



Federal Air Surgeon's Medical Bulletin



Vol. 47, No. 1
2009-1

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

U.S. Department of Transportation
Federal Aviation Administration



- 2 EDUCATION DIVISION SHINES
- 3 RETURN TO SENDER!
- 4 CERTIFICATION UPDATE:
TEST YOUR CQ WITH THREE
NEW CASES
- 7 'PREVIOUSLY REPORTED' MEANS
'ASK ME ABOUT IT!'
- 8 SPASMODIC DYSPHONIA
- 9 CRYPTOGENIC STROKE WITH
PATENT FORAMEN OVALE
- 10 WHO YOU GONNA CALL?
- 11 AVIATION MEDICAL EXAMINER
SEMINAR SCHEDULE
- 12 INDEX OF BULLETIN ARTICLES
PUBLISHED DURING 2008



QUICK FIX

By Dick Jones, MD

Safeguarding SPII

*Protection of SPII Is an
Obligation of All Physicians*

PROBLEM: An auditor from the Department of Transportation's (DOT's) Office of the Inspector General called me last month and asked what we are doing to ensure Aviation Medical Examiners (AMEs) were in compliance with the DOT Information Technology and Information Assurance Policy. I didn't have the foggiest idea what he was talking about, but eventually I determined we would be audited soon to ensure all users of the AMCS (Aerospace Medical Certification Subsystem; meaning all of you AMEs) signed a statement indicating understanding

that they must safeguard sensitive personally identifying information (SPII). (Could I possibly use any more acronyms in an opening paragraph?)

So, then I had to express my ignorance as to what SPII is (as you probably did when you read the title of this piece), and that exemplifies our problem: The OIG was not sure we all know what information to safeguard or that, in exchange for system access, we agree to do so. He suggested I fix the problem immediately or face an OIG write-up!

SOLUTION: The log-in page for SAMCS is being modified to say, "By completing the log-in below, I am affirming that I will safeguard all Sensitive Personally Identifiable Information (SPII), as defined in the
Continued on page 3

The Fear of Flying

Case Report, by Maureen Williams, MD, MPH

Phobias are the third-most common adult mental disorder in the United States. Symptoms include a marked and persistent fear of a specific stimulus recognized as unreasonable by the patient, resulting in avoidance behaviors toward that stimulus. Although functional impairment rarely occurs, such impairment can result in significant disability and poor quality of life. Fortunately, treatment (usually consisting of cognitive behavioral and exposure treatments) for this disorder is typically successful. This case report discusses the aeromedical and certification issues with a commercial passenger airline pilot seeking reinstatement of a 1st-class medical certificate following a diagnosis of a specific phobia—flying an aircraft.

IN JANUARY 2007, a 62-year-old commercial passenger airline pilot with approximately 11,000 flying hours presented to his aviation medical examiner (AME) requesting re-issuance of his 1st-class medical certificate following 2 years of self-initiated grounding due to fear of flying. His case was forwarded

to the Aerospace Medical Certification Division (AMCD) for disposition.

Background. In 1989, the airman was piloting a commercial airliner on a routine flight when the aircraft encountered extreme turbulence, resulting in loss of aircraft control such that it nearly

Continued on page 5

Your CAMI Education Division Shines

HELLO, EVERYONE. I am certain you will recall that I changed the tone of my last editorial to write a vignette that illustrated some points about the use of FAA Forms 8500-8 and 8500-9 for purposes other than official FAA physical examinations.

I hope you will indulge me as I switch directions again in order to tell you about a remarkable achievement by the CAMI Aerospace Medical Education Division (AMED).

Every organization that delivers continuing medical education credits to physicians must be certified by the



Accreditation Council for Continuing Medical Education (ACCME). The certification process involves an extremely rigorous initial examination by the ACCME that takes more than a year to complete. It includes:

- a discussion of the history and structure of the organization
- in-depth documentation of processes and procedures
- examples of actual seminar and training course content
- verification of professional needs and gap analyses of physician participants
- training on desirable physician attributes, and the illustration of FAA partnerships with governmental and industry organizations worldwide

The AMED was initially certified in the mid-1990s, and they have successfully been recertified every four years. In 2006, the ACCME established new certification criteria, and the Education Division completed the year-long reaccreditation process under the new criteria late last year. The FAA was represented by Dr. **Richard Jones**, Manager, Education Division, and Ms. **Jan Wright**, Instructional Systems Development Specialist. They had to

present in-depth documentation demonstrating competence with 22 separate criteria and then participate in an oral interview.

In December, the ACCME notified Dr. Jones that they had successfully completed the process and that they had been awarded "Accreditation with Commendation." This extraordinary accomplishment means that the Education Division's reaccreditation cycle goes to six years and that they are authorized to continue to offer you CME credits for attending one of their high-quality AME seminars.

Murray Kopelow, Chief Executive of ACCME, enclosed a personal note to express his congratulations. "Yours is the first organization to be awarded 'Accreditation with Commendation' from the ACCME under the 2006 updated criteria. Congratulations on this significant achievement."

Please take a couple of minutes to personally congratulate Richard, Jan, and all the rest of the Aerospace Medical Education staff the next time you attend a seminar.

Since I have a couple of extra lines, please look at Dr. Jones' "Quick Fix" article on page 1 of this issue. You will soon see a modification to the log-in page for AMCS regarding the safeguarding of sensitive, personally identifiable information. In these days of identity theft, it is critical that we continually remind ourselves to do everything possible to protect the privacy of our constituents.

Have a great spring, and thanks once again for all you do for us and our airmen!!!

—Fred

Federal Air Surgeon's Medical Bulletin

Library of Congress ISSN 1545-1518

Secretary of Transportation

Ray H. LaHood

FAA Administrator

Lynn Osmus (Acting)

Federal Air Surgeon

Fred Tilton, MD

Editor

Michael E. Wayda

The Federal Air Surgeon's Medical Bulletin is published quarterly for aviation medical examiners and others interested in aviation safety and aviation medicine. The Bulletin is prepared by the FAA's Civil Aerospace Medical Institute, with policy guidance and support from the Office of Aerospace Medicine. An Internet on-line version of the Bulletin is available at: www.faa.gov/library/reports/medical/fasmb/

Authors may submit articles and photos for publication in the Bulletin directly to:

Editor, FASMB
FAA Civil Aerospace Medical Institute
AAM-400
P.O. Box 25082
Oklahoma City, OK 73125
E-mail: Mike.Wayda@faa.gov

Quick Fix from page 1

DOT Information Technology and Information Assurance Policy 2006-22 (Revision 1), Implementation of DOT's Protection of Sensitive Personally Identifiable Information (SPII). SPII is information that, if released for unauthorized use, is likely to result in substantial harm to the individual to whom such information relates.

