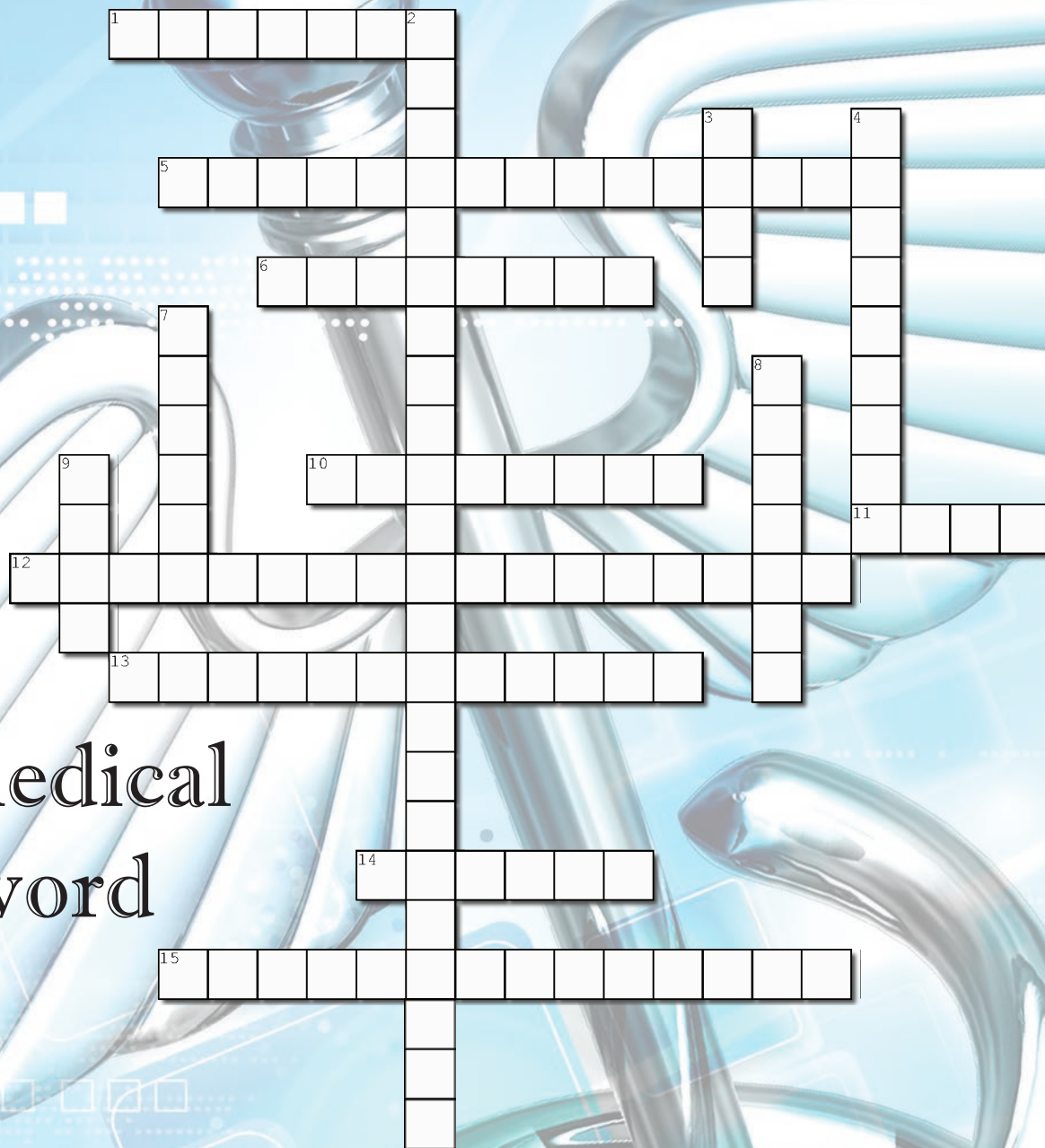
As shown by the many initiatives described here, AAM is focused squarely on its commitment to get as many medical certificates in pilots’ hands as safely and expeditiously as possible. It’s reassuring to know that a good majority of the FAA’s medical decision-makers are active or former pilots who are sensitive to the needs of the flying community. That applies to no less than the FAS herself, an active pilot who flies a Stearman biplane and a T-6 Texan. “While my primary objective as FAS is to ensure that we have the safest National Airspace System in the world, I remain firmly committed to the policy of getting as many airmen into the air as safely as possible,” says Dr. Northrup. “I truly understand just how important a medical is to most pilots.” ▶

