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For FAA Aviation Medical Examiners, Office of Aerospace Medicine Personnel, Flight Standards Inspectors, and Other Aviation Professionals.

U.S. Department of Transportation
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HEADS UP

Our Profession, Our Responsibilities

Our duties place us in situations fraught with ethical dilemmas

By Susan Northrup, MD

This article appeared in the April 2008 issue of Flight Physician, the newsletter of the Civil Aviation Medical Association, and is reprinted here with permission. Dr. Northrup is the FAA Southern Regional Flight Surgeon, and she is also the president of the Civil Aviation Medical Association. —Ed.

I JUST RETURNED from a trip to Washington, D.C., with my children and husband. We visited the standard tourist destinations for a family of aviation enthusiasts–the National Air and Space Museum, the Udvar Hazy annex, and the new National Marine Corps Museum. We concluded our trip with visits to Arlington Cemetery and the National Archives.

The experience started me thinking about the profession of aviation medicine and our obligations: Are they to the aviator at all cost? Are they to aviation safety? What about our obligations as Aviation Medical Examiners (AMEs)? To the profession of medicine? How safe is safe enough? Can we "look the other way" when aviators willfully violate 14 CFR 61.53 (Prohibition on Operations During a Medical Deficiency)? Or when our peers ignore the requirements of Federal Aviation Administration (FAA) Order 8520.2F, *Aviation Medical Examiner System*?

Our duties place us in situations fraught with ethical dilemmas. Throughout my career, I have had pilots—granted, a minority of them—try to hide medical conditions

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QUICK FIX

To Test or Not to Test…

By Dick Jones, MD

PROBLEM: An auditor of Federal Aviation Administration designee programs recently attended one of our sister service's training courses and observed an instructor giving test question answers to students. By the time this observation was transmitted through our management chain, the consequence was a directive to ensure designees are learning from our courses by testing their learning without providing answers to test questions before the test.

Therefore, since aviation medical examiners are designees, we will no longer be able to give AMEs specific answers to test questions until after the answer sheet is turned in. Our lecturers will now be even more obligated to ensure they cover the test material in their lectures and our staff must be diligent in making sure the tests are current and clearly written.

Unfortunately, this also means we might have to test at the end of the course, eliminating all possibility of attendees leaving early to catch flights, even in extenuating circumstances. This is being written to provide a "heads up" to everyone, so you won't be shocked if tests are not passed out in advance and if answers to questions are not discussed during the seminar.

SOLUTION: We are still struggling with how to meet the spirit, if not the letter, of the law. For now, we still intend to give the tests out at registration, but our lecturers will be instructed not to

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'GG' IS COMING

The Federal Air Surgeon's Column

By Fred Tilton, MD

Hello, everyone. A couple of editorials ago, I described our experiences in California relating to Operation Safe Pilot (OSP) and the Social Security Administration. I know you will recall that OSP resulted in airmen being prosecuted for falsification, but you may not know that we had the opportunity to testify before Congress on the subject. During the hearing we agreed to make a couple of modifications to the FAA Form 8500-8, and since we were changing the form, we decided to make a few other modifications for clarification.

We are gearing up to introduce the new form. You will receive several additional notices before we go live, but I wanted to alert you about the changes, and to provide you with some of the reasoning behind them. Hopefully, this brief discussion will help you as we transition from the current FF form to the new GG form.

We have made the following changes to the form and the instructions because of OSP and the hearing:

• **New Item 18 y**

18. Medical History

Yes	No	Condition
y. ☐	☐	Medical disability benefits

• **New paragraph (f) in the privacy act statement** that states the FAA is authorized to disclose information to other Federal agencies for verification of the accuracy or completeness of the information.

The new 18 y and the new paragraph (f) were added to make it clear to everyone that closer scrutiny will take place. We realize that the new Item 18 y may cause some confusion because there are many sources of disability benefits. For example, many airmen have received disability ratings from the VA that would in no way compromise flying safety, and that would not preclude you from issuing the airman a medical certificate. As always, regardless of the medical history item to which you are referring, please make sure you provide sufficient information in block 60 to allow us to make the proper certification decisions at the Aerospace Medical Certification Division.

Other changes unrelated to the hearing or OSP:

• **Changes in the completion instructions** to add the words *arrest* and *arrested* in a couple of places associated with Item 18 v. (see table below).

• **Item 57 from urinalysis to urine test.** We changed the conditions of issue on the backside of the airman medical certificate and the associated instructions. These changes were made to bring our medical certificates into compliance with ICAO standards; to align the certificate with our proposed new rule regarding the periodicity of medical examinations for airmen under the age of 40; and to eliminate any references to AMEs who are not required to use AMCS because all AMEs will be required to transmit exams after June 30.

You may also experience some technical issues associated with these changes. For example, during the transition period an airman may complete the paper FF form but arrive in your office after the GG form has gone into effect. For a brief period of time, we are planning to allow the transmission of either form. However, if you try to enter an FF exam on the GG template, you will get a prompt that says you must supply an answer to Item 18 y and an explanation in block 60. This would be problematic if the airman has already departed from your office.

We will do our best to identify these potential problems and "Murphy Proof" the system so that there are not too many of these issues to deal with. They should rapidly go away once the new GG form is fully implemented. In the meantime, I hope you will bear with us as we make the transition.

Thanks again for all you do for us. Our certification system is the best in the world, and we could not possibly do it without you.

— *Fred*

Modified Item 18 v

Arrest, Conviction, and/or Administrative Action History — See Instructions Page

Yes	No	
v. ☐	☐	History of any arrest, and/or conviction(s) involving driving while intoxicated by, while impaired by, or while under the influence of alcohol or a drug; or (2) any history of any arrest, and/or conviction(s) or administrative action(s) involving an offense(s) which resulted in the denial, suspension, cancellation, or revocation of driving privileges or which resulted in attendance at an educational or rehabilitation program.