SPII means the first and last name, home address and telephone number of an individual, in combination with any of the following related to the individual: Social Security Number (this is SPII on its own); Driver's License/State Issued Identification Number; Taxpayer Identification Number; Financial Information; Security Code; Access Code; Password; Personal Identification Number; Medical Information protected under the Health Insurance and Portability

Accountability Act; Biometrics; and Investigations, including a report or database which contains sensitive information which can link an individual to any item above."

I know all physicians take the protection of patient information very seriously, so you might feel these measures are redundant. However, it does no harm to remind ourselves of this responsibility each time we use AMCS.

Return to Sender! Correct E-Mail Address Is Important

PROBLEM: After my last article ("Answering the E-Mail," *Federal Air Surgeon's Medical Bulletin* Vol. 45, No. 1, p.1) about the need for valid E-mails, things improved for a while. However, we have recently begun to experience problems again. For exam-

ple, we sent out by E-mail about 800 invitations to the Orlando, Florida, theme seminar several months ago, but nearly 200 were returned as "not deliverable" to the address we had on file. More recently, the AME Program staff is reporting about one-third of AMEs calling us for services, when questioned, report that we have an old E-mail address for them. This is a significant problem for us, since we sometimes have to rely on E-mail to send timely warnings of problems, and we prefer to send seminar invitations this potentially more efficient, less costly way.

SOLUTION: Please update your E-mail address by calling or E-mailing your regional office with the change. You may also E-mail this office at: deanie.davis@faa.gov.



Dr. Jones manages the Aerospace Medical Education Division at the Civil Aerospace Medical Institute.



ACCREDITATION CERTIFICATE FROM ACCME. Presented to the Aerospace Medical Education Division, it entitles them to bestow continuing medical education credits to physicians for attending aviation medical examiner seminars (see Dr. Tilton's article on page 2).

Test Your CQ* With Three New Cases

THERE WILL BE SITUATIONS where you will need to provide a white medical certificate to an airman without performing an examination, as when renewing an AME-Assisted Special Issuance for an airman who is not due an examination. As you know, the backs of the old replacement white certificates (FAA Form 8500-9) are no longer accurate.

We do not plan to print new certificates because the AMCS and DIWS will be soon modified to permit direct printing of certificates, regardless of whether or not an examination is being entered into the system. In the interim, you can either use a white certificate from an unused FAA Form 8500-8 and write “void” across the remaining form, or utilize the unused white certificates

Here are some examples of cases that I have reviewed over the past weeks.

1. A 65 y/o airman, who hasn't had an FAA medical examination for 15 years, goes to you for a third-class physical. He reports angina pectoris and subsequent cardiac catheterization, percutaneous transluminal angioplasty, and insertion of a stent in his left anterior descending artery. These events took place 9 months ago, and the workup material he provided took place 7 months after the events. He provides you with a favorable status report that lists aspirin, Toprol XL, Plavix, and Lipitor as his current medications. He exercised for 9 minutes on a maximal nuclear stress test. He achieved a maximal heart rate of 139 beats per minute (89% of his maximal rate). There were no scars or reversible ischemia seen on the scan, and the ejection fraction was 64%. As you were reviewing his history and physical from the angioplasty event, you noted that 5 years ago, he was diagnosed with bipolar disorder. Should we issue him an authorization?

Answer: No. Although it appears that he could receive a special issuance for his cardiac problems, he is not eligible for

*Certification Quotient



Certification Update

By Warren S. Silberman, DO, MPH

that remain after you have issued an individual a yellow student certificate.

We need the voided forms for accounting purposes, so you can batch mail them to us on a monthly basis, along with handwritten airman histories. Unfortunately, these certificates will need to be typewritten until we modify AMCS and DIWS. We recommend that you keep a photocopy of

a waiver because his bipolar disorder is one of the 15 specifically disqualifying medical conditions.

2. An 84-y/o airman requests a third-class recertification with a history of diabetes mellitus on the oral medication Metformin (Glucophage™) and a 7-year history of myocardial infarction, coronary artery disease, with percutaneous transluminal angioplasty and stents in the first obtuse marginal and left anterior descending arteries. Last year, he provided a plain Bruce stress test to 6 minutes at 163 maximal heart rate, which was 122% of his predicted maximal rate. The test was negative for ischemia. His treating physician provided a letter that appeared to be favorable. This year, he exercised for 3 minutes and 34 seconds and provided a nuclear stress test with a maximal rate of 140 BPM and peak systolic BP of 209/90. The study was positive for scarring in the posterolateral wall. Should he get a new authorization?

Answer: No. When we send an airman an authorization letter for these conditions, we also send a *specification sheet*. The sheet lists the required tests

Dr. Silberman manages the Aerospace Medical Certification Division.

these issued certificates for your records. NOTE: Replacement yellow student certificates (FAA Form 8420-2) are unchanged and available.

On another topic, the ONLY individuals who can grant certification for the following cases are the Federal Air Surgeon, Aerospace Medical Certification Division physicians, or Regional Flight Surgeons. An aviation medical examiner may not issue a medical certificate to an airman with a disqualifying medical condition without verbal or written permission from one of the above-mentioned individuals.

We encourage you to learn the FAA's requirements for disqualifying medical conditions, so you can advise your airmen what they need to provide us to be considered for an Authorization for Special Issuance. You can find such information in the online *Guide for Aviation Medical Examiners*, in previous editions of this *Bulletin*, or by calling one of us!

and how we want them performed. In prior columns, I explained that we have *cut points* or limits based on risk. We generally require an airman to exercise for 9 minutes, to achieve a maximal heart rate response of 100%, based on age (equivalent to 7 to 10 METS),¹ and to achieve a double product of 25,000. It has been shown that cardiac patients who reach these end points have a 99 percent chance of surviving for one year and a 94 percent chance of surviving four years. If an airman is 70 or older, we allow a minimal exercise time of 6 minutes based on the functional aerobic capacity of people over the age of 70. So, this airman will be denied for inadequate exercise capacity because he could not exercise for 6 minutes.

3. The final case is a 65-y/o airman who, 20 years ago, had an authorization for special issuance for percutaneous transluminal angioplasty (PTCA) and stents in first and second obtuse marginal and PTCA with stent in the right coronary artery. He now desires a third-class medical and presents with new material. The letters from his treating physicians mention angina and ischemia. He provided the results of a maximal nuclear stress test on which he

Continued on page 6

Fear of Flying from page 1

rolled inverted and almost stalled. The airman was able to regain control of the aircraft through skill and sheer physical strength. The flight continued to its destination, where it landed without incident. No adverse outcomes resulted from the event.