Tom Hoffmann is the managing editor of *FAA Safety Briefing*. He is a commercial pilot and holds an A&P certificate.

LEARN MORE

FAA’s Medical Certification page
faa.gov/pilots/medical

Aeromedical Crossword Puzzle



Across

1. If you don't detect it early enough during flight at higher altitudes, it can be a real killer
5. A pilot can apply for this if they don't meet established medical standards
6. Alternative to third-class medical certification
10. Good place to find required documents for certain medical conditions
11. A process to demonstrate that a pilot is capable of operating an aircraft safely despite having a stable, yet disqualifying condition
12. The top doc at FAA
13. The study of how humans interact with their environment
14. The rules that govern medical standards an airman must meet
15. The most commonly detected medication in fatal accidents

Down

2. Physician trained to know when to issue or defer a medical certificate
3. A program that allows AMEs to issue medical certificates to pilots that would usually have to be deferred to the FAA
4. Technology system to apply for an airman medical certificate
7. Acronymic method to accurately and honestly assess fitness for flight
8. A good place to store your Basic Med online course completion
9. Before your BasicMed doctor appointment, complete your portion of this form

Word Bank

AME Guide	Human Factors
Antihistamines	Hypoxia
Aviation Medical Examiner	IMSAFE
BasicMed	Logbook
CACI	MedExpress
CMEC	Part 67
Federal Air Surgeon	SODA
	Special Issuance





STRAIGHT FROM THE SOURCE

Have you ever wished you could get an idea of what is going on with your medical, straight from the source? Well, you can. Dr. Susan Northrup, the Federal Air Surgeon, has made open communication with aviators a primary goal.

One action was creating the online Pilot Minute series. The “Pilot Minutes” are specifically written and executed by the Airmen Education team and FAA physicians who are also pilots. They understand both medical issues and the pilot’s concerns. The Federal Air Surgeon hosted the first two, and more are planned. You can find the video playlist here: bit.ly/PilotMinute.

The FAA Aerospace Medicine office has produced a similar video series since 2017 called the “AME Minute.” As the name implies, these are aimed at aviation medical examiners (AMEs). AME Minutes are produced monthly and cover topics from medical policy (*Why do different anticoagulants have different wait times?*) to practical applications (*Why should AMEs review visits to health professionals?*). Though targeted to AMEs, these videos can also be helpful to pilots. To find the videos, go to www.faa.gov/tv and click the Training tab. You can also view the archive of all AME Minute videos at bit.ly/AMEMinuteArchive.

AME Guide

The go-to resource for AMEs is the AME Guide: bit.ly/AMEGuide. While intended for the AME, there is a lot of information useful to airmen. As discussed in the “Smooth is Fast” article in this issue, knowing how to navigate the AME Guide can help you pre-flight your visit with your AME.



Go to the AME Guide webpage and look at the following resources:

- **General information** is equivalent to a frequently asked questions section.
- **Applicant History** provides information on what the AME will ask and help you determine what information/reports that you need to provide, if any.
- **The Decision Considerations** section contains both Aerospace Medical Dispositions and Disease Protocols. These sections provide the AME with specific guidance on when they can issue and when they should defer issuance. These sections also have information on what evaluation is required. If you have any of these conditions, pay specific attention to what items will be required for medical certification.
- Finally, the **synopsis of standards section** is a short list of the requirements, such as vision, for different classes of medical certification, as well as the 15 specifically (by regulation) disqualifying conditions.