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or medications. I have even had aircrew members ask to "keep something just between us." Or my favorite, which usually occurs at the club or in the pilot lounge, "Doc, I've got this friend…" Of course, sometimes it really is a friend. I have had good success convincing the individual to admit the issue by pointing out the negative outcomes of a failure to disclose, or by ignoring medical advice to get treatment that might be grounding.

Falsification of a federal document may be the least of their worries should a mishap occur. Insurance companies may not pay out if the medical is invalid. Even more concerning is when, in the middle of a physical exam, pilots turn to me and say, "Dr. X never listened to my heart." I've had some continue, "In fact, I got my last physical at the local Denny's." Reporting a peer for violating the requirements of the designation is not easy.

Dr. **H. Graeme Anderson** wrote in the preface of his seminal textbook, *The Medical and Surgical Aspects of Aviation*, in November 1918, "My tribute to our flying men is that nothing is too good for them, and that it is up to us as a profession to strive in every way we can to save them from disaster, and should disaster overtake them to find the means to restore them to health again."

While I may quibble with the "nothing is too good for them" part, it does hold true nearly 90 years later. Saving them from disaster may require that we ground the airman, contrary to their desires. It also implies that we as aerospace medicine professionals must maintain our scientific knowledge and proficiency so that we can recognize impending disasters and mitigate existing ones.

Being a professional carries certain obligations. Most definitions of a profession include the following: A profession is an occupation, vocation, or career where specialized knowledge of a subject, field, or science is applied. It is usually applied to occupations that involve prolonged academic training and a formal qualification. Put another way, professional activity involves systematic knowledge and proficiency.

Professional bodies that may set examinations of competence, act as a licensing authority for practitioners, and enforce adherence to an ethical code of practice, usually regulate professions. There should be self-regulation as well, meaning we police our own. Clearly, AMEs are professionals. The FAA, via Order 8520.2F, serves as the regulator. The Order stipulates minimum credentials, behavior standards, training requirements, exam performance criteria, and now, the minimum number of exams per year to maintain proficiency (10).

It also allows for intermittent inspections of AME offices, something the FAA has recently been mandated to do. If you haven't read the updated 8520.2F, it can be found on the FAA Web site at www.faa.gov.

Being an AME, and for that matter a pilot, is a privilege, not a right. We are safety professionals who must balance our patient's desires with the public good. We have to do things correctly all the time. We have an obligation to the public to ensure pilots are capable of performing the essential tasks without the risk of sudden or subtle incapacitation.

We have the same obligation to the individual pilots we see, and as a profession, to the pilots our peers evaluate. These responsibilities may not make us popular, but they are necessary. As the leader in civil aviation medicine, CAMA is interested in maintaining the highest standards among AMEs via education and representation. Reviewing the progress in aerospace over the last 100 years and visiting the graves of valiant aviators who gave their all reminded me how well we have done overall as a profession advocating for flight safety. As AMEs and flight surgeons, we have much to be proud of. I am impressed by the willingness of CAMA members to do the right thing, as opposed to the easy thing. I am honored to be part of this organization, and thank you for your contributions to aviation safety and our profession.

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TESTING from page 1

answer specific test questions when asked by AMEs. Of course, this means AMEs need to listen for the answers to be covered during the lecture. Presumably, if an AME needs to ask the answer to a question after the material was covered, the AME was absent or not paying attention. If this turns out to be contentious and AMEs discomfort lecturers too much by pestering them for answers, we may need to reconsider passing the test out early and only distribute it at the end of the seminar.

In any case, we will not pass out the "bubble sheets" until after the last lecture, so you must plan your departures accordingly. You will be given one hour to complete the test, so you should be done by noon on the departure day. Please consider the availability of flights when choosing a seminar to attend; you might want to pick one close to home, even if it is months before a refresher course is due, to avoid having to spend an additional night at the seminar location.

We are considering other testing options such as pre- and post-tests, and allowing test completion on-line before the course and/or after returning home. Another option we are exploring is conducting abbreviated seminars, stripped of non-FAA content, taught once a year at or near the Regional Flight Surgeons' offices for AMEs who value decreased time and expenses over CME, but we will still have to test and validate these shorter courses, just as at the longer ones.

You can also watch for offerings in which the FAA participates in meetings sponsored by other organizations, such as the Civil Aviation Medical Association and the German Society of Travel Medicine [see article, page 12 of this issue], which can fulfill your FAA refresher training needs.

Your understanding is greatly appreciated as we adapt to the realities of internal and external oversight and the changes to our business practices caused by these evaluations.

Keep them flying – SAFELY!

Dr. Jones manages the Aerospace Medical Education Division.

Certification Update

Information About Current Issues

By Warren S. Silberman, DO, MPH

Clearing Up ECG Issues

Hello, again, from the Aerospace Medical Certification Division in Oklahoma City! I have some great news to share with our aviation medical examiners in this edition of the *Bulletin*.

But first, some more about my last article in the *Bulletin*. There was an error in the chart of normal variants that was provided. The item that read "wandering arrhythmiamaker" should have read "wandering atrial pacemaker." A wandering atrial pacemaker produces atrial beats that originate from multiple sites in the atrium at a normal rate, and p waves that appear different in morphology from one another.

The article on the reading of first-class electrocardiograms caused some controversy. You should personally review the electrocardiogram prior to issuing a medical certificate to an airman, unless it is normal or a normal variant. If you have a hospital perform the ECG and transmit it, you should have them fax a copy to your office so you can look at it.