However, the airman experienced increasing levels of anxiety related to weather and flying. He became obsessive about checking weather status and would grow anxious several days before flying. He experienced physical symptoms of nausea, diaphoresis, shaking hands, and stomach cramps, occurring whether he was a pilot or a passenger in an aircraft. He was awakened at night by nightmares about flying, developed hypervigilance, was easily startled, and experienced extreme anxiety when recalling the 1989 event. While piloting a commercial airliner in 2005, he had to divert around thunderstorms. After landing at the layover destination, as he watched the weather coming in, he became very anxious and lost confidence in his ability to handle emergencies. Having lost the ability to cope with his symptoms, he decided to ground himself.

Three months later, he sought professional help for his fear of flying. He was diagnosed with post-traumatic stress disorder (PTSD) and specific phobia—flying an aircraft. He was highly motivated to overcome his symptoms and return to the cockpit. He worked with psychologists and psychiatrists over the next 20 months to manage his symptoms, improve his coping skills, and reframe distorted thought patterns. He was offered anxiolytic and selective serotonin re-uptake inhibitor (SSRI) medications but declined them. He underwent cognitive therapy, constructivist self-development therapy, and eye movement desensitization reprocessing (EMDR). Ultimately, he was able to recall the 1989 event without feelings or symptoms of anxiety, and he was able to fly as a passenger without difficulty.

ETIOLOGY

Phobias are the third most common adult mental disorder in the United States (after substance abuse and major depression), but rarely cause significant impairment in function.^{3,4} Community prevalence is estimated to be 4 to 8.8%;⁴ lifetime prevalence is 7 to 11%. Phobias affect approximately twice as many females as males.⁴ Flying phobia is categorized under Specific Phobia—Situational Type.⁴ Situational phobia has two peaks in the age of onset—one in childhood and the other during the 20s; however, phobias triggered by a traumatic event do not have a typical age of onset.⁴ Symptoms can develop following a fearful encounter with the stimulus, an unexpected panic attack associated with the stimulus, or parental warning.⁴ Symptoms are characterized as a marked and persistent fear of a specific stimulus, recognized as unreasonable by the patient, resulting in avoidance behaviors toward that stimulus.^{3,4} Onset in older adults is rare, and symptoms tend to decrease in the elderly.^{3,4} For those who become functionally impaired, symptoms typically occur over a period of time prior to functional impairment and can result in significant disability and poor quality of life.^{4,8} Phobias have a familial link, suggesting that genetic, as well as environmental factors, play a role.⁵

Fortunately, specific phobias can usually be treated successfully.³ The most common and efficacious treatment modalities are cognitive behavioral treatments such as systematic desensitization and exposure therapy.^{3,9} Systematic desensitization seeks to teach the patient coping behaviors, relaxation, and cognitive recognition that the situation is safe.³ Exposure therapy can be done “in vivo” or through virtual imagery to experience symptoms without avoidance behaviors, thus gradually eliminating the anxiety.⁴ Medications have a very limited treatment role.⁴

At that time, he and his treatment team concluded he had improved enough to return to the cockpit.

Aeromedical Concerns

The airman did not meet first-class medical requirements per 14 CFR 67.107(c) due to the diagnosis of PTSD and flying phobia. Item #47 III.B.4 of the *Guide for Aviation Medical Examiners* notes that phobias associated with flying are disqualifying.¹

Severe anxiety responses limit an individual’s ability to accurately interpret and respond to the environment, often due to distraction that causes failure to recognize important environmental cues or initiating inappropriate responses to environmental cues. This may result in the airman failing to take appropriate action when indicated.

For example, the airman could become so focused on his feelings of anxiety, thoughts of impending doom, and physical symptoms of nausea and stomach cramping that he fails to recognize and respond to radio transmissions or changes in aircraft altitude, airspeed, attitude, or configuration. This may result in the airman failing to take appropriate action when required. In the aerospace environment, this can be fatal not only to the airman, but to the passengers and others as well. The presence of severe anxiety in the context of a phobic condition carries an unacceptably high risk of in-flight incapacitation.

Additionally, any physical or psychological comorbid conditions, such as PTSD or depression, may require evaluation and treatment to meet the requested flying class requirements. Psychological comorbid conditions may be more difficult to treat than phobias and also carry a risk for sudden incapacitation that must be fully evaluated.^{3,4} Medications used to treat psychiatric diagnoses (e.g., tricyclic antidepressants, SSRIs, anxiolytics, and antipsychotics) are not compatible with flying due to medication side-effects and the potential for break-through symptoms. In this case, the airman’s PTSD,

Continued on page 6

FEAR from page 5

as well as his phobia, responded well to the therapeutic interventions and did not require medication.

Outcome. Based on the guidance found in 14 CFR 67.401, the Aerospace Medical Certification Division (AMCD) may grant special issuances to airmen who do not meet flying class medical requirements. The decision to grant such an issuance is based on the individual considerations of each case. Medical certification of an airman diagnosed with *specific phobia—flying an aircraft* depends upon the successful resolution of symptoms and maintenance of symptom remission.

In this case, the airman demonstrated good insight and judgment in concluding he could not safely fly with the symptoms he experienced. He also actively participated in his treatment and demonstrated excellent insight, judgment, and motivation throughout the treatment process. Because the airman was able to normalize his distorted thought processes, he was able to overcome his anxiety associated with flying. He was no longer obsessed with concerns about the weather or flying conditions, and he regained confidence in his flying ability. Given that his mental and physical symptoms resolved successfully, the AMCD concluded it was unlikely

that his symptoms would relapse during flight, and there was no significant risk for incapacitation during flight, even when he encountered turbulence. Therefore, the AMCD exercised the guidance found in 14 CFR 67.401 and granted the airman a 1st-class, 6-month special issuance.

Additionally, the AMCD warned the airman that he must report any adverse changes in anxiety symptoms. Failure to report a change in status would result in removal of his medical authorization to fly. To renew the special issuance at the end of the 6-month period, the AMCD required the airman to provide a current status consultation report from his therapist noting the airman's mental health status. Further issuances were dependent upon the continued remission of the airman's anxiety symptoms.

References

1. Federal Aviation Administration. *Guide for Aviation Medical Examiners*, online at www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/; accessed 13 Nov 2008.
2. Title 14 Code of Federal Regulations Part 67.107, online at <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=a0ab66fd169cdf7c7f6304464dc52dde&rgn=div8&view=text&node=14:2.0.1.1.5.2.1.4&cid no=14>. Accessed 13 Nov 2008.
3. Ciechanowski P, Katon W. Overview of Phobic Disorders in Adults January 2008, online at www.uptodate.com/online/content/topic.do?topicKey=psychiat/2357&selectedTitle=1-150&source=search_result. Accessed 13 Nov 2008.