A quick review of these sections will let you know what to expect during your AME visit. It should save you time and give you the best chance of walking out of the AME’s office with your medical certificate in hand.

Finally, regular readers of *FAA Safety Briefing* know that there are typically one or two medically-related articles in each issue. Many of these articles are written by FAA physicians who are also pilots, including the Federal Air Surgeon. You’ll find current magazine issues online at faa.gov/news/safety_briefing and prior issues, back to 2008, are also online at bit.ly/FAASB-Arc.

If you want the latest in AAM medical changes, use any of the above items and get your information, Straight from the Source.

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ENSURING I'M SAFE FOR EVERY DRONE FLIGHT

Drone Pilots: Did you know that every time you operate your drone, you're responsible for making sure that you are physically and mentally ready to conduct that flight safely? It's true for all UAS (unmanned aircraft system or drone) pilots, whether you are flying a drone commercially under part 107, flying for fun under the Exception for Limited Recreational Operations of Unmanned Aircraft, or flying under any other rule.

DID YOU KNOW THAT EVERY TIME YOU OPERATE YOUR DRONE, YOU'RE RESPONSIBLE FOR MAKING SURE THAT YOU ARE PHYSICALLY AND MENTALLY READY TO CONDUCT THAT FLIGHT SAFELY?

To perform a physical and mental wellness check before each flight, the "I'M SAFE" checklist is a great resource to use. As shown in the graphic, you can use "I'M SAFE" to check for any of the following conditions — Illness, Medication, Stress, Alcohol, Fatigue, or Emotion — that could impact your ability to operate your drone safely. If you are experiencing any of these conditions, you should delay the flight until you are physically and mentally ready to conduct that operation safely.

As a drone pilot, one of the best ways to mitigate potential risks and determine your readiness is to follow the "I'M SAFE" checklist before initiating each flight. If you use a visual observer, ask them to use the check-

list to ensure that they are physically and mentally prepared for their responsibilities.

Part 107 remote pilots and visual observers can find the requirement to determine pre-flight physical and mental readiness in 14 CFR section 107.17 (medical condition). Recreational flyers are required to follow the safety guidelines of a Community-Based Organization (such as an aeromodeling club) or follow the FAA's basic safety guidelines posted on our website at faa.gov/uas/recreational_fliers. The FAA guidelines specify that recreational flyers should not operate a drone under the influence of drugs or alcohol. The safety code of an aeromodeling club will likely contain a similar requirement, and you should check your organization's guidelines to be sure.

In June 2021, the FAA published The Recreational UAS Safety Test (TRUST): bit.ly/FAATRUST. It's required for everyone flying a drone recreationally. It's free, online, and takes less than 30 minutes to complete. A variety of FAA-approved test administrators offer the training, and it includes safety information (similar to the "I'M SAFE" checklist) to make sure you have a fun and successful flight.



Make sure *I'M SAFE* before you fly your drone. It's your responsibility.

Scott Gore is a program manager for strategic engagement in the FAA's UAS Integration Office and previously worked in the agency's Office of Government and Industry Affairs.

LEARN MORE

Pilot's Handbook of Aeronautical Knowledge, Chapter 2, Aeronautical Decision-Making
bit.ly/PHAKchapter2 (PDF)

Advisory Circular 107-2A, *Small Unmanned Aircraft Systems, Appendix A – Risk Assessment Tools*
bit.ly/AC107-2A (PDF)



WELCOME TO THE NEW SERVICE DIFFICULTY REPORTING SYSTEM!

We have some exciting news! Phase I of the new Service Difficulty Reporting System (SDR) is complete and launched this past November at av-info.faa.gov/sdrx. SDR is refreshed, updated, personalized, and packed with new features that take the power of this aviation reporting system to an entirely new level.

Improved Navigation

Now you can find everything you need — right there on the navigation bar. Click the tabs to reach your links quickly and easily.