I recommend that you give your technician or ECG provider a copy of the chart of normal variants. Tell them that they should not transmit an abnormal ECG before you have had a chance to review it. You should not issue a certificate to an airman who has an abnormal ECG. You should get the airman evaluated and defer the examination to us for disposition.

Print Those Certificates

Now for the good news that I promised in the first paragraph! All you AMEs who have chastised us for making you keep those ancient typewriters around can jump for joy (but don't sell those typewriters yet!). Very soon, you will be able to print the medical certificate from AMCS! Yey! Strike up the music! Don't send me flowers, just a pat on the back will do!

You will be able to print the certificate regardless of whether the airman uses FAAMedXPress or you perform the examination using our hard copy forms. I imagine that you will perform the print certificate task after you have seen the airman, as you should currently do. Once you input the data, you will click a button at the bottom of the page that asks you to "preview certificate." This takes you to an HTML version of the certificate, so you can see if the information is accurate. If it is, you can then hit the "Print Certificate" button at the bottom of the page, and the certificate will print. At this point, the system will perform a validation against the airman's medical history (this would only be applicable if the airman has had a prior examination. Don't start dialing the phone to yell— you will still be able to print the certificate, even if this is a brand new airman!). If the airman has had a previous exam denial, a prior exam submitted within the past 90 days, or has a pending legal action, you will be presented with a warning and will not be able to print the certificate. You will also get such a warning when you go to submit the examination into the Aerospace Medical Certification Subsystem.

If this is confusing to you, don't worry, there will be a simple, informational manual on the AMCS Web site to give you instructions on how to print the certificate.

Some of you may now be asking yourselves, "You mean the FAA is going to allow us to print a medical certificate on plain white computer paper?" Yes, we are! If you turn the current hard copy medical certificate over, you will notice some preprinted information. When you print the medical certificate from your computer, it will require the airman to cut it out and fold it over with the required information still ending up on the back.

Just below the airman's signature, there will be the airman's Applicant ID number and a "control number," which is actually the MID number of this current examination. Now, how hard do you think it would be for anyone to pick the correct ten-digit number (applicant validation ID) and twelve-digit number (MID)? The FAA Flight Standards inspectors who peruse these numbers during a ramp check will be able to detect falsified certificates when they compare these numbers to those in our database.

So that's it folks. Have a great spring and summer.

Dr. Silberman manages the Aerospace Medical Certification Division.

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Myasthenia Gravis

Case Report, by David R. Trigg, MD, MPH

Myasthenia gravis (MG) is an uncommon autoimmune disorder in which antibodies form against acetylcholine receptors at the neuromuscular junction, resulting in muscle weakness and fatigue. The annual incidence of MG in the U.S. has been estimated at 2 per 1,000,000 population.[1] The most common manifestations of bulbar involvement are diplopia and ptosis. MG is disqualifying and special issuance consideration must be deferred to the Federal Aviation Administration for all classes.

History. A 52-year-old male airline pilot presented to his physician with a history of transient double-vision of approximately one-year duration. He stated that the first episode lasted about three weeks, the second episode occurred approximately six months later and lasted two weeks. With the occurrence of a third episode of double-vision about six months later, the airman decided to seek medical attention. He described his double-vision as the right eye image above the image from the left eye. He had used prism glasses with some relief of symptoms. His double-vision was worse at the end of the day, and there was an associated slight droopiness of his right eyelid.

The airman's past medical history was significant for an acoustic neuroma found after evaluation for decreased auditory acuity on the left approximately 2½ years prior. The airman underwent a left craniotomy and excision of the neuroma. His only current medication was nasal steroid as needed for allergic rhinitis.

A comprehensive neurologic examination was performed, and significant findings included decreased hearing on the left and diplopia to left upward, center, and lateral gaze. At midline after upward gaze, he developed diplopia after ten seconds. The remainder of the neurologic examination was normal with no other muscle weakness noted.

A presumptive diagnosis of ocular MG was made. The airman was placed on low-dose oral corticosteroids, and a comprehensive diagnostic work-up was ordered. Thyroid function studies, myasthenia panel, Westergren sedimentation rate, EMG, and nerve conduction studies were all negative. Following the work-up, the patient began treatment with Mestinon, increasing to 60mg two to three times a day, and he reported a resolution of his diplopia.

Myasthenia Gravis

MG is an acquired autoimmune disorder characterized by muscle weakness and fatigue on exertion. It was first described in the 1670s by Thomas Willis.[1] Antibodies are directed against the acetylcholine receptors at the neuromuscular junction of skeletal muscle, disrupting the binding of acetylcholine (Ach) with the acetylcholine receptors and ultimately destroying the receptors. As the number of receptors decreases to approximately 30% of normal, patients become symptomatic.[2] Classically, the female-to-male ratio of MG has been 2:3, but with advancing age of the population, the ratio now is thought to be equal. MG may present at any age, but mean age of onset is 28 years in women and 42 years in men.[1] Prior to the availability of the current treatment, the mortality for a patient in myasthenic crisis was as high as 40%. Today, the mortality of the critically ill patient is 3-4%.[1]

Patients with MG present with varying histories of intermittent muscle weakness and easy fatigability. Typically, their weakness is worse at the end of the day and is improved with rest. Weakness is proximal greater than distal. Because MG affects only skeletal muscles, there is no alteration of mental status, sensation, reflexes, or autonomic function.[3] On examination, a patient's muscle weakness may be assessed by having him look up for several minutes to determine fatigability of the extraocular muscles and by having him rise from a chair or the floor to observe for proximal muscle weakness.[3]