4. Diagnostic and Statistical Manual - Text Revision (DSM-IV-TR 2000) online at <http://online.statref.com/Document/Document.aspx?FxId=37&DocId=1&SessionId=DE4A1FMRKQMLSXZG>. Accessed 13 Nov 2008.
5. Hettema JM, Annas P, Neale MC. A Twin Study of the Genetics of Fear Conditioning. *Arch Gen Psychiatry* 2003; 60:702-8.
6. Glantz K, Rizzo A, Grapp K. Virtual Reality for Psychotherapy: Current Reality and Future Possibilities. *Psychotherapy: Theory, Research, Practice, Training* 2003; 40(1/2):55-67.
7. Kendler KS, Prescott CA, Myers J, Neale MC. The Structure of Genetic and Environmental Risk Factors for Common Psychiatric and Substance Use Disorders in Men and Women. *Arch Gen Psychiatry* 2003; 60:929-37.
8. Sareen J, Jacobi F, Cox B, et al. Disability and Poor Quality of Life Associated with Comorbid Anxiety Disorders and Physical Conditions. *Arch Gen Psychiatry* 2006; 166:2109-16.
9. Norton PJ, Price EC. A Meta-Analytic Review of Adult Cognitive-Behavioral Treatment Outcome Across the Anxiety Disorders. *J Nerv Ment Dis* 2007; 195:521-31.

About the Author. *Major Maureen Williams was a resident in Aerospace Medicine at the USAF School of Aerospace Medicine at Brooks City-Base, Texas. She based this article on a review of cases evaluated while rotating with Dr. Warren Silberman and Dr. Roger Bisson at the Aerospace Medical Certification Division at the Civil Aerospace Medical Institute. Dr. Williams wishes to thank Dr. Silberman, Dr. Bisson, and Mr. Michael Wayda for their assistance in preparing this manuscript.*

USAF Disclaimer. *The author of this article is responsible for its contents, including any clinical or treatment recommendations. No statement in this article should be construed as being an official position of the United States Air Force.*

Certification from page 4

exercised for 6 minutes and 30 seconds, attained a maximal heart rate of 138 (91% of his maximal rate), and a peak BP of 180/90. The test demonstrated reversible ischemia in the mid anterior, basal to mid inferior and basal infero-septal areas. The ejection fraction was 58%. A cardiac catheterization was done in May 2007 that showed:

- Left main: normal
- Left Anterior Descending: 30 to 50% stenosis
- Circumflex (CCX): proximal stent patent
- OM1: 95% ostial stenosis
- 80% narrowing of the CCX after the OM2
- Right coronary (dominant): 30% mid stent stenosis

- Posterior descending artery: 20% stenosis and 50% mid stenosis
- Patent intermediate artery

The airman was taking Ranexa (ranolazine) for chronic angina, but the mechanism of action for its effects is unknown. It causes prolongation of the QT interval. It was also noted that the airman had three DUI offenses from 1985 to 1989. He did not provide any history of these events, other than to say that he had not imbibed since 2005.

Should he be granted an authorization for special issuance?

Answer: No. This airman was denied for ischemia on stress testing, ongoing coronary disease, use of the unacceptable medication (Ranexa), and a history of three DUIs.

NOTES: Three DUIs in a lifetime are considered *alcoholism* until proven otherwise. An airman with this history alone would be denied and required to provide us with the court documents, a typewritten letter explaining the details of all of the DUI events, a typewritten accounting of the history of their alcohol consumption, and a substance abuse psychiatric and psychological evaluation.

Ranexa is used for chronic angina. Its main side effects are QT prolongation and dizziness. Therefore, it is unacceptable for aeromedical certification.



¹Ramamurthy G, Kerr JE, Harsha B, Tavel, ME. The treadmill test—Where to stop and what does it mean? *Chest* April 1999; 5:1166-9.

Previously Reported Means Ask Me About It!

Think about some of the times you have blindly accepted 'Previously Reported, No Change.' Would an auditor (or lawyer) know why you accepted that answer? Are you certain the FAA knows about the condition, or were you just accepting the word of the applicant?

By Dominick S. Zito, MD, MS, DRFS

HISTORY, HISTORY, HISTORY, every physician knows that a good history is almost always better than a fileful of lab tests. And that's why the front of the 8500-8 is crammed with questions about medical history. It's where we get the meat of our evaluation. So, why do so many aviation medical examiners ignore the history?

The instructions on the 8500-8 tell the applicant that it's okay to put PREVIOUSLY REPORTED, NO CHANGE "if the information has been reported on a previous application for airman medical certificate and there has been no change in your condition." Sometimes the applicants write "PRNC."

If a pilot were new to your practice, would you even think of blissfully accepting PRNC as a finished answer to "have you ever had seizures?" The surprise is that some AMEs actually do. They act as if PRNC cancels all obligation to ask further questions.

Purists may dislike PRNC, but there are many reasons for allowing such a response. Pilots are often frustrated having to write the same details year after year, AMEs don't want pilots to occupy exam rooms while filling out the form, there's a lack of space on the form, and lawyers are concerned about the liability of documenting different answers to the same question at different dates. PRNC is an answer that covers a lot of issues and makes a lot of pilots happy.

Unfortunately, what's good for the pilot is not necessarily good for the AME because the AME is obligated to perform an exam, which includes a history. With PRNC on the front, the AME gets almost no info from the 8500-8. That can be very frustrating.

And pilots often refuse to answer when you ask for details, saying "The FAA already knows."

With more and more AASIs being allowed by FAA, it is crucial for the AME to know the medical history.

Over the years, exasperated AMEs apparently have gotten into the habit of just rewriting the words PRNC in their own comments sections of the 8500-8. Then, with DIWS it became almost routine to write PRNC as a comment so they could move on to the next data field. Finally, even the AMEs started saying the FAA had already reviewed and approved whatever condition was involved, so there was no need wasting time going over it again. Wrong!

With more and more AASIs (AME-Assisted Special Issuances) being allowed by FAA, it is crucial for the AME to know the medical history. Even without the AASI aspect, an AME needs to know the history in some detail because the AME is often the applicant's only doctor. A first-class pilot who sees you routinely might think a medical exam every six months was enough doctoring. Now, imagine that pilot is also a leukemia patient who hasn't had a follow-up blood test in ten years. How does the pilot know the condition hasn't progressed or changed?

Granted, you've seen some pilots regularly for many years, and you have a complete record in your own files. Unfortunately, that doesn't absolve you from documenting details in the various comments sections of that specific 8500-8. The applicant may put down

PRNC but it's not a good answer for the AME to enter unless you also enter a precise diagnosis. And PRNC doesn't always work as an answer, especially for chronic diseases. "Tuberculosis 1998 PRNC" makes sense; "CAD PRNC" does not.