New Reporting Tools

In just one click, general aviation users can now create a Malfunction or Defect Report straight from the home screen and search and find all processed reports faster.

New Quick Reference Panels

Instantly jump to information using the Quick Reference Panels on the left-hand side.

Updated References and Resources

Questions? Click “FAQs” to find answers. Click “What’s New?” for updates. Rules and regulations are on the right side of the screen.

The Best Is Still To Come!

Now you have a powerful new tool to let the aviation community know when you see something that could potentially cause a safety hazard. If a system component or a part has malfunctioned, report it. If there’s a flaw or an imperfection, report that too. We need your input. Check out the new SDR and take it for a flight: av-info.faa.gov/sdrx.

The data you provide improves safety. The FAA uses your data to identify equipment malfunctions, and your reports also help manufacturers catch issues that could potentially cause a safety hazard.

“These reports provide valuable safety information and may be the first indication of a potential safety

problem or a defect,” says Gracie Robino, Business Program Manager in the FAA’s Flight Standards Service. “They help us spot the trends and identify problems early so that we can create airworthiness directives, service bulletins, and alerts to mitigate the safety hazard proactively,” she explains.

The next phase of updates and new features will roll out this spring. New tools will prompt you to fill in the gaps and details to help you build a detailed, comprehensive, and format-friendly document to expedite the processing of your report.

“We’ve received positive feedback from our initial updates,” says Robino, “and we’re excited about this next phase as we continue to revamp the system, making it even more user-friendly and responsive to your needs.”

Jennifer Caron is FAA Safety Briefing’s copy editor and quality assurance lead. She is a certified technical writer-editor in the FAA’s Flight Standards Service.

PILOTS AND OVER-THE-COUNTER MEDICATIONS

As we enter what's typically the peak of cold and flu season, it's the perfect time for a quick review of some important information about flying and medication use. As you may be aware from the FAA's safety outreach on this topic, impairment from medication, particularly over-the-counter (OTC) medication, has been cited in a number of general aviation (GA) accidents. An FAA study in 2011 found both illicit drugs and medications in 570 (42%) of the 1,353 pilots tested from fatal accidents. Of the pilots with positive drug results, **90%** were flying under 14 CFR part 91.

The problem lies with the fact that both medical conditions and drugs (legal and illicit) can compromise a pilot's ability to control the aircraft and/or adversely affect judgment and decision making. Among OTC medications, the most common potentially impairing medications are antihistamines. These medications are used for allergies, colds, and even as sleep aids. All of these medications have a warning on the label that states "may cause drowsiness" or advises the user to "be careful when driving a motor vehicle or operating machinery." According to an NTSB study, sedating antihistamines are the most commonly detected medication in fatal accidents. Most "night-time" or "PM" medications contain a sedating antihistamine, such as diphenhydramine or doxylamine. Diphenhydramine (best known as Benadryl®) is also an active ingredient found in many medications like Tylenol® PM. Nyquil™ contains doxylamine. It's essential to know the sedating effects of these medications, especially if you are taking them to treat some other condition.

Many pilots are unaware that there are wait times after each use of sedating antihistamines. For cetirizine (Zyrtec®) and levocetirizine (Xyzal®), you should not fly for 48 hours after taking the last dose. For diphenhydramine or doxylamine, you should not fly for 60 hours after taking the last dose. For chlorpheniramine (found in Chlor-Trimeton) and clemastine (found in Tavist or Dayhist), you'll have a longer wait time of five days after the last dose. If you suffer from allergies, consider a non-sedating antihistamine instead, such as loratadine (Claritin®) or fexofenadine (Allegra). Claritin and Allegra do not have wait times (after the initial ground trial). See bit.ly/AllergyAntihistamine for more.