Ocular involvement occurs initially in 50% and ultimately in 90% of patients.[1] Patients may progress from mild to more severe disease over weeks to months. Approximately 87% of patients progress to generalized MG within 13 months, and about 16% of patients have only ocular involvement. A study by Grob and associates published in 1981[4] indicated that for those patients who had only ocular involvement for greater than one year after onset there was an 84% likelihood that the disease will remain localized indefinitely.[5]

Diagnosis. Diagnosis of MG in patients with subtle weakness can be difficult and may require several diagnostic tests. The differential for MG is long and includes, but is not limited to, Lambert-Eaton Syndrome, multiple sclerosis, botulism, oculopharyngeal muscular dystrophy, amyotrophic lateral sclerosis, and thyroid disease.[1] Thyroid function studies should be obtained on all patients suspected of having MG. Acetylcholine receptor antibodies are highly specific and positive in approximately 75-85% of patients with generalized MG and 50% of patients with ocular-only MG.[3] Repetitive nerve stimulation and single-fiber electromyography may be helpful in confirming the diagnosis.[1] Edrophonium (tensilon) is a short-acting acetylcholinesterase inhibitor that temporarily reverses myasthenic weakness. A small dose may be administered intravenously as the patient is observed over three minutes to see if there is a return of function in weak muscles.[3] Approximately 60-70% of patients with MG have thymic hyperplasia and 11% have thymoma; therefore, A-P and lateral chest radiographs and a CT of the chest should be obtained.[1]

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Carotid Artery Dissection

Case Report, by Jeffrey Lawson, MD

Atherosclerosis remains the number-one cause of stroke in all age groups and does not bode well for return to flight status because of a poor prognosis. However, there is much less data on the prognosis of stroke among those less than 40 years; in this group, the pathogenesis is often different and prognosis should be better than in an older age group (1). Arterial dissection constitutes about 20% of strokes in this population (2). If a young airman suffers a stroke due to arterial dissection, fully recovers, and is found to have no other risk factors for recurrence, then restoration of a medical certificate can occur after an abbreviated observation period.

History. A 40 year-old male corporate pilot was waiting for his passengers between flight legs. He was in his usual state of good health and had no significant medical history. While in the pilot lounge, he fell asleep in a recliner with his head cocked over to the left for a period of two hours.

Within 20 minutes of awakening, he developed tingling of his left arm and leg. He reported no pain and recalled no facial symptoms. The tingling seemed to improve, so he completed the next flight leg and remained in a hotel overnight. The next morning, he again noted tingling in his left arm and leg. While flying home, he noticed some clumsiness in his left hand. Upon arrival at home that afternoon, his wife noted some slurring of his speech and took him to the emergency room.

The patient was hospitalized for suspicion of a stroke. MRI showed an infarct in the right basal ganglia. CT scan of his head, trans-esophageal echocardiogram, and carotid ultrasound revealed no pathology. All coagulopathy studies were within normal limits. All symptoms resolved within 30 hours of onset. His physical exam was normal upon presentation to the ED and remained normal throughout his hospital stay. He was discharged two days later and told to take an aspirin every day.

After consulting with his aviation medical examiner several days after discharge, a magnetic resonance angiogram of the internal and external carotids was obtained to look for any abnormalities in the internal and external carotids. The MRA revealed a small defect in the internal right carotid consistent with a resolving arterial dissection. His final diagnosis was cerebral vascular accident due to internal carotid artery dissection.

Aeromedical disposition. In accordance with FAA medical regulations, cerebrovascular accidents are disqualifying. No class of medical certificate should be issued to any airman with cerebral, cerebellar, or brainstem infarction from any cause. Special issuance consideration will be given to those who can demonstrate full recovery of motor, sensory, language, and intellectual functions. This recovery must be demonstrated by a complete neurologic evaluation with a written report. The usual recovery observation period is two years. However, given the low recurrence rate of carotid dissection (<1%), asymptomatic airmen may be considered for special issuance at one year. Complete neurological evaluations, supplemented with appropriate laboratory and imaging studies, are required of all applicants with these conditions (3).

Clinical presentation. The characteristic presentation of a carotid artery dissection is a focal neurologic syndrome with unilateral headache or neck pain following a neck injury; pain is often referred to the eye, temple, or forehead. This characteristic pain history occurs about 60% of the time. Trauma to the carotid vessels may also damage the surrounding sympathetic nerves, causing an accompanying Horner syndrome in about 14% of cases (4). Patients may also describe pulsatile tinnitus (5). Arterial bruit may be heard on auscultation; headache and neck pain are also important warning signs that precede the onset of stroke by between a few minutes and 14 days in nearly 80% of patients (2).

Diagnosis. The most common site for carotid dissection is within the proximal internal carotid artery about 2 cm beyond the bifurcation.

Carotid dissection

Cervical cerebral artery dissection is uncommon but not rare. The overall incidence of spontaneous carotid dissection reported in the literature has been estimated at 2.5-3/100,000 cases for all age groups, with a mean age at occurrence of 44 years (4,6). Dissections account for about 2% of all ischemic strokes. However, in the younger adult population, about 20% of strokes are associated with cervical artery dissection (2). Arterial dissection occurs when a tear in the intima or injury in the media allows blood to accumulate within the potential space between the layers of the arterial wall, usually within the medial layer. In about one-half of the cases, an obvious traumatic injury can be identified. This is often attributed to an abrupt or extreme extension of the neck. Reported associations include chiropractic manipulation, sports injuries, whiplash injury, and endotracheal intubation. The other half is often referred to as "spontaneous dissection." In many cases of spontaneous dissection, subtle or minor activities have been implicated in causing arterial injury such as coughing bouts, vomiting, prolonged telephone conversations, or turning the head while backing an automobile. The etiologic role of these minor traumas remains speculative; however, they may be important for those with structural abnormalities of the vessel wall (5). There are no clear risk factors for carotid dissection, but smoking and hypercholesterolemia may be associated with increased risk (6).