Now think about some of the times you have blindly accepted PRNC. Would an auditor (or lawyer) know why you accepted that answer? Are you certain the FAA knows about the condition, or were you just accepting the word of the applicant? Was the applicant even sure?

If there's ever a doubt about a medical history or whether the FAA is really aware of it, please call your Regional Flight Surgeon's office. The staff will help you determine what further details are necessary. When you do transmit the exam, please include a brief synopsis of all details you know— even if we do actually have a historic record of them already. It always helps to have all pertinent info on one updated sheet, especially in an emergency.

The FAA will soon be auditing all exams to ensure that there is proper follow-up to PRNC responses. The good news is that most current AMEs demonstrate excellent judgment and professionalism in this regard. This article is addressed to the few who need a simple reminder that, when pilots write "Previously Reported, No Change," what they really mean is, "Ask Me About It."



Dr. Zito is the FAA Eastern Region's Deputy Flight Surgeon.

Spasmodic Dysphonia

Case Report, by Matthew Hoefer, DO, MPH, FS

The ability to communicate with air traffic controllers and crew is of utmost importance for a pilot, especially in an air transport platform. This is the case of an Air Transport pilot with spasmodic dysphonia, eventually treated with Botulinum toxin injections and given a Medical Flight Test to ensure proficiency and compatibility with the flight environment.

SPASMODIC DYSPHONIA

Spasmodic dysphonia, or SD, is a disease of involuntary movement of the laryngeal vocal cords. The 3 pathological types are abductor, adductor, and mixed (5). Adductor spasm, the more common variant, causes the vocal cords to slam together, producing a voice that is strained, choppy, and full of effort. Abductor spasm (or non-adductor spasm) causes the vocal cords to be forced open, preventing them from vibrating together properly and resulting in a voice that is weak and breathless. Mixed dysphonia involves both types of spasm and has presentations of both. Surprisingly, these spasms are often absent during laughing or singing (1). The effect on speech is different between the two main types of SD. Adductor spasm cuts the voice short, preventing the pronunciation of longer sounds such as vowels and soft consonants such as "L" or "R." In abductor spasm, the production of sharp consonant sounds is most affected (2). Symptoms normally occur throughout the day with fluctuating degrees of severity and can be brought on by stress, which originally led clinicians to believe SD was a psychological dysfunction (6).

Presenting most often between the ages of 30-50, the diagnosis of spasmodic dysphonia is made by history and physical exam. Generally, the patient will be seen by a multidisciplinary team from speech therapy, neurology, and otolaryngology. It is necessary for a speech therapist to evaluate the function of the patient's voice and assess the ability to be rehabilitated. The neurologist's role is to rule out additional CNS causes of dysfunction that could be related or causal to speech loss. Finally, the ENT performs an endoscopic inspection of the vocal cords and larynx to assess mechanical function and rule out pathology.

Spasmodic dysphonia generally occurs in the absence of structural pathology and is thought to be caused by a malfunction in the basal ganglia. It shares many symptoms with a disorder called muscle tension dysphonia, which is a more consistent tension of the laryngeal muscles. Muscle tension dysphonia is more readily treated with physical therapy and must be differentiated from SD with a physical exam of the laryngeal musculature and vibratory quality of the vocal folds.

Initial treatment for SD may include a unilateral recurrent laryngeal nerve resection, which has shown relief of symptoms for many months to several years but has a high rate of recurrence. Botulinum injections are another shorter-acting but less invasive treatment (4). In a recent study of various focal dystonias, SD included, 77-94% of 477 patients treated with botox injection reported definite improvement in symptoms for up to 11 weeks (3).

HISTORY

A 44-YEAR-OLD male airline transport pilot first noticed mild symptoms of voice loss associated with an upper respiratory infection in February 2007. The pilot's voice cut out at the end of long sentences, which progressed within a week to difficulty projecting his voice in the cockpit and on radio transmissions. The pilot was initially diagnosed and treated by his family physician for laryngitis, with antibiotics, and then laryngeal inflammation, with steroids, with no resolution of symptoms. Some temporary resolution of voice weakness occurred after sessions with a speech therapist, but he was only able to maintain a normal voice for 1-2 days after strengthening exercises. With no obvious cause for his voice loss, the pilot was also sent for a psychological assessment, which led to a diagnosis of *adjustment disorder*. This diagnosis was made based on history, without psychological testing, and was later reversed.

In August 2007, the pilot underwent a more detailed exam and laryngoscopy (digital laryngeal stroboscopy), which showed asymmetry in the vocal folds and arytenoid musculature. Phonation was primarily closed-phase, and the mucosal wave was severely reduced. Although this exam and his history were not fully consistent with an abductor spasmodic dysphonia, the pilot elected to receive a therapeutic trial of botox injection to his larynx.

After three weeks of treatment with Botulinum Toxin A into the posterior cricoarytenoid muscle, a more comfortable voice with less raspiness and less breathing difficulty was produced. The diagnosis of spasmodic dysphonia was assumed with these results, and the pilot continued on a therapy of botox injections every 2-3 months to improve his speech.

Aeromedical Concerns. Assuming that the aviator's physical and neurological impairment is limited to spasmodic dysphonia, there is no threat that would lead to a sudden inability to operate an aircraft. The onset of SD is gradual over a period of days, with the individual being very aware of having increased limitations. Once pilots are

aware of their impairment, they should responsibly remove themselves from the flight environment, according to the Federal Regulations governing their medical certificate.

The obvious risk to an aviator is the inability to communicate with crewmembers and air traffic controllers. The limited projection and volume of a voice affected by dysphonia is dangerous in the noisy environment of a cockpit. Additionally, spasmodic dysphonia of all types prevents a pilot from forming complete and precise sentences, which is especially important in radio communications.

Outcome. This air transport pilot was followed by his aviation medical examiner throughout his treatment course and has continued to maintain his 1st-class medical certificate. His most current physical, the first exam after the diagnosis of SD, was referred to the FAA Aerospace Medical Certification Division, where his diagnosis was reviewed. The airman was granted authorization for a medical flight test, not to exceed 1-2 weeks before his next scheduled Botox injection. Results from the medical flight test are pending.