Some drugs can also cause sedation as well as cognitive impairment. These include loperamide (an antidiarrheal medication) or dextromethorphan (a cough suppressant). Frequently, there are alternative options that are not impairing and are acceptable to the FAA (assuming that the underlying condition is safe for flying). We suggest you work with both your primary care doctor and your AME *before* considering the use of these and other medications.

While your primary care doctor should know your personal health history, an AME has training in the impact of different conditions on aviation safety and in which medications are permissible in the aviation environment.

Supplements are another area of concern as they may also interact with OTC and prescription medications to cause impairment. It's important to note that even though supplements may have labels similar to OTC medications, they are not regulated by the

FDA. Accordingly, they do not need to meet a specific standard. This is especially concerning for cannabidiol (CBD) products. The CBD industry has widely varying quality control and labeling, leading to significant discrepancies from package labels, including much higher levels of tetrahydrocannabinol (THC) — the component that gets one "high" — than disclosed. This can cause both impairment and possibly a positive drug test. If a drug test is positive due to CBD, it is considered and acted upon as a true positive test and can have legal ramifications. Therefore, the FAA strongly discourages the use of CBD products by airmen.

Still unsure about what medications are safe to use when flying? Then check out the OTC medication guide at faa.gov/go/pilotmeds. This guide provides pilots with a list of commonly used OTC medications that are generally safe (GO) and those that are not (NO-GO). Even for medications acceptable for flying, you should always perform a ground trial of 48 hours after starting a new medication. Take a close look at the OTC guide because some medications pilots regard as equivalent may have very different impacts on safety. You should also review the "Do Not Issue/Do Not Fly" section of the AME Guide: bit.ly/NoIssueOrFly. Keep in mind that the lists of medications in this section are not meant to be all-inclusive or comprehensive but rather address the most common concerns.

Tom Hoffmann is the managing editor of FAA Safety Briefing. He is a commercial pilot and holds an A&P certificate.



3 TIPS TO EFFECTIVELY BRIEF HELICOPTER PASSENGERS BEFORE FLIGHT

We've all heard the stories of passengers walking into spinning propellers or rotor blades, often with fatal consequences. Helicopter pilots need to be acutely aware of how their passengers approach and depart from the aircraft — *always from the front and never from the rear* — especially while the rotors are in operation.

It is your responsibility as the pilot in command to give your passengers a complete pre-flight briefing to ensure: that they have a level of understanding about what your plan for the flight is, know what they can and cannot do during the flight, know when it's okay to speak, the dangers of the rotors, how to safely enter and exit the aircraft to avoid rotating helicopter blades, and in case of an emergency, how to egress a damaged helicopter safely.

Whether it's a non-aviator on their first or four hundredth flight with you, or even if it's another pilot along for the ride, be sure to provide a thorough pre-flight briefing to every passenger. It could mean the difference between a safe flight and a disaster.

Here are three tips you can use to give your passengers a complete and effective pre-flight briefing to enjoy the flight safely:

1. Pre-flight the Flight

Your pre-flight passenger briefing starts inside the office or FBO. Question them upfront about any previous helicopter experience, and remind them never to let their guard down — even if they've flown in helicopters before. They are most likely not familiar with walking around helicopters. Make sure they're aware of the two rotor systems and be frank about the dan-

gers of the tail rotors. Tell them that they must secure loose items while still inside the office or FBO and to pay close attention to the safety of others, especially children. Ask questions to verify their understanding.

2. Get and Keep Their Attention

Before resuming your passenger brief inside the helicopter, wait until the disruptions (excitement and noise) subside so they can better focus on your instructions. It will also help to ensure they retain the information. Show them how to secure luggage and straps from carry-ons, so they remain clear of flight controls, critical switches, and fuel shutoff valves. Have them practice with seatbelts and other safety equipment, such as retrieving life vests.

As a pilot, you are generally accustomed to egressing rotorcraft, and you will often survive helicopter accidents while your passengers may perish. Keep in mind that your passengers are in an unfamiliar environment, and emergencies may shock them into frozen inaction. Emphasize their responsibility to remain always focused on safety.