Continued

Conventional angiography has long been the gold standard in the diagnosis of arterial dissections. However, magnetic resonance techniques are replacing conventional angiography because the resolution of magnetic resonance angiography (MRA) now approaches that of conventional angiography (2,4). The classic angiographic finding is a smooth, long, tapered narrowing of the arterial lumen. Other diagnostic techniques for a dissection are less reliable. Doppler techniques are useful to determine abnormal flow, but the site of dissection is generally not seen (5,6).

There should be an aggressive consideration of diseases affecting the arterial wall for patients with a family or personal history of dissection or if more than one vessel is affected. The diseases associated with cervical dissection include firbromuscular dysplasia, Marfan's syndrome, cystic medial degeneration, atherosclerosis, luetic arthritis, and Ehlers-Danlos syndrome. In addition, for all patients with dissection, the clinician should review the medical history and physical examination for clues to suggest one of these diagnoses.

Treatment. Opinions concerning therapy vary. Anticoagulation is often used because of the potential for embolization from the region of the narrowed lumen. Many authorities recommend acute anticoagulation, followed by 6-12 months of warfarin therapy. Other authorities cite the low rate of recurrent stroke (less than 1%) in untreated patients and advocate antiplatelet therapy (5,6). Surgical intervention (balloon dilatation and stenting) is indicated only for a few patients (4). According to one reviewer, either anticoagulants or antiplatelets may prevent arterial thrombosis in extracranial internal carotid artery dissection, but these benefits may be offset by increased bleeding. However, there were no randomized trials comparing either anticoagulants or antiplatelet drugs with controls and, therefore, no evidence to support their routine use for the treatment of extracranial internal carotid artery dissection (8).

Case outcome. After one year, an internal panel reviewed this case and agreed with the neurology consultant's diagnosis. Given the low chance of recurrence and since the airman had fully recovered and remained asymptomatic for a year, he was given certification with the warning that he not fly if he was symptomatic. Updates were requested, and he was given an unlimited flying Class-One medical certificate.

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About the author: Lt.Col. (Dr.) Jeff Lawson is a board-certified family physician, flight surgeon, and was a resident in the USAF School of Aerospace Medicine. He wrote this case report while rotating at the Civil Aerospace Medical Institute.

QUICK FIX

International AMEs Unite…And Transmit

By Dick Jones, MD

PROBLEM: I informed all International AMEs that they must be transmitting examinations to the Aerospace Medical Certification Division using the Aerospace Medical Certification Subsystem (AMCS) by June 30, 2008 in my article, "ICAO Suggests Changes to Our AME Program" in the 2007-4 issue of the Federal Air Surgeon's Medical Bulletin (FASMB). I then reminded everyone of this requirement in the 2008-1 issue of the FASMB.

As of the end of April, 2008, 57% of our International AMEs had not transmitted any examinations to us during the preceding year. We must do better than this to ensure timely medical certification reviews and actions. We have less than two months to come into compliance with ICAO requirements for timely submission of examinations.

SOLUTION: We want to assist International AMEs who are not yet transmitting their FAA examinations by again providing the following information: An AME may request a user name and password form at the E-mail address 9-amc-aam-certification@faa.gov. We will be happy to attach the request form by return E-mail. The AME may then either fax or mail the completed form to us, but if the mail is unpredictable in your country, E-mail is preferable. Our fax number is (405) 954-3917.

Any International or Domestic AME not using AMCS for submission of examinations to us by June 30, 2008, may have their AME designation terminated. I am sorry that this may affect many of the friends I have made around the world, but I have given repeated warnings in this publication and in seminars; we must comply with the requirements of the international aviation community.

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The Daring Adventures of Dr. Tilton

By Focus FAA
The FAA's News Service

Dr. Fred Tilton became the Federal Air Surgeon in January 2006. Framed photos of every model of aircraft he's flown in his career decorate his office walls.

IT'S FAIR TO ASSUME that most folks would like to avoid overexposure to solar radiation.

A sunny day is undoubtedly pleasant, but UV rays result in sunburns; X-rays can lead to cancer; and all manner of other high-energy particles would wreak havoc if earth's atmosphere didn't shelter us from most of it.

Our sun has quite the energy arsenal.

Every few years, that arsenal is deployed more than usual, when the sun's magnetic field flings radiation and gas out into space. These particles often interfere with earth's radio communications, knock satellites around in orbit, and put spacewalking astronauts at risk for cell and DNA damage.

In the past, when others protected themselves from such dangers, Dr. Fred Tilton flew toward them.

Before Tilton became the FAA's Federal Air Surgeon or even went to medical school, he was a pilot in the U.S. Air Force. For three of his 26 years in the service, he flew high-altitude reconnaissance missions.

One of those missions required him to take off from a base near Fairbanks, Alaska, whenever scientists spotted a solar flare, and head for the North Pole, flying 60,000 feet above the earth. His job was to fly his plane through the radiation while onboard instruments recorded the number of protons (positively charged particles) that rained down from space.

"We were concerned about SSTs (supersonic transports)," Tilton said. "We wondered what kind of radiation passengers would get."

In the 1960s there was much discussion of whether people were safe at high altitudes during periods of particularly intense solar activity. Supersonic transports, civil aircraft designed to carry passengers at speeds greater than that of sound, were first flown commercially by Concorde in 1976. Even today, NASA researchers question how protons might affect the cells of astronauts in deep space.

But 40 years ago, Tilton didn't worry about the effects his missions might have on him. If it involved airplanes, he was game.

"It's my first love," he said.

And what wouldn't we all do for love? To be honest, probably less than what Tilton attempted.