REFERENCES

1. What is Spasmodic Dysphonia? www.nidcd.nih.gov/health/voice/spasdyasp.asp. Accessed 18 Mar 08.
2. Spasmodic Dysphonia. www.dysphonia.org. Accessed 18 Mar 08.
3. Jankovic J, Schwartz K, Donovan DT. Botulinum toxin treatment of cranial-cervical dystonia, spasmodic dysphonia, other focal dystonias and hemifacial spasm. *Journal of Neurology, Neurosurgery, and Psychiatry* 1990 Vol 53, 633-9.
4. Ludlow CL, Naunton RF, Sectary SE, Schulz GM, Hallett M. Effects of botulinum toxin injections on speech in adductor spasmodic dysphonia. *Neurology* 1988; 38:1220.
5. Schaefer S. Neuropathology of. *Laryngoscope* 93(9):11 spasmodic dysphonia 83-1204, September 1983.
6. Aminoff MJ, Dedo HH, Izdebski K. Clinical aspects of spasmodic dysphonia. *Journal of Neurology, Neurosurgery, and Psychiatry* 1978, Vol 41, 361-5. →

About the author. Major Matt Hoefler is a U.S. Army Resident in Aerospace Medicine serving at the Naval Aerospace Medicine Institute, Naval Air Station Pensacola, Fla. He authored this case report while training at the Civil Aerospace Medical Institute.

Cryptogenic Stroke With Patent Foramen Ovale

Case Report, by Katrina D. Hall, MD, MPH

Nearly 40% of ischemic strokes have no clearly identifiable etiology and are classified as cryptogenic. A high number of patients experiencing cryptogenic strokes are found to also have a patent foramen ovale. This article reviews the issues surrounding medical certification of an airman with a diagnosis of cryptogenic stroke and patent foramen ovale.

HISTORY. A 46-year-old male airline pilot presented with left-sided paralysis, left facial droop, and slurred speech with presumptive diagnosis of Transient Ischemic Attack (TIA). He was hospitalized and evaluated for neurological and cardiovascular etiologies.

Symptoms completely resolved over a 3-hour period. Neurological evaluation, brain MRI, and MRA of intracranial circulation were all negative. Cardiovascular work-up, which included transesophageal echo, revealed a patent foramen ovale (PFO), resulting in

Continued on page 11

Etiology of Disease. Nearly 40% of cerebral infarction cases can not be classified into an identifiable cause, despite a complete diagnostic work-up; these cases are subsequently categorized as cryptogenic (Sacco, 1989). There have been a number of studies conducted to identify similarities within those characterized as cryptogenic. In 2002, Grau et al. investigated pulmonary venous thromboses (PVT) as a possible source of brain embolism in cryptogenic strokes. They used high-resolution magnetic resonance angiography (MRA) to investigate pulmonary vasculature to identify a source (Grau, 2002). Unfortunately, studies such as this are limited due to scan volume and delay between ischemia and actual MRA.

Another area of interest is the relatively high prevalence of PFO in cryptogenic stroke patients. Recent studies suggest that a number of cryptogenic stroke patients also have a PFO. In their meta-analysis published in 2000, Overall et al. conducted a review of retrospective studies evaluating the association of PFO and stroke and showed patients less than 55 years of age had a 6 times greater prevalence of PFO than those of other forms of stroke (Overall, 2000). More recently, Handke et al. also concluded after multivariate analysis that the prevalence of PFO was significantly greater in cryptogenic stroke patients less than age 55, as opposed to stroke patients less than 55 years of age with stroke of other etiologies (43.9% vs. 14.3%; odds ratio [OR] 4.7; 95% confidence interval [CI], 1.89 to 11.68; P<0.001) (Handke, 2007). Though to a lesser degree, this finding is consistent in older patients as well— 28.3% vs. 11.9%; OR 2.92; 95% CI, 1.7 to 5.01; P<0.001) (Handke, 2007).

The presumed pathogenesis is migration of a thrombus from the venous side of circulation to the left atrium through a patent foramen ovale. An alternative mechanism for migration occurs when right atrial pressure exceeds left atrial pressure. Acute pulmonary embolism is the most common cause of right-to-left shunting through a PFO (Lambert, 2004). The incidence of paradoxical embolism has been estimated to be as high as 60%. (Loscalzo, 1986); however, proof of a direct cause-and-effect relationship is difficult for two main reasons: the relatively high prevalence of PFO in all subtypes of stroke and the low likelihood of finding a source of thrombus for paradoxical embolism due to their relatively small sizes (<1-2mm), which are beyond the resolution of most trans-esophageal echocardiograms (Lambert, 2004).

Despite clear proof of cause and effect, retrospective studies suggest that there are a number of clinically identifiable risk factors for recurrent stroke associated with PFO: large PFO opening, large left-right shunting with activity and /or at rest, presence of atrial-septal aneurysm, and acute pulmonary embolism (Lambert, 2004). Given the number of identifiable risk factors associated with PFO, treatment options range from anticoagulation to surgical closure. In a review of retrospective studies, researchers have found that surgical closure was superior to alternative methods treatment (OR 0.27, 95% CI, 0.23-0.6; Orgera, 2001); however, surgical repair is not without risks. Additionally, with surgical repair there is no guarantee against stroke recurrence; recurrence rates after closure range from 0% to 19.5% (Lambert, 2004).

Who You Gonna Call? Current Information for Calls to the Aerospace Medical Education Division

By Janet E. Wright, M.A.

OVER THIS PAST YEAR, there have been several changes in the Aerospace Medical Education Division staff. Some of you may have been frustrated by no longer knowing who to call for what. Two of our longtime employees, **Ridge Smith** and **Sharon Holcomb**, have retired, leaving very big shoes to fill.

Bobby Ridge, who was our Program Analyst for the International/Federal/Military aviation medical examiners (AMEs), was promoted to a newly acquired position as Lead AME Program Analyst, a function she had long been filling without the official billet. Filling these openings caused a significant domino effect, so things have been really scrambled here.

The following is an alphabetical list of all Aerospace Medical Education Division personnel, their phone numbers, E-mail addresses, and a brief description of their responsibilities. We inappropriately receive many calls relating to medical certification issues, so the Aerospace Medical Certification Division's contact numbers are also listed. Feel free to copy this list and keep at hand for rapid access (all phone numbers are in area code 405).

• **Amber Brandly** (amber.brandly@faa.gov; 954-6205) – Office Administrator for the Division. Ms. Brandly will assist you if you have been unable to reach someone or are unsure of who might help you.

• **Susan Buriak** (susan.e.buriak@faa.gov; 954-4378) – Program Manager, Quality Assurance and Curriculum Development. Ms. Buriak manages Quality Assurance and data collection activities, curriculum development, and implementation of technology solutions.

• **Deanie Davis** (deanie.davis@faa.gov; 954-4257) – AME Records clerk. Ms. Davis manages the mountains of paperwork required for designees. She interacts with the Regions in making

sure that all documentation is complete and accurate.