3. Include The Following Instructions In Every Passenger Briefing:

- Do not approach the helicopter until the pilot or an approved marshaller can take you safely to the aircraft. Stay within the pilot's field of vision while approaching the helicopter, and NEVER approach the tail boom or move behind the rear door. Enter the helicopter as briefed.
- Wait until the rotors have stopped before emergency egress unless there is smoke or fire.

- Practice headset operations and understand the sterile cockpit concept.
- NEVER throw or drop anything from a helicopter. Secure all personal items.
- Keep safety belts snugly fastened during the entire flight.
- Be aware of the first aid kit, emergency beacon, and fire extinguisher location, removal, and operation.
- Know the location of life preservers and usage and NEVER inflate them until clear of the aircraft.
- After landing, wait for marshalling personnel to open the doors, release safety belts, and guide passengers away from the helicopter.

Bonus Tips:

- Use a checklist or "cheat sheet" to remember important items when your thoughts are focused on other aspects of the flight.
- Ask another pilot to listen to your briefing. Many of us forget items when we repeat a memorized script.
- Record yourself while you're doing the briefing to add items or find ways to improve.
- NEVER let a passenger pressure you into flying into a risky situation. It is your license and your life too.

For more tips and safety information on topics such as preflight inspections, helicopter icing, and securing cargo, check out the Rotorcraft Collective video series at bit.ly/RotorCollective and this video on helicopter passenger management: bit.ly/HeliPassengers.



Check out our GA Safety Facebook page at [Facebook.com/groups/GASafety](https://www.facebook.com/groups/GASafety)

If you're not a member, we encourage you to join the group of more than 15,000 participants in the GA community who share safety principles and best practices, participate in positive and safe engagement with the FAA Safety Team (FAASTeam), and post relevant GA content that makes the National Airspace System safer.

GA Airports: Spreading the Good News

I am a GA pilot involved in California. Recent discussions have involved noise complaints from the local community. Ask any member of the general public who has no connection with GA, "what is the value of your local airport?" The majority will not be able to name one thing, but they will often cite complaints. My local airport is developing a plan to change this negative image, and has identified operations that benefit the local community as a whole.

This edition of *FAA Safety Briefing* ("Embracing the Environment" [bit.ly/FAASB-Arc](https://www.faa.gov/FAASB-Arc)) is

timely and relevant. It summarizes the various environmental problems inherent in aviation, and describes the steps being taken to mitigate those problems.

Thank you.

— Barbara

Hi Barbara — Thank you for your feedback on the issue and for sharing the work that your local airport is doing to create a more positive image. It's folks like you, who are active in your local community, that help spotlight the important functions served by GA airports.

The FAA's The Air Up There Podcast Presents: How to Become a Technician

Have you ever wanted to start a career in aviation? Becoming an aviation technician might be the right path for you. On the latest episode of the FAA's The Air Up There podcast, you'll learn what it means to be a technician in the aviation industry. Check out the full episode here: [bit.ly/AvTechCareer](https://www.faa.gov/AvTechCareer). Want to learn more about aviation careers? Check out our Nov/Dec 2021 issue on preparing the aviation workforce of tomorrow at [bit.ly/FAASB-Arc](https://www.faa.gov/FAASB-Arc).

Shrimp Boats to Satellites

We have come a long way since using a wheelbarrow and signal flags to direct air traffic. Come along on that journey at [bit.ly/3CFgwwi](https://www.faa.gov/bit.ly/3CFgwwi).

Great article!

— David

No Place Like Drome

Susan — I really enjoyed your article ([bit.ly/NoPlaceLikeDrome](https://www.faa.gov/bit.ly/NoPlaceLikeDrome)). It reminded me that in the early 1970s I had a next door neighbor who was actually one of the FAA Controllers who had cameo roles in the Airport movie and was stationed at the FAA's Mike Monroney Aeronautical Center during the time he lived by my family.

— Kim



For more stories and news, check out our new blog "Cleared for Takeoff" at medium.com/FAA.