Another series of adventures he took part in centered on radiation of a different kind. Namely, that created by a nuclear explosion. Before President Kennedy signed the nuclear test ban treaty in 1963, prohibiting all test detonations of nuclear weapons except those underground, an aircraft capable of flying through the cloud created by an atomic blast was being created. In 1967, Tilton joined the squadron charged with piloting that aircraft.

"Our squadron patch was an atomic cloud with two wingtips sticking out of it," Tilton said, smiling.

Even after atmospheric testing in the United States was banned, the

The RB-57F aircraft Tilton flew was an impressive 66 feet long and 122 feet wide. It has since been assigned to NASA (shown above).

squadron's mission remained the same. That meant Tilton and his colleagues had to go the extra mile — or several thousand miles — to find charged particles resulting from a nuclear test. France and China continued atmospheric testing for several years, so Tilton's squadron would often deploy when a bomb was detonated, in hopes of collecting enough samples to aid researchers.

Thirty years after Tilton flew in the RB-57F, his son did so. They're the only father and son to have flown in the aircraft.

"We would have airplanes in Alaska and Panama and South America, also Pago Pago, and sometimes Spain," Tilton said. "Depending on where the atmosphere was taking the radiation so we could track it and see where it was going."

A somewhat more tame assignment given to Tilton by the Air Force was a project called Earth Resources. Packed onboard the same high-altitude airplane — an RB-57F — different instruments would snap pictures of the earth's surface. These weren't your typical photographs: special equipment collected light from a variety of wavelengths, each revealing unexpected information.

For instance, a trip above the crowded streets of a major U.S. city with an infrared camera uncovered the varying thicknesses of oil slicks. The greasy accumulations from taxis and buses were more significant in places where the vehicles idled for several seconds. More oil in one spot meant there was probably a traffic stop nearby.

"You could sequence all the traffic lights based on the oil buildup," Tilton said.

In an entirely different environment, that of rural Kansas, a similar approach could expose another sort of map. Tilton described instruments that might detect an unusual crop fungus — one that might eventually affect the local economy.

"It's incredible what they can do with these things," he said. "In fact they still can do that with satellites."

Tilton's adventures went on and on. There were the flights in 1968 and 1969 over a nuclear processing plant in Richland, Wash., where Tilton orbited only a few thousand feet above the building in an effort to detect radiation leaks.

It's all very much like an issue of *Amazing Stories* magazine from the early days of science fiction, where H.G. Wells, Edgar Allen Poe, and Jules Verne presented some of their most fantastic tales. Only this science is real.

And unlike fiction, Tilton doesn't know the outcome of his missions. While he had front-seat control of the aircraft, the backseat scientists collected the data, which were sent off to labs to be processed. He never learned what the proton counts were, or if radiation truly did seep from the nuclear plant.

Not that he minds, really. He still flies. With an added bonus.

"I do glow at night," he said.

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Internationals from page 7

On a brighter note, we sent E-mails to all International AMEs last week informing them of the June 30 deadline, in case they did not read our Bulletins, and only 14 were undeliverable. This is a marvelous record, far better than for our domestic AMEs.

We also found that we had 21 International AMEs for whom we had no E-mail address. Everyone we did not reach by E-mail will be sent a letter warning them of our deadline. Ironically, since this whole problem is one of deficient mail systems, these will often not be received in time to prevent us from taking action against the designations of those we couldn't contact.

Bobby Ridge [International Program Analyst] will try to call each one we didn't reach by phone, but if you are not sure we have a valid E-mail on file for you, please E-mail your address to Bobby at: bobby.ridge@faa.gov.

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Dr. Jones manages the Aerospace Medical Education Division.

Forms and Publications Services Rejuvenated

With the passing of the Aerospace Medical Education Division's shipping clerk last August, deliveries of FAA forms and publications suffered, causing aviation medical examiners to call repeatedly to inquire about their missing shipments. Apologies to those affected by the delays are offered by the Aerospace Medical Education Division's manager, Dr. **Dick Jones**, who says that a new shipping clerk has been hired, and shipments have been catching up with demand!

The new shipping clerk is **Gary Sprouse**, who recently retired from the military. His contact information is:

Gary.Sprouse@FAA.gov.
405-954-4831

For routine orders, you are requested to use the online ordering program at: www.faa.gov/ame.cami.jccbi.gov/form_and_brochure/medicalform.asp

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Prestigious Federal Executive Board Award to Antuñano

By James Whinnery, PhD, MD

THE OKLAHOMA FEDERAL EXECUTIVE Board presented its 2008 Federal Employee of the Year award to Dr. **Melchor Antuñano** during a recent award ceremony attended by federal and state officials from the state of Oklahoma. The award was established to recognize outstanding federal employees for their efforts, leadership, and initiative, and it strives to encourage innovation and excellence in government, reinforce pride in federal service, and enhance public recognition of the broad range of services provided by federal employees.

Dr. Antuñano, who manages the Civil Aerospace Medical Institute in Oklahoma City, was cited for leading the Institute through exceptional performance. For its size, it is one of the most diverse scientific, educational, and medical organizations in the federal government and is a multi-faceted success.

The programs at the Institute are internationally respected and focused on ensuring human safety, health, and security in civilian aerospace operations. Dr. Antuñano's accomplishments make it clear that his devotion to duty has been of the highest order, matched only by his devotion to fellow employees and the citizens of the United States. He is a leader who is making a real difference in our world. He has continuously championed the American ideal to an international audience and has taught his employees to do the same.

The *Employee of the Year* Award is recognized as one of the most important and admired forms of nonmonetary recognition available to federal employees in Oklahoma.

The award is aimed at publicizing to the general public, as well as to the federal family, the high caliber of employees in the federal service. The annual award presentation is held during Public Service Recognition Week to honor outstanding government leaders.