• **Leah Olson** (leah.olson@faa.gov; 954-4832) – International/Federal/Military AME Program Analyst. Ms. Olson manages AME designations, terminations, and support for International, Federal, and Military AMEs.

• **Denise Patterson** (denise.patterson@faa.gov; 954-4830) and **Barb Ross** (barbara.j.ross@faa.gov; 954-4258) – Training Assistants, AME Programs. Ms. Patterson supports basic seminars, CAPAME, and MCSPT. Ms. Ross primarily supports theme seminars and specialty seminars for military flight surgeons. Both are great resources for questions regarding training.

• **Bobby Ridge** (bobby.ridge@faa.gov; 954-4829), Senior AME Program Analyst. Ms. Ridge heads a team of program analysts from all regions who manage the AME program at the regional level and who monitor AME performance and field offices for compliance with FAA requirements. She will also manage a new congressionally-mandated program for AME surveillance.

• **Rogers Shaw** (rogers.v.shaw@faa.gov; 954-6212) – Team Lead, Airman Education Program. Mr. Shaw leads the instructors of Aviation Physiology, Global Survival, and Human Factors courses. This team consists of:

• **Larry Boshers** (larry.boshers@faa.gov; 954-7767)

• **J.R. Brown** (junior.brown@faa.gov; 954-6211)

• **Don Demuth** (donald.demuth@faa.gov; 954-6207)

• **Eric Simson** (eric.simson@faa.gov; 954-6198)

• **Roger Storey** (roger.storey@faa.gov; 954-6209)

• **Gary Sprouse** (gary.sprouse@faa.gov; 954-4831) – Distribution Specialist. Mr. Sprouse is primarily responsible for distributing forms and brochures to requesting AMEs. He also handles the Multimedia Aviation Medical Examiner Refresher Course (MAMERC).

• **Kathy Wade** (kathy.wade@faa.gov; 954-4398) – Librarian, and **Roni**

Anderson (roni.anderson@faa.gov; 954-8231) – Library Assistant

Both Ms. Wade and Ms. Anderson offer library resources pertaining to aerospace medicine or human factors topics.

• **Mike Wayda** (mike.wayda@faa.gov; 954-6208) – Writer/Editor. Mr. Wayda publishes the *Federal Air Surgeon's Medical Bulletin* and produces other publications for the Civil Aerospace Medical Institute, including pilot safety brochures available for the public.

• **Jan Wright** (janet.wright@faa.gov; 954-4803) – Team Lead, AME Program. Ms. Wright manages all aspects of AME seminars, develops training programs, and is responsible for the Continuing Medical Education accreditation processes.

• **Richard F. Jones, MD** (richard.f.jones@faa.gov; 954-6205) – Dr. Jones manages the Aerospace Medical Education Division and is also the Regional Flight Surgeon for International, Federal, and Military AMEs. Feel free to contact him with feedback any time you need to.

• **AMCS help desk** (9-amc-aam-certification@faa.gov; 954-3238) — Call here only if you are having problems logging onto or using the Aerospace Medical Certification Subsystem. *Please do not call this number for help with medical certification questions!*

MEDICAL CERTIFICATION QUESTIONS can be answered at 954-4821. Use this number if assistance is needed on an airman examination. This is a heavily used number, so you may need to leave a message, but someone will get back to you ASAP.

Of course, most of the time the most expeditious service can be obtained by calling your Regional Flight Surgeon's office if you have any questions about the AME program, airman examinations, training, or AME designation. These numbers are posted online at www.faa.gov/licenses_certificates/medical_certification/rfs/.



clip & save ✂

STROKE from page 9

a recommendation for closure. Other than having elevated blood levels of homocystiene, there were no other identifiable risk factors (cardiologic, hematologic, or otherwise).

Within 30 days of his initial insult, the airman underwent a percutaneous PFO closure using an 18mm PFO occlusion device, followed by anticoagulation therapy. He had an uneventful recovery with close follow-up and no recurrence of symptoms. Subsequent echocardiogram 1 year post-procedure revealed stable device position and no evidence of right to left shunt; consequently, he was taken off anticoagulation therapy. He applied for recertification a year after the event.

Aeromedical Concerns

The primary aeromedical concern with this and any other ischemic event is sudden incapacitation. Ischemic events of unknown origin or "cryptogenic" are concerning because of the difficulty in modifying risks that are unknown. Although there have been no definitive studies that establish a clear cause-and-effect relationship between PFO and stroke, in patients found to have a PFO, surgical correction of the defect is accepted as an identifiable cause. These airmen are usually recertified if they have been cleared by a neurologist as having full motor, sensory, language, and intellectual function with no residual deficits.

An additional concern is that of deep vein thrombosis as a source of a thromboembolism. Although this airman had no evidence of a hypercoagulable condition, he is at a mildly increased risk of deep vein thrombosis due to his occupation of high-altitude flight for extended periods of time. He was encouraged to ambulate and wear support type hose or socks during long flights as a precautionary measure, when possible.

Outcome. One year post-surgical closure and review of echocardiogram demonstrating successful closure, the airman was taken off anticoagulation therapy. He received a full neurological evaluation to include MRI, MRA, and selective arteriogram to rule out stenosis of right middle cerebral artery. All

studies were normal. The airman was granted a 1st-class medical certificate with a warning for any symptoms or future neurological deficits. This airman remains symptom-free to date.

References

- Grau, AJ, Schoenberg, SO, Lichy C, et al. Lack of evidence for pulmonary venous thrombosis in cryptogenic stroke. *Stroke* 2002;33:1416-19.
- Handke M, Harloff A, Olschewski M, et al. Patent foramen ovale and cryptogenic stroke in older patients. *New England Journal of Medicine* 2007;357-2262-8.
- Homma S, Tullio MR, Sacco RL, et al. Surgical closure of patent foramen ovale in cryptogenic stroke patients. *Stroke* 1997;28:2376-81.
- Lambert AW, Malouf JF, Dearani JA, et al. Patent foramen ovale in cryptogenic stroke. *Archives in Internal Medicine* 2004;164:9.

Loscalzo J. Paradoxical embolism: Clinical presentation, diagnostic strategies, and therapeutic options. *American Heart Journal* 1986;112:141-5.

Mokhtar Y. Cerebrovascular disease and risk of stroke. *The Doctor's Lounge.net* www.doctorslounge.com/primary/articles/stroke_risk/strokerisk11.htm; accessed 14 March 2008.

Orgera MA, O'Malley PG, Taylor AJ. Secondary prevention of cerebral ischemia in patent foramen ovale: Systemic review and meta-analysis. *South Medical Journal* 2001; 94:699-703.

Overall JR, Bone I, Lees KR. Interatrial septal abnormalities and stroke: A meta-analysis of case-control studies. *Neurology* 2000;55:1172-9.