Let us hear from you! Send your comments, suggestions, and questions to SafetyBriefing@faa.gov. You can also reach us on Twitter @FAASafetyBrief or on Facebook at [facebook.com/FAA](https://www.facebook.com/FAA).

We may edit letters for style and/or length. Due to our publishing schedule, responses may not appear for several issues. While we do not print anonymous letters, we will withhold names or send personal replies upon request. If you have a concern with an immediate FAA operational issue, contact your local Flight Standards Office or air traffic facility.



THE PIZZA PRINCIPLE

It's no secret that pilots have long been frustrated by many aspects of the aviation medical certification process. Yes, it's true that a majority of aviators leave their AME's office with a shiny new medical certificate in hand. But I'll bet many of them approach these periodic visits with a certain amount of trepidation: what if "they" find something that requires referral to the Aerospace Medical Certification Division (AMCD)?

I know the feeling. During an aviation conference many years ago, a speaker reminded the audience that "we are all just one medical away from flying as sport pilots." Like most everyone else in the audience, I nodded sagely (or was it smugly?) while I thought sympathetically of those who could "only" fly with the driver's license medical option. Little did I know that life was about to give me a visceral appreciation for that statement, and even greater appreciation for the many medical certification options available to today's pilots.

YOU CAN TRACK A PIZZA YOU ORDER ONLINE THROUGH EVERY STAGE FROM ASSEMBLY TO DELIVERY. SO WHY CAN'T YOU DO THE SAME WITH YOUR FAA MEDICAL?

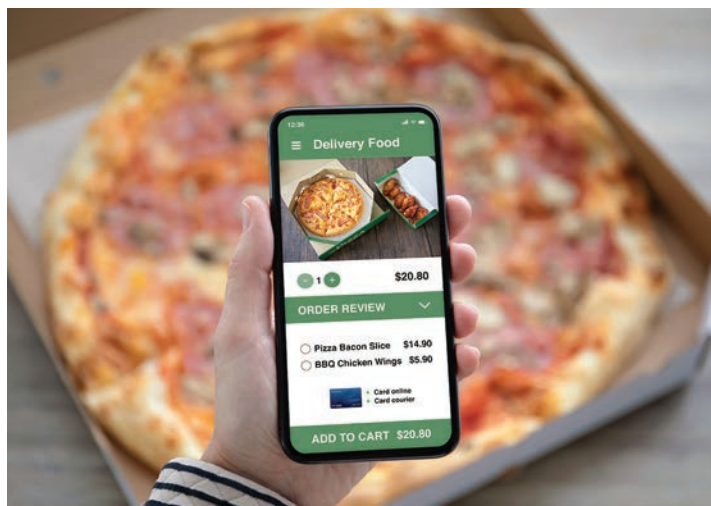
Not long after that conference, a subtly accumulating collection of odd symptoms drove me to the doctor and eventually led to a diagnosis of relapsing-remitting multiple sclerosis (MS). My aviation friends all understood completely that my most immediate concern was not so much about the potentially dire

consequences of the disease itself. They got it: I was most afraid of its implications for my FAA medical certification. Lucky for me, several pilot pals (one of whom had preceded me into the "MS Pilot Club") knew that MS didn't have to spell the end of my PIC flying days. In addition to handing me hankies, they provided solid information and support as I began to navigate this strange new world of health and aeromedical management.

Tracking Tools

Those needing to navigate that world will soon have some brand-new tools. Historically, the drill was to complete the required exams, send the requested documentation to AMCD, and wait ... and wait ... and wait. The authorization would eventually arrive, but it always felt like a nail-biter. That's why I was silently cheering when, during the "Meet the Administrator" session at last year's AirVenture, Federal Air Surgeon Dr. Susan Northrup explained how the FAA is working on a system that will provide the kind of clarity and transparency that pilots crave. "You can track a pizza you order online through every stage from assembly to delivery, so why can't you do the same with your FAA medical?"