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Dr. Whinnery manages CAMI's Aerospace Medical Research Division.

CAMI Acquires Helicopter Training Device

THE CIVIL AEROSPACE MEDICAL Institute has added a unique trainer to its "fleet" of spatial disorientation training devices, this one for general aviation helicopter pilots. The new GAT-II HELO trainer was delivered to Oklahoma City in April by its manufacturer, Environmental Tectonics Corporation.

The new HELO is a multifunctional helicopter flight trainer that emulates the performance of a light utility helicopter in a realistic flight environment. It combines the capability to support training in spatial disorientation, as well as basic flight and instrument navigation.

The new GAT HELO is pictured in CAMI's high-bay area with (l-r): ETC engineer Lawrence Beavans; Joe Tintera, FAA Flight Standards Regulatory Support Division manager; Dr. Antuñano; Rogers Shaw, Airman Education Program team lead; and Dr. Dick Jones, Aerospace Medical Education Division manager.

Dr. **Melchor Antuñano**, the Institute's director, says the Federal Aviation Administration will use the HELO "to provide helicopter pilots training in the hazards associated with spatial disorientation during flight [because] FAA statistics show that when spatial disorientation is involved in a mishap, nine out of ten are fatal." This training device augments the agency's ongoing effort to reduce the number of accidents and fatalities in the general aviation community.

Instructors in the Institute's Airman Education Program will use the new trainer, along with its three fixed-wing counterparts, to demonstrate vertigo to helicopter pilots at the Oklahoma City facility. Aviation medical examiners who are helicopter pilots may also have the opportunity to fly the GAT while attending recurrent training at CAMI, or they may take the physiological training course that is offered to all general aviation pilots.

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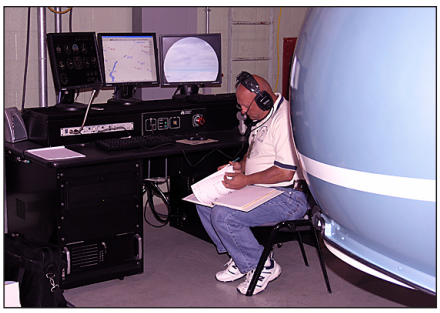
Joe Tintera tries his hand at operating the simulator.



Airman Education Program instructor Larry Boshears at the HELO control console during delivery testing.

Letter to the Editor
Hypertension in Naval Air

Dear Editor,

I have an otherwise healthy airman on a 2-year 3rd Class medical that will expire in Jan. 2009. On his recent Navy flight physical, he was diagnosed with HTN [hypertension] greater than 140/90 but less than 155/95. Therapeutic lifestyle changes did not bring the blood pressure <140/90, so HCTZ [hydrochlorothiazide] 25 mg PO QD [orally, once a day] was started. Follow-on labs and blood pressures were normal and a Navy flight waiver for HTN on HCTZ was obtained.

The patient asked me if he needed to report his new chronic medication to the FAA or get a new FAA physical done early due to the change in medical status.

I had asked a few other AMEs what they thought was supposed to happen next and they didn't know either. I think the quandary for the military flight surgeon is that we are also their primary doc, so we know more than a FAA AME would in between FAA physicals.

I was having a hard time believing that nothing had to happen for this new condition and med until Jan. 2009 at the next regular FAA exam. The airman wanted to make sure the FAA was up to date and I really wanted to send in the initial HTN information somewhere but didn't see a way to do that[....]

A 3-year class 3 medical with no requirement to keep FAA updated on chronic medication additions would mean a proportion of those pilots really were on no meds at the FAA physical, but had them added sometime in the 3 years after the FAA physical, with no mechanism requiring them to be reported to the FAA.

I am unsure what he needs to do with the FAA prior to his Jan. 2009 expiration of his current FAA medical. Please advise.

Bill Padgett, MD

Dear Dr. Padgett,

He will need to report this on the next FAA medical examination he obtains and you will need to obtain all the material that is required for an Initial Hypertension workup for the FAA. The 155/95 has to do with the AME deferring should the blood pressure be at or above that level at the time of the examination. It has nothing to do with the treatment.

Ideally, ANY medical condition that requires follow-up testing or proof that an airman is "safe to fly" for the time period that the examination is in effect requires the airman to report this. The airman has the option of providing us with the information and testing for a medical condition while the current examination is in effect. This should definitely be done for any of the 15 specifically disqualifying medical conditions, but what generally occurs is that we find out at the time of the next examination.

We have a mechanism for an airman to report medical conditions or changes during the time period that the examination is in effect. The airman should either ask his AME or go online to one of the advocacy organization information pages to find out what is required, then obtain the required medical records and tests, and mail the results to us. We will work the case and take the appropriate measures.

You may also want to mention that there is an actual requirement to report changes in medical conditions; it is 14 CFR, part 61.53, which states that an airman must report a known medically disqualifying defect or treatment or therapy.

Warren Silberman, DO, MPH

Myasthenia G. from page 5

Treatment. Current treatment regimens may include one or more of surgery, plasma exchange, immunosuppression, and acetylcholinesterase inhibitors. If thymoma is present, remission rates approach 60% at 7-10 years post-thymectomy.[1] PE involves 3 to 5 large volume exchanges to remove circulating antibodies and has been most useful in treatment of crisis or prior to major surgery such as thymectomy.[3] Immunosuppression is the most common initial treatment, with prednisone starting at 10-20mg per day and slowly titrating up to 1mg/kg/d or to clinical benefit. Azathioprine and cyclosporine A have also been effective immunosuppressants in the treatment of MG. The mainstay of maintenance therapy are acetylcholinesterase inhibitors. Mestinon, an intermediate-acting (3-6 hours) agent, is most commonly used.[3]

Untreated, MG may have a mortality as high as 30%.[1] Patients should be warned to watch for signs of exacerbation and that heat, intercurrent illness, and some medications— including penacillamine, aminogycosides, ciprofloxacin, erythromycin, beta blockers, lithium, magnesium, verapamil, quinidine, and chloroquinecan—exacerbate the symptoms of MG.[1] Myasthenic crisis can lead to respiratory muscle involvement and result in rapid respiratory failure.