Sacco RL, Ellenberg JH, Mohr JP, et al. Infarcts of undetermined cause: The NINCDS stroke data bank. *Annals of Neurology* 1989;25:382-90.



About the author. MAJ Katrina Hall, MD, MPH, USA, FS, is a U.S. Army Resident in Aerospace Medicine at the Naval Aerospace Medical Institute, Pensacola Naval Air Station, Florida. She wrote this case report while in training at the Civil Aerospace Medical Institute.

Aviation Medical Examiner Seminar Schedule

2009		
March 2 – 6	Oklahoma City, Okla.	Basic (1)
May 3 – 7	Los Angeles, Calif.	AsMA (2)
June 5 – 7	San Antonio, Texas	CAR (3)
July 20 – 24	Oklahoma City, Okla.	Basic (1)
August 7 – 9	Washington, D.C.	N/NP/P (3)
October 14 – 17	Rochester, Minn.	CAMA (4)
November 2 – 6	Oklahoma City, Okla.	Basic (1)
November 20 – 22	Seattle, Wash.	OOE (3)

CODES

AP/HF Aviation Physiology/Human Factors Theme

CAR Cardiology Theme

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

OOE Ophthalmology-Otolaryngology-Endocrinology 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 3½-day theme AME seminar held in conjunction with the Aerospace Medical Association (AsMA). Registration must be made through AsMA at (703) 739-2240. A registration fee will be charged by AsMA to cover their overhead costs. Registrants have full access to the AsMA meeting. CME credit for the FAA seminar is free.

(3) 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.

(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.

Index of Articles Published in the Bulletin During 2008

ARTICLE	VOLUME	PAGE
[Are You] Inactive? By Jana Weems -----	46-3	5
AME Satisfaction Survey, by Katrina Avers, PHD -----	46-4	12
AME Training Changes Initiated (Editorial), by Fred Tilton, MD -----	46-1	2
An MI in the Sky, by Tom Cruse -----	46-4	1
Antuñano, Dr. M: Federal Executive Board Award to, by James Whinnery, PhD, MD -----	46-2	10
Barson, Dr. John: New Flight Surgeon in Southern Region, by Sheila Gibson -----	46-1	10
Bernardini, Dr. James: Passes, by Mike Wayda -----	46-4	4
Berry, Daniel K: Central Region's New Deputy RFS, by Barbara Stoker -----	46-4	7
Brain "Incidentaloma" (Case Report), by Eric A. Nelson, MD, MPH -----	46-1	6
Breslow Level Question (Letter to the Editor), by Bill Padgett, MD -----	46-1	7
CAMI Acquires Helicopter Training Device, by Mike Wayda -----	46-2	10
Carotid Artery Dissection (Case Report), by Jeffrey Lawson, MD -----	46-2	6
Common ECG Insufficiencies (Certification Update), by Warren S. Silberman, DO -----	46-1	4
ECG Issues; How to Print Certificates (Certification Update), by Warren S. Silberman, DO -----	46-2	4
Dangers of Taking Herbs (Letter to the Editor), by Harry Wander, MD -----	46-3	11
Denial Letters (Quick Fix), by Dick Jones, MD -----	46-1	1
Diabetic Pilot Jailed for Withholding Facts, by Mike Wayda -----	46-2	12
FAA Aviation News to Feature FAA Aerospace Medicine, by James Williams -----	46-4	5
FAA Form 8500-8 New GG-Series (Quick Fix), by Dick Jones, MD -----	46-3	1
Five Medical Conditions That Allow AMEs to Issue (Certification Update), by Warren Silberman, DO -----	46-3	4
Forms and Publication Services Rejuvenated, by Mike Wayda -----	46-2	9
GG Is Coming (Editorial), by Fred Tilton, MD -----	46-2	2
Hatley, Dr. Thomas: New Occupational Health Division Manager, by Mike Wayda -----	46-1	10
Hypertension in Naval Air (Letter to the Editor), by Bill Padgett, MD -----	46-2	11
International Aero-Medical Examiner Seminar Announced, by Dick Jones, MD -----	46-2	12
International AMES Unite...And Transmit (Quick Fix), by Dick Jones, MD -----	46-2	7
International AMEs: A Reminder, by Bobby Ridge -----	46-1	10
International Rules Conflicting (Letter to the Editor), by Brett Elliott, MD -----	46-4	3
It's On the Street (Editorial), by Fred Tilton, MD -----	46-3	2
Johnson, Dr. Robert: Selected as New CAMI Deputy, by Mike Wayda -----	46-4	7
Magnetic Strip on Pilot License? (Letter to the Editor), by William Krass, DO -----	46-3	3
Medical History Forms (Quick Fix), by Dick Jones, MD -----	46-3	10
MedXPress "Positively" Works (Letter to the Editor), by Robert Speakman, MD -----	46-4	3
Migraine With Aura (Case Report), by Craig Packard, MD, MPH -----	46-3	8
Myasthenia Gravis Case Report, by David R. Trigg, MD, MPH -----	46-2	5
New Forms; Medical Certificates (Certification Update), by Warren S. Silberman, DO -----	46-4	4
Normal ECG Variants -----	46-3	5
On Testing at AME Seminars, by Carlos Diaz, MD (Letter to the Editor) -----	46-3	3
Ordering Forms (8500-series), by Gary Sprouse -----	46-3	1
Osteogenic Sarcoma: Aeromedical Implications, by Paul H. Nelson, MD, MPH -----	46-3	6
Our Profession, Our Responsibilities, by Susan Northrup, MD -----	46-2	1
Pilots Are Welcome Here, by Fred Tilton, MD -----	46-3	12
Precious Moments, by Focus FAA -----	46-1	8
Quick Fix (Times 3), by Dick Jones, MD -----	46-4	1
Regional Enteritis (Case Report), by Randy J. Guliuzza, MD, PE, MPH -----	46-1	5
Retinitis Pigmentosa in a Naval Aviator (Case Report), by Sean Hollonbeck, MD, MPH -----	46-4	8
Three-Year Designations for AMEs, by Dick Jones, MD -----	46-3	5
Tilton, Dr. Fred: The Daring Adventures, by Focus FAA -----	46-2	8
To Test or Not to Test (Quick Fix), by Dick Jones, MD -----	46-2	1
Vasovagal Syncope (Case Report), by Howard Givens, MD -----	46-4	10
Weems, Jana: 2007 CAMI Employee of the Year, by Mike Wayda -----	46-1	10
What the FAA Expects of Its Aviation Medical Examiners, by G.J. Salazar, MD -----	46-1	1
You Want Me to Do What? (Editorial), by Fred Tilton, MD -----	46-4	2