After eighteen years in the FAA, I've heard the jokes. Having also



attended several years' worth of the Administrator's meetings with air show audiences, I've also heard lots of the frustration that pilots experience when medical issues result in delays or (occasionally) denial of the vital medical certification. But I hope you will be encouraged to know that the people who count — that would be Federal Air Surgeon Dr. Susan Northrup and her team, many of whom are pilots — are determined to make it better. Working for the FAA has given me the privilege of coming to know Dr. Northrup and some of her staff not as names but as real people, and I can assure you that they are people who *care*. Their work and their decisions have profound implications not just for pilots, but for the public. But it is heartening to know that Dr. Northrup and her team are all about getting to "yes" wherever possible.

Thank you, colleagues, for all you do to help keep so many of us flying.

Susan K. Parson (susan.parson@faa.gov) is editor of FAA Safety Briefing and a Special Assistant in the FAA's Flight Standards Service. She is a general aviation pilot and flight instructor.

DR. DAVID HARDY

Regional Flight Surgeon and Aerospace Medical Education Division Manager, FAA's Civil Aerospace Medical Institute



Before coming to the FAA, Dr. David Hardy was the commander of the operational medical readiness squadron at Tinker Air Force Base, Okla. During his 21 years in the U.S. Air Force, he logged thousands of hours as a military flight surgeon, including 38 missions in Afghanistan.

"I loved the comradery and teamwork required to be aircrew, but I never wanted to be in the pilot seat," he said. "I got into aviation because I love the Air Force, and I saw flight medicine as the best way I could contribute."

The culture and mission of the Air Force and the FAA's Office of Aerospace Medicine were a perfect match, making the transition from military to civil flight medicine a snap.

Dr. Hardy is the regional flight surgeon responsible for international, military, and federal government aviation medical examiners (AME) designated by the FAA. These duties include designating new AMEs, renewing designations, and ensuring the quality of medical facilities and exams. He also serves as a resource for AMEs who have questions about a specific medical case.

As the newly appointed Aerospace Medical Education Division (AMED) manager, he is charged with growing pilot, aircrew, controller, and AME educational efforts across the country and internationally.

"I've always enjoyed being an educator," he notes. "When I was still in the military, I ran the International Education and Training Division at the United States Air Force School of Aerospace Medicine and enjoyed interacting with my students and building bridges."

AMED conducts seminars for new and renewing physicians and provides safety briefings and exercises for pilots, including training in spatial disorientation, hypoxia recognition, and survival. They also provide library support and produce educational aeromedical publications and videos.

Recently, AMED accomplished a revamp in the residency in aerospace medicine partnership with military and civil programs that provide joint education and training. A two-week orientation course at the FAA's Civil Aerospace Medical Institute (CAMI) in Oklahoma City allows doctors to achieve AME status with a greater understanding of flight risk and safety measures. Annual AME seminars for military flight surgeons provide the same understating without teaching aerospace physiology since they already receive that training.

"One of the biggest challenges in aeromedical certification is that pilots

believe that the AME is there to take away their pilot certificate," he mentions. "That is not the case. Of the nearly 400,000 medical applications submitted last year, only around 5,000 were initial denials."

Dr. Hardy further explains that 95% of those initial denials didn't pursue any of the follow-up medical tests and consults requested by the FAA.

"What many people don't realize is that they can apply for authorization of a special issuance for most disqualifying conditions. Last year, the FAA approved approximately 35,000 special issuances."

The authorization for a special issuance is a robust option for pilots, and your AME can help you through that process.

With the easing of travel restrictions and more in-person training and seminars, keep an eye out for Dr. David Hardy. You will recognize him from his Boston accent. He's there to help.

Paul Ciano is an associate editor and the social media lead for FAA Safety Briefing. He is a U.S. Air Force veteran and an auxiliary airman with Civil Air Patrol.



Dr. Hardy and his husband, Mark, in Eureka Springs, Ark.



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