Aeromedical Disposition. The major aeromedical concerns are crisis, respiratory failure, and diplopia. Because any of these manifestations could result in incapacitation during critical phases of flight, MG is disqualifying. After an airman with the diagnosis of MG has been stabilized on medication with no side effects reported, consideration may be made for special issuance. In the case of an airman who presents with ocular-only involvement that does not progress to generalized MG for greater than one year, there is a low risk of progression.[4,5] This case was evaluated by the FAA neurology consultant. Given this airman's history of greater than 15 months from initial ocular symptoms without progression, he recommended special issuance for a First-Class Medical Certificate. Special issuance was authorized by the Aerospace Medical Certification Division with six-month current status of neurological condition and required the airman to immediately report to his AME any change in condition, including weakness of any other region of his body. The airman has continued to do well on medication with no side effects or change in his condition for approximately three years.

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Dr. Trigg was a resident in Aerospace Medicine when he wrote this report while rotating at the Civil Aerospace Medical Institute.

Diabetic Pilot Jailed for Withholding Facts

A FEDERAL COURT in Boston sentenced a diabetic air taxi pilot to 16 months in jail and three years' probation after he pled guilty last year to failing to disclose the facts of his condition to the Federal Aviation Administration.

The pilot, **Ronald Crews**, was incapacitated while piloting a Cape Air Cessna 402 six years ago with four passengers aboard. Fortunately, one of the passengers was able to take over from the stricken pilot and safely land the aircraft. Cape Air security supervisor and student pilot **Melanie Oswalt**, then 24 and with only 48 flight hours, guided the aircraft to a gear-up landing at the Provincetown, Mass., airport.

The flight originated in Martha's Vineyard and was scheduled to land in Hyannis, Mass.

According to the District of Massachusetts U.S. Attorney's office, Crews had consistently hidden his diabetic condition from the FAA. He was charged with four counts of making false statements to a federal agency.

Cape Air/Nantucket Airlines is a Title 14 Code of Federal Regulations Parts 121 and 135 independently owned regional airline utilizing a fleet of ATR-42 and Cessna 402-C model aircraft. Minimum Cessna 402 captain positions require a current FAA first-class medical certificate, multi-engine airline transport license, and 1,500 hours' flight time.

International Aero-Medical Examiner Seminar Announced

By Dick Jones, MD

THE GERMAN ACADEMY of Aviation and Travel Medicine will present their third International Aero-Medical Examiner Seminar in Wiesbaden, Germany, August 21-24, 2008. The Academy invited Drs. **Melchor Antunano, Warren Silberman,** and **Richard Jones** from the FAA to participate to the degree necessary to consider the training equivalent to an FAA aviation medical examiner (AME) refresher seminar.

Credit will be given for attending an FAA AME seminar to those U.S. AMEs requesting it, if a passing score is obtained on an FAA test administered after the seminar.

Guest lecturers from Germany will provide the clinical lectures normally given at FAA seminars and will also give other interesting presentations. It is hoped that participation by physicians representing many other civil aviation authorities will engender fruitful discussion of the aeromedical significance of a multitude of medical conditions and contrast the approaches taken by other countries to medical certification.

The Academy will welcome all physicians interested in aviation medicine, regardless of whether or not they are FAA AMEs. However, we strongly encourage aviation medical examiners to consider this seminar as an alternative to our regular seminars if this makes more geographic sense or if you just want a different experience.

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Dr. Jones manages the Aerospace Medical Education Division.

Aviation Medical Examiner Seminar Schedule

2008		
June 2–6	Oklahoma City, Okla.	Basic (1)
August 1–3	Washington, D.C.	CAR (2)
August 21–24	Wiesbaden, Germany	(3)
October 8–11	Oklahoma City, Okla.	(4)
November 3–7	Oklahoma City, Okla.	Basic (1)
November 14–16	Reno, Nev.	N/NP/P (2)
2009 (Partial)		
January 23–25 **(tentative)**	Orlando, Fla.	OOE
March 2–6	Oklahoma City, Okla.	Basic (1)
July 20–24	Oklahoma City, Okla.	Basic (1)

CODES

CAR Cardiology Theme

OOE Ophthalmology - Otolaryngology - Endocrinology Theme

N/NP/P Neurology/Neuro-Psychology/Psychiatry Theme

(1) A 4½-day basic AME seminar focused on preparing physicians to be designated as aviation medical examiners. Call your regional flight surgeon.

(2) A 2½-day theme AME seminar consisting of 12 hours of aviation medical examiner-specific subjects plus 8 hours of subjects related to a designated theme. Registration must be made through the Oklahoma City AME Programs staff, (405) 954-4830, or -4258.

(3) This seminar is being sponsored by the German Society of Aviation and Travel Medicine (DGLRM) and is sanctioned by the FAA as fulfilling the FAA recertification training requirement. For more information, see the DGLRM Web site: www.dglrm.de/xp/seite3/seite3-3-8.html.

(4) This seminar is being sponsored by the Civil Aviation Medical Association (CAMA) and is sanctioned by the FAA as fulfilling the FAA recertification training requirement. Registration will be through the CAMA Web site: www.civilavmed.com.

The Civil Aerospace Medical Institute is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians.