Federal Air Surgeon's
Medical Bulletin

Aviation Safety Through Aerospace Medicine

Vol. 41, No. 3
Fall 2003

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

HEADS UP

Customer Service Connection Defined

New Initiative Provides Clear Guidance and Expectations About Regulatory Relationships

By Arleen Saenger, MD, MS

In a speech to the Aero Club of Washington on February 20, 2003, Administrator **Marion C. Blakey** announced a new customer service initiative (CSI) developed by **Nicholas A. Sabatini**, Associate Administrator for Regulation and Certification (AVR). This initiative addresses what customers can expect when doing business with any AVR office and what we ask of our customers in return. The Office of Aerospace Medicine is a member of the AVR organization and participates fully in the AVR customer service initiative.

GOALS OF THE CUSTOMER SERVICE INITIATIVE

1. To promote a positive environment for dealing with the public – our customers have a right to ask for a review of a certification decision without fear of retribution.
2. More consistency and fairness in FAA certification decisions. This requires setting and adhering to clear expectations for dealing with applicants and certificate holders who disagree with certification decisions. These expectations are outlined in AVR's customer service principles.

WHAT OUR CUSTOMERS CAN EXPECT FROM US

- Service that promotes a safe, secure, and efficient aviation system
- Considerate, respectful, and professional service
- A clear explanation of the requirements, alternatives and possible

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New *AME Guide* Available On-Line

User-Friendly, Efficient Tools Help AMEs Navigate Rules and Procedures—Everything Needed to Make Timely and Accurate Medical Certification Decisions

By Kelly Spinner

On October 1, 2003, the Office of Aerospace Medicine introduced the revised *2003 Guide for Aviation Medical Examiners*. The 2003 *Guide* replaces the 1999 *Guide*. It is accessible on the Internet at:

http://www2.faa.gov/avr/aam/Game/Version_2/03amemanual/home/home.htm

In keeping with our goal of the delivery of "same-day certification" for airmen, the revised and redesigned *Guide* provides you, the Examiner, a user-friendly, electronic format in which to view the regulations, examination procedures, case disposition guidelines, and disease protocols necessary to obtain the medical information required for an aeromedical certification determination.

Significant items that deserve special attention are:

Guidance for Positive ID of Airmen. Guidance for the Positive Identification of Airmen is a security-related initiative.

Aerospace Medical Disposition Tables. These tables provide specific disease/condition certification criteria (i.e., protocol) and your certification course of action (i.e., disposition). When the disposition states, "Requires

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New Initiatives to Improve Customer Service

Elsewhere in this issue of the *Bulletin,* you will find the announcement of a new Federal Aviation Administration (FAA) customer service initiative. While we in FAA have numerous customers, this initiative is directed at persons who do business directly with the various organizations under the direction of FAA's Associate Administrator for Regulation and Certification. As pointed out in the article, the Office of Aerospace Medicine (OAM) is one of those organizations.

Together with improving and maintaining aviation safety, providing good customer service is the motivation for many OAM initiatives that relate to airman medical certification. Although perhaps not identified explicitly as such, customer service has also been the theme of a number of the articles I have written for previous issues of the *Bulletin*.

Federal Air Surgeon's Medical Bulletin

Library of Congress ISSN 1545-1518

Secretary of Transportation
Norman Y. Mineta

FAA Administrator
Marion C. Blakey

Federal Air Surgeon
Jon L. Jordan, MD, JD

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:* http://www.cami.jccbi.gov/AAM-400A/fasmb.html

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

The Federal Air Surgeon's Column

By Jon L. Jordan, MD, JD

Airmen comprise the OAM's largest group of customers who do business directly with the FAA. There are approximately 613,000 active pilots in the United States, all of whom are required to periodically undergo medical examinations. Each year, we receive and process about 450,000 examination reports. All of the medical examinations involve direct contact between AMEs and airmen, and the results of a significant number of those examinations require interactions between airmen and FAA employees.

Currently, almost all of our customer complaints relate to the airman medical certification system and the time it takes us to process cases that involve significant medical problems. A large number of these complaints are valid and I have to agree that the time it takes us to reach a decision in some cases is unacceptable.

As I have often said, there are reasons for certification delays. These include the large number of extremely complex cases presented to us, our willingness to consider for certification almost any medical condition, our continuing transition from a paper-based system to electronic processing of applications and medical data, and limited resources to carry out our tasks. While these may be good reasons, they are little comfort to the airmen who must wait for decisions.

In our attempts to provide better customer service, we have initiatives underway with which most of you are familiar. Although, as expected, the institution of the electronic processing of certification cases is currently presenting some transitional problems, the system is enhancing the quality of our work and will be a major contributor to improved customer service. Additional actions we have taken to make the system work faster for airmen include the intermittent detail of our regional personnel to the AMCD, greater involvement of all of our regional offices in the certification process, and greater delegation of certification authority to AMEs. In addition, a "Tiger Team certification blitz" was organized by Dr. **Silberman** that involved a week-long concentrated effort by volunteer physicians from various parts of OAM to process cases that were backing up as a result of Dr. Boren's call to active military duty. Almost 1,000 cases were processed during this "blitz," and another one is being planned. In a nutshell, everyone is pitching in.

Another initiative we're considering relates to the clarity of the special issuance letters we send to airmen. Those letters become very complicated because they must meet certain legal criteria and because of the special monitoring conditions that are necessary for safety. The result is a letter that is sometimes confusing not only to the airman but also to the examining physician or AME who attempts to assist the airman in providing the right information in the specified timeframes. We hope to develop a more easily understood format for these letters.

While we have done a lot to reduce the log-jamb in certification, more needs to be done and we look to AMEs for more help.

As announced in this issue of the *Bulletin,* we have published a new electronic Internet version of the *Guide for Aviation Medical Examiners*. The new *Guide* incorporates all of our published certification policies, and you should find it much easier to use than the old hard-copy version. Familiarizing yourself with the new *Guide* will give you the tools you need to play a more prominent role in the early certification of airmen. In the interest of service to our airman customers, please take advantage of the opportunity.

JLJ

Certification Issues and Answers

By Warren S. Silberman, DO, MPH

Here we are again, time for another column! In the summer 2003 *Bulletin,* I mentioned our newest medical review officer, Richard M. Carter, DO, MPH. His training is coming along quite nicely. He has been reviewing quite a few of your cases. Our continued goal is to get him at a level where he can answer phone calls in the next several months.

Well, **Henry Boren**, DO, has rotated out of the desert and is back home from USAF active duty. He is back at work in AMCD, and we are quite happy over his safe return and overjoyed that he has returned to his position in Aerospace Medical Certification.

As for our ongoing trials of developing the Document, Imaging, and Workflow System, we have now placed all letters of the alphabet into Workflow. This means that all hard-copy material to support airman certification decisions or initiate waivers is being scanned after it comes through the mailroom. We still have some 14,000 cases that are in hard-copy form that we must work. Mandatory overtime has been initiated to expedite the completion of these cases. Please continue to be patient with us while we continue through this transition period.

New policy. I would like to announce a policy change. Under revised guidance, we are granting medical certification to airmen who have a definitive diagnosis of lacunar cerebral infarction. The airman will now be able to return to flying after one year, versus the two years for all other cerebrovascular events. This assumes that the applicant's neurological signs have returned to normalcy and the applicant is receiving proper treatment for hypertension. Note: Applicants who have had a stroke are required to have a complete cardiovascular evaluation, maximal Bruce stress test, 2-D echocardiogram, and bilateral carotid ultrasound prior to being considered for medical certification.

Medications. I am going to continue to present cases that pertain to medical certification of various. *Please note:*

- An aviation medical examiner may not issue a time-limited medical certificate (authorization for special issuance) without verbal or written permission from the Federal Air Surgeon, your Regional Flight Surgeon or the Aerospace Medical Certification Division.
- As a reminder to senior AMEs who transmit first-class electrocardiograms, it is not necessary to also send the hard copy of the ECG.

Certification Issues (Answers are on page 4)

1 Moe Dzuba, a 70-y/o 3rd-class airman, struggles with insomnia. His helpful treating physician gave him a prescription for *Ambien* (zolpidem), which he takes at least 3 times per week. He goes to his AME and lists this medication in Block 17 a on the Form 8500-8. His AME knows that this is a relatively safe drug that is reportedly out of the system within 4 hours, so he issues him a medical certificate. What do you all think about this? (Answers are on page 4.)

2 Sammy Montezuma, a 25-y/o student pilot airman from New Mexico, comes to the AME's office requesting a 3rd-class medical certificate. He mentions in his history that he has ulcerative colitis and provides a current status report that is favorable. He takes *Asacol* (mesalamine) with no side-effects. He also mentions that he takes *Lomotil* (diphenoxylate), 1 tablet twice a day to control his diarrhea. The AME issues him his medical certificate. Anything catch your attention on this one?

3 "Bubba" Billy J. Clanton, a 2nd-class airman who flies for a large commercial air cargo outfit, was being treated for gout. He had developed a uric acid kidney stone that had passed some two months prior to his current FAA medical exam. A subsequent X-ray demonstrated a 4 mm retained stone in the mid-portion of the collecting system. He presents to his AME with the history of being on Allopurinol. The AME grants him his medical certificate. The AME recalled that he has had airmen on this medication in the past and that Oklahoma City had allowed him to issue. Was the AME correct in his decision?

4 An obese airman is taking Meridia (sibutramine hydrochloride monohydrate) to lose weight. He desires a 3rd-class medical certificate. He brings a letter from his treating physician that properly states his current medical status, along with electrolyte and blood sugar levels. As his aviation medical examiner, what should be the proper management of his case?

An airman goes to her AME for 1st-class privileges as an airline transport pilot. Since she has been feeling "down in the dumps" lately, she began taking the herbal remedy *St. John's Wart.* She noted an improvement in her mood, and because she heard somewhere that the FAA accepts herbal medications, she continued the medication. So, what certification action do you make in this case?

5 An airman with known hypertension is placed on an investigational medication as part of a study group that his clinic is associated with. He goes to you for a 2nd-class medical certificate. The airman brings a current favorable cardiovascular evaluation, lipid panel, and blood sugar, as well as a current negative ECG. Your nurse notes a blood pressure of 120/70 sitting. What should you do?

6 Sherman Holmes is a private investigator who flies his plane for recreation. He is troubled with muscle contracture headaches that arise in the upper cervical spinal musculature. His treating physician, Dr. Watson, who is a bit conservative, places him on the medication Soma (carisoprodol) for pain relief. This medication is a muscle relaxant. The airman gets relief from this and subsequently presents for a 3rd-class medical certificate. The AME issues an unrestricted medical certificate for 3rd-class privileges. Was this correct?

Continued on page 4

Dr. Silberman manages the Civil Aerospace Medical Institute's Aerospace Medical Certification Division.

8 The next airman has chronic myleogenous leukemia (CML) and was placed on the new medication Gleevec (imatinib). This medication was approved by the FDA around May 2001 and appears to be tolerated quite well. The airman feels fine and has not experienced any side effects. He goes to his aviation medicine examiner, who not being certain about the policy, phones the physician of the week (POW) at the Civil Aerospace Medical Institute. He informs the AME to _____ (fill in the blank).

9 A 65-y/o airman desiring a 3rd-class medical certificate has a history of angina pectoris, angioplasty, and stent insertion. His medication regimen includes atenolol, a beta blocker, and isosorbide tablets. As a sharp AME, do you think there might be a problem getting this airman a medical certificate?

10 Clem Kadidilehopper, MD, MPH, JD, is an AME and the treating physician for a 2nd-class airman, Ferman M. Thurm. Mr. Thurm is, to put it bluntly, obese. Dr. K. has tried numerous things to assist his patient to lose weight. Presently, he has him on Glucophage (metformin) as a weight-reducing agent. Being the sharp AME that he thinks he is, he knows that this medication is not being used for glucose control, so he issues his airman an unlimited 2nd-class medical certificate. Do you have any issues with this?

Answers to Certification Issues Answers to Certification Issues Answers to Certification Issues

1 *Ambien* is a sedative, and if you were familiar with page 22 in the *Guide for Aviation Medicine Examiners,* you would know that as an aviation medical examiner, you are to defer! The mean Ambien elimination half-life is 2.6 hours. The AMCD has allowed the use of this sedative— providing the airman is not taking it more than twice a week. It cannot be used for circadian adjustment. An airman should not operate an aircraft for 24 hours after taking Ambien (*Guide, Oct. 1999, p. 22).*

2 *Lomotil* is an antispasmodic and synthetic opiate derivative. It is unacceptable for use under any circumstances. The AMCD has allowed the use of Immodium (loperamide) in low-dose amounts to control diarrhea. The issue in the use of *Immodium* is the medical condition for which it is being taken (*Guide, pp. 51-52).*

3 No, he was incorrect in his decision! The basic medical condition (gout) is acceptable as is the medication (allopurinol). However, the issue here is the retained stone! Retained stones larger than 2 mm in the mid- and upper-collecting system are generally unacceptable for certification. So, in this case, it is not the medication that is the issue, it isthe retained kidney stone (*Guide, p. 55).*

4 The medication *Meridia* is unacceptable for flight duties. It is a potent inhibitor of serotonin and norepinephrine reuptake. It can cause headache, tachycardia, vasodilatation, dizziness, nervousness, depression, somnolence, CNS stimulation, and emotional lability. Thus, it is unacceptable for flight duties. The only medication for the management of diet that is acceptable for flight is Xenical (orlistat). The FAA does accept dieting for weight reduction, as well as gastric bypass surgery. As for gastric bypass, the airman must be at least 3 months post-operative, with no complications and demonstrate metabolic balance with blood sugar, electrolyte, serum calcium, and phosphorous levels (AMCD internal policy).

5 The FAA does not prohibit the use of most herbal remedies; however, since *St. John's Wart* can be used to relieve the symptoms of "depression," prior to issuing a medical certificate you should question the airman about the signs/symptoms of this condition. Should the airman give a positive history, I would not grant issuance and suggest an evaluation for depression (*Guide, pp. 28, 68, 70).*

6 You may not issue a medical certificate! The FAA does not accept investigational medications for use during the performance of flight duties (*Guide, pp. 22, 96).*

7 No it was not correct. *Soma* is a muscle relaxant with sedative properties, and thus is not acceptable. Mr. Holmes will have to use some other medication or alternative therapy (*Guide, p. 22).*

8 As we have mentioned in the past, *the first thing you must consider is the medical condition.* In the case of CML, the POW needs to know when and how the diagnosis was made, the current status of the airman, what other treatments were received, and whether there have been any side effects caused by Gleevec. The AMCD would also like a current complete blood count. Gleevec was approved for airmen of all classes in May 2002. An airman who has had a blast crisis will not generally be granted medical certification, as there is a 30% increased likelihood of recurrence after this occurs. Follow-up evaluations are required every 6 months at this time. This will result in an authorization for special issuance (*Guide, p. 46).*

9 Yes, there is going to be! The AMCD does not accept the use of long- acting nitrates because they may mask the symptoms of angina. Any suggestion of ongoing ischemia is not acceptable for flying duties (*Guide, pp. 45, 47).*

10 Yes, you should have issues with this. I came across this one some months ago. I must admit, I scratched my head and said to myself, "It kind of sounds logical" about using Glucophage (Metformin, an oral hypoglycemic) as a weight-reducing agent. So, I checked, but I could not determine that Glucophage has been approved by the FDA for weight reduction. Glucophage has been shown to improve insulin resistance. It can actually cause weight gain! Interestingly, the medication rosiglitazone (Avandia) can cause hypoglycemia if used by a "normal" individual. At the current time, if a drug is not FDA-approved for use in a particular medical condition, it is not acceptable to the FAA. As a result of an increase in these cases, we have had some preliminary discussions. Since metformin has not been demonstrated to cause hypoglycemia in a "normal" individual and since there appears to be no safety of flight issues here, the Office of Aerospace Medicine is reconsidering allowing this situation. We would likely want the reason (documentation) for the oral hypoglycemic agent in these cases to be for "improved insulin resistance," rather than weight reduction. Needless to say, Dr. K. will need to find a different way for Mr. Thurm to lose weight.

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QUICK FIX

Medical Histories

By Richard F. Jones, MD

Problem: There are three common ways that aviation medical examiners (AMEs) are getting into trouble because of poor history taking and recording of history on FAA Forms 8500-8, Application for Airman Medical Certificate or Airman Medical and Student Pilot Certificates:

1. Not ensuring that airmen respond to all questions in items 17, 18, and 19.
2. Incomplete or absent comments in Block 60 explaining all positive history answers and physical findings.
3. Failure to reference all comments in Block 60 by item number and to list disqualifying defects by item number in Block 63.

Result: Many AMEs are receiving error letters that could be avoided if more attention was paid to history taking. When the "hard copy" of all FAA Forms 8500-8 is received at the Aerospace Medical Certification Division (AMCD), the front of the form is examined for any questions not answered by the airman. If the same answers are not blank on the transmitted version of the form, an error letter is generated for the AME. More commonly, positive answers by airman and physical findings annotated on the back of the examination form are simply not commented on in Block 60 by the AME, or the comments are so incomplete as to be of little value to the reviewer, so an error letter results. It has been our experience that airmen who don't answer questions on the front of the form do so because they have questions for the AME that are often items of history that are important for the AME to understand before making an aeromedical disposition. Requests for additional information from airmen cause significant workloads to the AMCD and frustration for airmen.

The third common problem with medical histories relates to the proper use of Blocks 60 and 63. Sometimes the AME determines that a positive history or physical finding warrants a deferral, but fails to index comments in Block 60 by item number or to record the item number of the disqualifying defects in Block 63. If these item numbers are omitted, the computer application cannot correlate deficiencies in the examination with the reason for deferral, so an error might be assessed. We still consider this to be an error due to the AME failing to follow guidance on the use of Blocks 60 and 63. These errors also cause additional workload to AMCD because these cases require manual review.

Solution: Each AME must review the front of the FAA Form 8500-8 as part of taking a medical history. The AME should insist the airman answer all questions before proceeding with the examination. ALL positive answers to questions on the front of the examination form must be fully discussed by the AME in Block 60. The only exception is when the answer has been discussed fully on a previous examination and the AME has taken enough history during this visit to be able to conscientiously record "previously recorded, no change" in Block 60. Likewise, Block 60 is used to discuss the significance of physical findings recorded on the back of the form. It is particularly important to explain the association between abnormal histories or physical findings and any SODA or Special Issuances. Finally, if the case must be deferred or denied for any reason, the item number of the defect that led to the disposition MUST be recorded in Block 63.

If all AMEs followed the simple guidance above, a substantial number of errors and error letters would be eliminated. The result would be improved timeliness of certification actions in the AMCD due to reduced workload and increased satisfaction with our services by airmen.

Dr. Jones manages the Civil Aerospace Medical Institute's Aerospace Medical Education Division.

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FAA Decision," you may DEFER, **or** if all requested medical information is available, you may contact your regional flight surgeon (RFS) or the Aerospace Medical Certification Division (AMCD) for a possible immediate aeromedical determination. (Be advised that some cases may require further review by the RFS/AMCD, or may require a review by a Federal Air Surgeon specialty panel for an aeromedical determination.)

Disease Protocols. These protocols identify the medical information necessary to determine the applicant's eligibility to be medically certificated.

Introduction of the Aviation Medical Examiner-Assisted Special Issuance (AASI). For third-class applicants only, the *Guide* refers to a number of select medical conditions that are initially disqualifying and must be deferred to the AMCD or RFS. Following the grant of an Authorization for Special Issuance of a Medical Certificate by the AMCD or an RFS, the AASI process allows an Examiner to reissue the airman medical certificate, provided the applicant meets disease/condition certification criteria.

Please take an opportunity to navigate through the 2003 *Guide* and familiarize yourself with the airman medical certification decision-making criteria.

Should you have any comments or recommendations, feel free to provide them via E-mail by accessing the FEEDBACK section located at the bottom of the navigation bar of the *Guide*.

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Ms. Spinner is a program analyst in the Office of Aerospace Medicine's Aeromedical Standards and Substance Abuse Branch at FAA headquarters.

Transition

Gerald Roy Myers, MD, 73, died July 26, 2003, in Scottsdale, Ariz. Dr. Myers was an aviation medical examiner in Scottsdale and was active in the community. Born in Capetown, South Africa, he was a graduate of St. Andrews University, London University, and the University of Toronto.

Hypertrophic Cardiomyopathy and Medical Certification

Case Report, by Lee H. Harvis, DO, MPH

Abstract. The Aerospace Medical Certification Division (AMCD) reviews over 8000 special issuance cases a year; a majority of these are for cardiological dispositions. Hypertrophic cardiomyopathy, now being diagnosed later in life, has the potential to degrade pilot performance without warning. The following case illustrates the aeromedical considerations and certification criteria for patients with findings suggestive of left ventricular hypertrophy.

History. A 49-year-old male pilot with 21,500 hours of flight time presented for a renewal of his first-class medical certificate on 07/08/2002. His application was deferred to the Aerospace Medical Certification Division (AMCD) for further evaluation. His history was significant for a heart murmur noted during a 1999 flight physical but not auscultated during his 2000 physical. On 05/17/2001 the airman was admitted to the hospital with fever, chills, dyspnea on exertion, weakness, and a scalp lesion. He was diagnosed with endocarditis as suggested by echocardiography findings of mitral valve prolapse and vegetation on the mitral valve. All blood cultures were negative. The airman was treated with antibiotics for six weeks without recurrence. A transesophageal echocardiogram was accomplished revealing resolution of the vegetation but with subsequent findings of left ventricular hypertrophy with mitral regurgitation and an unquantified left ventricular intracavitary gradient. He was diagnosed with hypertrophic cardiomyopathy. Medical history was also significant for hypertension controlled with Zestril.

Social history. The airman is a commercial pilot, married, and denies alcohol, tobacco, and illicit drug use.

Family history. His mother is 78 years old with a prosthetic heart valve, his father died at 62 of cancer, and his only sister is healthy.

Physical exam. The airman was well appearing, alert and oriented. Blood pressure was 118/88, pulse 60, weight 236 pounds. The neck was supple with no jugular venous distention. Lungs were clear. Cardiac was notable for normal first and second heart sounds, without appreciable third or fourth heart sounds or murmurs. Abdomen was soft, nontender and normal bowel sounds. Extremities were warm without clubbing, cyanosis or edema.

A stress echo was accomplished on 04/23/2003. The airman completed 13 minutes on a standard Bruce protocol, achieving 14 METS. Resting heart rate rose from 80 to 174 beats per minute at peak exertion, exceeding the 100% predicted maximum of 171 beats per minute. Resting blood pressure rose from 130/78 to 170/80 at peak exertion. Resting ECG demonstrated sinus rhythm with normal axis and intervals, no ST-segment or T-wave abnormalities. During recovery, no ST segment deviation of at least 1mm was identified at 80 msec beyond the J point. There were no arrhythmias during the exertion or recovery phase. Resting echocardiogram demonstrated mild to moderate concentric hypertrophy with preserved ventricular function. The estimated ejection fraction was 60-65%. No wall motion abnormalities were identified.

Aeromedical disposition. As directed by FAA medical guidance, a pilot with a hypertrophic cardiomyopathy (HCM) is not eligible for certification under the medical standards and may not be issued a medical certificate by a medical examiner. However, 14 CFR part 67.401 provides authority for a special issuance medical certificate (1). This condition is associated with the risk of sudden death secondary to arrhythmias. Because it is difficult to quantify this risk, and the prognosis is more related to genetic abnormalities or mutations and not anatomic expression, a select group of airmen may be considered for third-class or limited second-class aeromedical certification (3). If there is no ventricular tachycardia on 48-hour Holter monitoring, blood pressure is normal in response to graded exercise testing, and there is no history of syncope, mortality risk is less than 1% (2). Therefore, to assist in determining eligibility for special issuance, the airman must initially provide a current comprehensive cardiovascular evaluation, echocardiogram, a 2-D and M mode echocardiogram with color flow Doppler, and a 48-hour Holter. Myocardial perfusion imaging should be done, if indicated (3).

Annually thereafter, she/he must provide a complete cardiovascular report with Holter and echocardiogram.

If no changes are noted after five years, airmen may be considered for a third-class or limited second-class medical certificate, with annual review, provided they are otherwise qualified (4). The applicant must meet the following criteria:

1. no symptoms attributable to HCM,
2. left ventricular wall thickness less than or equal to 20mm,
3. left atrial size less than or equal to 45mm,
4. left ventricular outflow tract gradient less than or equal to 30mm,
5. a 48-hour Holter without significant dysrhythmias, including non-sustained ventricular tachycardia,
6. electrocardiogram without significant rhythm disorders, conduction defects or other abnormalities without acceptable explanations,
7. age greater than or equal to 45,
8. no family history of death due to HCM or unexplained premature sudden death, and
9. myocardial perfusion imaging, if performed, must have no evidence of ischemia or significant dysrhythmia (3).

Clinical presentation. Patients with HCM are frequently asymptomatic and the first clinical manifestation can be sudden cardiac death (2). This ➤

is typically seen in children and young adults during or after physical exertion. Average age at presentation is 26 years old and is usually detected in the aviation population by characteristic abnormalities on routine ECG rather than by symptoms (5). Although HCM is considered by many to be a disease of the young, it is now frequently diagnosed in patients over 50 years old (7). In fact, one study demonstrated a gender difference in patients over 50 with females having a higher left ventricular contractility and left ventricular outflow tract gradient (8).

The most common complaint in symptomatic patients is dyspnea associated with the stiff left ventricular walls impairing ventricular filling (4). Other symptoms include angina, fatigue, syncope, near-syncope, lightheadedness and palpitations (2). Symptoms are not associated with the outflow tract gradient. Twenty-two percent of patients are asymptomatic and more than 50% have no functional limitation (5).

Diagnosis. The noncompliant left ventricle causes a diastolic dysfunction, impairing left ventricular filling while maintaining normal chamber size and systolic function. The hallmark of HCM is a harsh systolic murmur usually beginning after the first heart sound because ejection is not impeded early in systole (4). This systolic murmur is heard best between the apex and left sternal boarder. The murmur increases with valsalva and standing. An S_4 is normal and an S_3 is common (2). The murmur is heard best at the apex and lower left sternal boarder. The electrocardiogram is abnormal and often shows a left ventricular hypertrophy and widespread Q waves that suggest old myocardial infarctions (2). The septum is commonly 1.3 or more times the thickness of the high posterior left ventricular free wall (5). Many patients present with both atrial and ventricular arrhythmias. Chest x-rays may be normal or show mild to moderate increase in cardiac silhouette (4). The septum may have a ground glass appearance secondary to the myocardial fibrosis (4). Cardiac catheterization is not required for diagnosis but would demonstrate elevated left ventricular diastolic pressure and if an obstruction is present, a systolic pressure gradient between the body of the left ventricle and the subaortic region (4).

Treatment. It is best for patients to avoid strenuous activities. Treatment of symptomatic patients is targeted at improving left ventricular diastolic function (6). Beta-adrenergic blockers are used to decrease anginal and syncope symptoms in up to half of symptomatic patients (4). Calcium channel blockers, Amiodarone, and other antiarrhythmics have been used as treatment options (2). It is also recommended to prophylax for infective endocarditis since there are studies demonstrating an increased incidence and prevalence associated with HCM (2). Dual-chamber permanent pacing has demonstrated improvement in symptoms and reduction in the outflow gradients in some patients. Ethanol injections into the septal artery (alcohol septal reduction/ASR) have been used to reduce obstructions by infarcting the interventricular septum. A myectomy of the hypertrophied septum has shown evidence of a reduction of symptoms in up to three quarters of operated patients but had a surgical mortality rate of three to five percent (4). No differences were found in the degree of change in diastolic function when comparing ASR to myectomy (8).

Prognosis. Some patients exhibit improvement or stabilization of symptoms over time. Atrial fibrillation is common later during the course of the disease, which may lead to an increase in symptoms due to the decreased filling of the thickened ventricle (2). Infective endocarditis occurs in less than ten percent of patients (2). The major cause of mortality is sudden death in both asymptomatic and stable symptomatic patients. There is no association of sudden death and the severity of symptoms or the presence or severity of an outflow tract gradient (4). Most deaths are due to ventricular arrhythmias. Predictors for sudden death include age less than 30, ventricular tachycardia, ventricular hypertrophy, syncope, and a family history of sudden death (2).

Case Outcome. The FAA cardiology consultant reviewed the case. It was determined that the murmur was consistent with mitral regurgitation associated with the myxomatous valve and prolapse. He did not concur with the diagnosis of hypertrophic cardiomyopathy since the ventricular hypertrophy was symmetrical, and the hypertension explained the hypertrophy. The airman was granted first-class medical certification.

References

1. Federal Aviation Administration, *Guide for Aviation Medical Examiners*, October 1999, chapt. 3, p. 46, Appendix A p. 68.
2. Rayman RB, Hastings JD, William BR, et al., *Clinical Aviation Medicine,* 3rd ed., Castle Connolly Graduate Medical: 2000, pp. 229-33.
3. Johnson B, Personal Communication, Aeromedical Certification Division, Special Issuances, Civil Aerospace Medical Institute, July 18, 2003.
4. Wynne J, Braunwald E, The Cardiomyopathies and Myocarditis, *Harrison's Principles of Internal Medicine*, 11th ed. McGraw Hill: 1987; pp. 1328-33.
5. Pickard J et al., Air Force Regulation 160-43. Medical Examination and Medical Standards, USAF School of Aerospace Medicine, Flight Surgeon Guide, Issues in Internal Medicine, Chapt. 10, 2003.
6. Popjes ED, St John Sutton M, Hypertrophic cardiomyopathy. Pathophysiology, diagnosis, and treatment, *Geriatrics*. 2003 Mar;58(3):41-6.
7. Dimitrow PP, Czarnecka D, Kawecka-Jaszcz, Dubiel JS, The influence of age on gender-specific differences in the left ventricular cavity size and contractility in patients with hypertrophic cardiomyopathy. *Int J Cardiol*. 2003 Mar;88(1):11-6.
8. Sitges M, Shiota T, Lever HM, et al., Comparison of left ventricular diastolic function in obstructive hypertrophic cardiomyopathy in patients undergoing percutaneous septal alcohol ablation versus surgical myotomy/myectomy. *Am J Cardiol*. 2003 Apr 1;91(7): 817-21.

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Dr. Harvis is a resident in aerospace medicine at the USAF School of Aerospace Medicine, Brooks City Base, Texas. He wrote this case report while rotating at the Civil Aerospace Medical Institute.

Pain in the Back

Dear Editor,

I read the Summer 2003 issue. Great job! The best part was on Pages 3 and 4, "Certification Issues" [by Warren Silberman, DO, MPH]. Would you consider adding a case? Here is one that came to my office the other day:

A DEA agent applies for a third-class medical certificate. He is 46, no medical problems except he takes hydrocodone/acetaminophen (Vicodin) for back pain two or three times a month. He says that he never flies or drives within 12 hrs. of taking the medication.

No other medical problems are checked on the form, and the last visit was to his family physician 9 months ago for a "check up." Would you certify him?

My answer was to defer him. I do not think that he is certifiable if he takes hydrocodone, no matter how infrequently.

Thanks,

Rodger S. Orman, MD
San Andreas, Calif.

Dear Dr. Orman,

Actually, if the back pain was not significant or caused by something potentially bad, we may certify the airman with a warning not to fly for 24 hours after taking the medication.

—Warren S. Silberman, DO, MPH

Medications

Dear Editor,

I've had number of pilots on SSRIs (Prozac, Paxil, Zyban) and they are asking me why they can't fly, especially after a trial period with no adverse side effects.

I've given a lame explanation of DIAGNOSIS-for the medication. However, I don't feel they should stop a medication that (?) works for them, and then start flying again. I see this as adding risk to risk. What is the final answer?

Thanks,

John C. Roberts, DO
Washington, Ind.

Dear Dr. Roberts,

We do not, at the present time, grant medical certification for any SSRIs for ANY indication. The side effects are incompatible with flying. We do not accept an unacceptable medication in one individual and not in another just because that individual may not have any side effects. How can one be sure that some change in diet, lifestyle, or the use of another medication may result in some of the reported side effects?

—Warren S. Silberman, DO, MPH

Dear Editor,

…Is Dexidrine taken for ADD approved for flying? The pilot was born in 1954 and states he's been taking it for 40 years.

Thank you,

Virgil Sharp, MD
Waterloo, Wis.

Dear Dr. Sharp,

Not only is Dexedrine NOT acceptable in any circumstance, the medical condition ADD is not approved for medical certification for ANY class.

—Warren S. Silberman, DO, MPH

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Medical Certification in a Student Pilot With Hepatitis C Infection

Case Report
by Richard A. Scheuring, DO

Abstract. *Hepatitis C virus (HCV) infection is the most common chronic blood borne infection in the United States, yet its prevalence in the aviation community is currently unknown. The aeromedical challenge resides in the variable course that the disease may take and the unpredictability of medication side effects. Hence, determination of certification eligibility by the Aerospace Medical Certification Division (AMCD) requires careful consideration of each applicant, as this case illustrates.*

History. A retired, 65-year-old male presented for a student pilot certificate in March 2003. He admitted to a history of chronic HCV infection, resulting in deferral of his case to AMCD for further evaluation. The pilot reported that approximately 20 years ago he sustained an abdominal injury requiring an 80% liver resection. Post-operative bleeding necessitated multiple blood transfusions, where he acquired an HCV infection. His aviation medical examiner (AME) remarked that the years that followed the diagnosis were relatively stable, based on annual liver function tests (LFTs) and hepatic ultrasound. Review of systems was negative for excessive fatigue, weight loss, anorexia, hematemesis, or melena. He denied a history of jaundice or significant illnesses during the interim, although he was treated with interferon for eight months in 1995. Subsequent liver biopsies and LFTs revealed a very low level of inflammation, according to his gastroenterologist.

Physical exam. Height was 63 inches, weight 171 lbs. Blood pressure was 124/88, resting pulse 64. The AME commented that the airman appeared healthy without evidence of jaundice

Continued on page 14

Reading Your Comments

Someone Actually Reads— and Heeds — Questionnaire Responses

Editorial, by Mike Wayda

AVIATION MEDICAL EXAMINERS attending periodic recertification seminars are asked to complete a questionnaire asking, among other things, for comments about the *Bulletin*. We value your observations because it helps us provide the type of information you need in your aerospace medicine practice. Here are some of the comments gleaned from recent questionnaires.

Internet issues. Apparently, many AMEs are not aware that the *Bulletin* is available for viewing, downloading, and printing from the Civil Aerospace Medical Institute's Web site. More than a few have suggested that we make the articles available through a Web site (e.g., "Why don't you make the *Bulletin* available on-line?" and "Send it with e-mail or let AME's download from the Internet"). This indicates to me that many are unaware that we *are* online and have, in fact, been publishing the *Bulletin* on the Internet since the summer of 1996. So, here's the address of our Web pages. The current issue and archives (dating back to the winter of 2000) are available at:

http://www.cami.jccbi.gov/aam-400A/fasmb.html

Individual articles can be easily downloaded and printed. For example, if you want to keep a complete file of Dr. Silberman's *Certification Issues and Answers* articles, then access the article on the Internet, you can open and save (to your computer's hard drive or network drive) each individual online article—they date back to the winter 1991 issue—and print each one for filing in a 3-ring binder for quick reference. We plan to pull all of his question-and-answer articles together into a single file that you can access and print out or keep in a separate database for quick reference on certification issues. We also plan to have each major topic (for example, "coronary artery disease") included in a searchable file format for quick reference. The same applies to case reports, editorials, and other information AMEs need to have in a searchable format.

Need more copies? Some would like a quick way of ordering additional copies of a current issue to share with staff members or to display/distribute in the patient waiting room. If you need several extra copies, contact:

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Oklahoma City, OK 73125
Phone: 405-954-4831
E-mail: Gail.Gentry@faa.gov

Current events. Some have pointed out that information regarding new policies and certification procedures are not always disseminated to you in a timely manner. One respondent pointed out that we should "provide more up-to-date info on certifiable conditions/meds. I usually read about them from AOPA first." *Ouch*. While the folks at the Aircraft Owners and Pilots' Association are good at reporting the news to their members, I should point out that we publish the *Bulletin* on a quarterly basis, and the *AOPA Pilot* comes out each month. By the time a new policy is reported in the *Bulletin*, the *Pilot* may have already reported it several months before we got it into print. Also, not all aviation medical examiners are pilots or members of AOPA, so they must receive their certification news directly from the FAA. Having given this "waiver" (some would say *alibi*), however, we will make a concerted, coordinated effort to get important certification changes and issues to you as quickly as possible. Dr. **Richard Jones**, manager of CAMI's Aerospace Medical Education Division, has begun a series of "Quick Fix" articles that highlight current "anomalies" in the certification process.

Also, in response to your many requests, Dr. **Warren Silberman,** manager of CAMI's Aerospace Medical Certification Division (AMCD), says he will continue to compose his aeromedical "Issues and Answers" articles. These articles provide much basic "how-to" information about standard procedures. Not only will these challenge your mastery of certification procedures, you will become more efficient and valuable in the certification system because you'll make fewer errors—correct certification decisions greatly support the goal of "same-day medical certification."

Did you know, for example, that the major medical problem is hypertension? Some aviation medical examiners do not know that they can certify applicants if their blood pressure is 155/95. If applicants are deferred because their blood pressure is within normal limits—or passed with a higher value—this puts an unnecessary burden on the AMCD, not to mention the unnecessary delay of up to three months to the applicant.

Your questions and comments. Someone suggested that we begin a "quarterly question-and-answer section where AMEs can write in or E-mail questions that are addressed in the *Bulletin*." My response to that suggestion is (as it has always been) "bring it on!" We welcome responses from AMEs—be it questions, comments, letters to the editor, or suggestions about how to improve service to our customers, the aviation public. Yes, we would be happy to hear your views, news, and down-home blues. (Regarding the blues, remember that, as a general rule, most blues stories are prefaced with, "Woke up this morning...")

Why are you an aviation medical examiner? We asked everyone at the seminars this question and received some enlightening replies.

- [My] father was a flight surgeon.
- Nice to see healthy people for a change.
- Enjoy the change of pace in office when I do the FAA exam.
- Have been [an] AME for 29 years and enjoyed the total experience.
- At this point…I have a growing interest in aerospace medicine and I am trying to move my whole practice in that direction.

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Sunglasses in Aviation: A Primer for Pilots

There is much more to consider besides good looks when choosing sunglasses for flying.

By Ronald W. Montgomery & Van B. Nakagawara, OD

SUNGLASSES ARE AS MUCH a part of the pilot mystique as are the white scarf and leather jacket. More than just a symbol of the aviator, sunglasses play an important role in safeguarding a pilot's most important sensory asset—vision. A good pair of sunglasses is essential in the cockpit environment to preserve optimal visual performance by reducing some of the effects of harsh sunlight, minimizing eye fatigue, and protecting ocular tissues from exposure to harmful solar radiation. Conversely, using a pair of inappropriate sunglasses provides inadequate protection and may reduce visual performance.

A pair of quality sunglasses incorporating shatter-resistant lenses can protect a pilot's eyes from injuries resulting from impacts with objects (i.e., flying debris from a bird strike or sudden decompression). In addition, appropriately tinted sunglasses can aid the dark adaptation process, which can be compromised or delayed after prolonged exposure to bright sunlight.

Radiation. In addition to visible light, the sun gives off invisible radiation that can damage skin and eyes when exposure is too excessive or intense. Fortunately, the Earth's atmosphere shelters us from the more hazardous solar radiation (i.e., gamma rays and X-rays); however, both infrared (IR) and ultraviolet (UV) radiation are present in our environment in varying amounts, depending on factors such as the time of day, time of year, latitude, altitude, weather conditions, and the reflectivity of surrounding surfaces. For example, flying in an open-cockpit aircraft around noon on a spring (or fall) day, over the equator and above a layer of clouds, results in a much higher exposure to solar radiation than being at sea level on a cloudy winter's morning in the northern US or Canada. Obviously, differences in time of day, the seasonal angle of the sun, and altitude can vary UV exposure; however, less well known are the differences associated with the relative thinness of the atmosphere's UV-absorbing ozone layer at the equator and the Earth's poles, as well as the reflective property of clouds, which can reflect 40 to 90% of incoming solar radiation back toward an aviator when flying above a thick cloud layer.

Atmospheric IR consists of long-wavelength, low-frequency radiation (700–1400 nanometers [nm]) found in the electromagnetic spectrum between visible light (400–700 nm) and microwaves (see Figure 1). IR provides the warmth felt from the sun and is thought to be harmless to the skin and eyes at normal atmospheric exposure levels. More hazardous to human tissues is short-wavelength, high-frequency UV radiation. UV is divided into three bandwidths: UVA (400–320 nm), UVB (320–290 nm), and UVC (< 290 nm). Excessive or chronic exposure to UVA and (to a greater extent) UVB can cause sunburn, most skin cancers, and is implicated in the formation of cataracts, macular degeneration, and other eye maladies. The American Optometric Association recommends wearing sunglasses that incorporate 99–100% UVA and UVB protection. Fortunately, UVC, the most harmful form of UV radiation, is absorbed by the atmosphere's ozone layer before it reaches the Earth's surface. Some scientists believe, however, that depletion of the ozone layer may allow more UV to pass through the atmosphere[1], making 100% UV protection a wise option when selecting eyewear.

Lens Materials. The three most common lens materials in use today are crown glass, (CR-39® monomer) plastic, and polycarbonate plastic lenses. Glass lenses provide excellent optical properties and are more scratch resistant but are heavier and less impact resistant than CR-39® plastic or polycarbonate lenses. Glass absorbs some UV light, and UV absorption can be improved by adding certain chemicals to the lens material during the manufacturing process or by applying a special coating. Glass hold tints better over time but, for higher prescriptions lenses, the color may be less uniform, as parts of the lens will be thicker than others. Glass photochromic lenses (PhotoGray® and PhotoBrown®) automatically darken when exposed to UV and become lighter in dim light. Most of the darkening takes place in the first 60 seconds, while lightening may take several minutes. Although most photochromic glass lenses can get as dark as regular sunglasses (approximately 20% light transmittance in direct sunlight), their darkened state may be lighter due to the reduced UV exposure through the windscreen. In addition, the faded state of photochromic glass lenses may not be clear enough to be useful when flying in cloud cover or at night.

Plastic lenses possess excellent optical qualities, are lighter weight and more impact resistant than glass lenses, but they are more easily scratched, even with scratch-resistant coatings. Polycarbonate plastic lenses are even lighter than CR-39® plastic and one of the most impact-resistant lenses available. When a high refractive correction is required, polycarbonate lenses may have poorer optical qualities then CR-39® plastic unless an anti-reflective (AR) coating is added. Polycarbonate lenses come from the manufacturer with a scratch-resistant coating that is much stronger than that applied to CR-39® plastic lenses and have

[1.] World Meteorological Organization, *Scientific Assessment of Ozone Depletion: 1994*, WMO Global Ozone Research and Monitoring Project - Report No. 37, Geneva, 1995.

built-in UV protection. (Note: CR-39® plastic lenses must have special coatings applied to protect the eyes from harmful UVA and UVB radiation.) CR-39® lenses can be tinted to any desired shade with little color variation, even for those requiring a great deal of refractive correction but they do not hold their tint as well as glass. CR-39® plastic can be bleached and re-tinted if fading becomes excessive at some point. Since polycarbonate lenses do not accept dye as readily as CR-39® plastic, the interior anti-scratch coating absorbs most of tint. CR-39® and polycarbonate photochromic lenses, like their glass counterparts, automatically darken in bright sunlight and become lighter in dim light. There have been complaints that they do not darken as well as photochromic glass lenses in the enclosed cockpit environment or in warmer weather. Finally, high-index materials (i.e., index of light refraction ≥ 1.60) are available in both glass and plastic for those who require a large degree of refractive correction and desire lighter, thinner lenses.

Tints. The choice of tints for sunglasses is practically infinite. The three most common tints are gray, gray-green, and brown, any of which would be an excellent choice for the aviator. Gray (neutral density filter) is recommended because it distorts color the least. Some pilots, however, report that gray-green and brown tints enhance vividness and minimize scattered (blue and violet) light, enhancing contrast in hazy conditions. Yellow, amber, and orange (i.e., "Blue Blockers") tints essentially eliminate all short-wavelength light from reaching the wearer's eyes and reportedly sharpen vision, although no scientific studies have offered evidence to support this claim[2]. In addition, these tints are known to distort colors considerably, making it difficult to distinguish between green and red lights (aviation signals, anti-collision, and navigation lights).

For flying, sunglass lenses should screen out only 70 - 85% of visible light without appreciably distorting color. Tints that block more than 85% of visible light are not recommended for flying due to the possibility of reduced visual acuity (e.g., 20/20 Snellen visual acuity may be reduced to 20/40 or 20/60), resulting in difficulty seeing instruments and written material inside the cockpit.

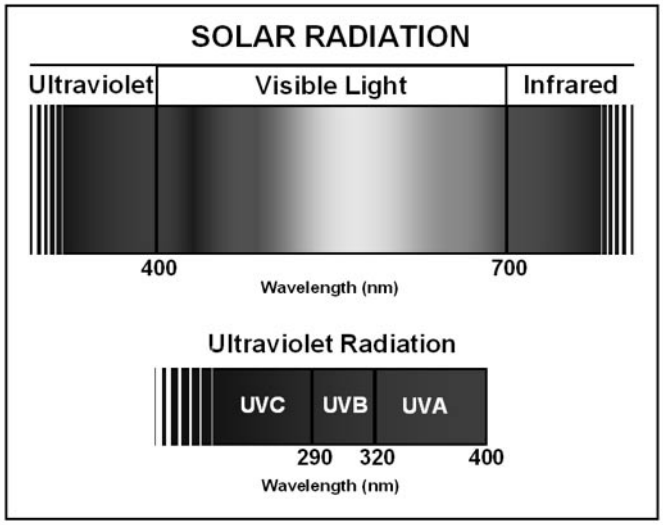

Figure 1. Electromagnetic radiation spectrum including visible, infrared, UVA, UVB, and UVC wavelengths

Polarized Lenses. Polarized lenses, which can block reflected glare from horizontal surfaces, such as water or snow, are not recommended for the aviation environment. Polarization can reduce or eliminate the visibility of instruments that incorporate anti-glare filters, and they may interfere with visibility through an aircraft windscreen by enhancing striations in laminated materials. In addition, polarized lenses can mask the sparkle of light that reflects off shiny surfaces, such as another aircraft's wing or windscreen, which can reduce the time a pilot has to react in a "see-and-avoid" traffic situation.

Frames. The selection of sunglass frames is probably more a matter of personal preference than lens material or tint. The frames of an aviator's sunglasses, however, must be functional and not interfere with communication headsets or protective breathing equipment. Frame styles that incorporate small lenses may not be practical, since they allow too much visible light and UV radiation to pass around the edges of the frame. A sunglass frame should be sturdy enough to take some abuse without breaking and light enough to be comfortable.

Fit. An aviator's sunglasses should fit well so that sudden head movements from turbulence or aerobatic maneuvers do not displace them. The use of a necklace chain or strap to secure the sunglasses to the pilot's head is recommended in case they become accidentally dislodged or must be removed briefly (i.e., to view objects in the cockpit, or when flying in and out of cloud cover) and subsequently replaced.

In summary, while adding to the mystique of an aviator, sunglasses protect a pilot's eyes from glare associated with bright sunlight and the harmful effects from exposure to solar radiation. Lenses for sunglasses that incorporate 100% UV protection are available in glass, plastic, and polycarbonate materials. Glass and plastic lenses have superior optical qualities, while polycarbonate lenses are lighter and more impact-resistant. The choice of tints for use in the aviation environment should be limited to those that optimize visual performance while minimizing color distortion, such as gray, gray-green, or brown tints with 15 - 30% light transmittance. Polarized sunglasses are not recommended because of their possible interaction with displays or other materials in the cockpit environment. For an aviator, a pair of sunglasses is an important asset, whether or not refractive correction is required. Therefore, careful consideration should be used when selecting an appropriate pair of quality sunglasses for flying.

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Mr. Montgomery is a Vision Research Specialist at the FAA's Civil Aerospace Medical Institute in Oklahoma City, OK. Dr. Nakagawara is a Research Optometrist at Civil Aerospace Medical Institute, and he is also a charter member of the American Optometric Association's Aviation Vision Committee.

[2] Rash CE, Manning SD, *For Pilots, Sunglasses are Essential in Vision Protection,* Flight Safety Foundation Human Factors & Aviation Medicine, July-August 2002; 49(4): 1-8.

Best Practices

Frederic A. Rice, MD
Senior Aviation Medical Examiner, Indianapolis, Indiana

By Kathleen Kendall, RN

In February 2003, I nominated my boss. **Frederic A. Rice**, MD, for the "Best Practice" series. I even agreed to write the article. Then, the spring issue of the *Medical Bulletin* came out and I got cold feet. The article about Dr. **James E. Crane** [*Federal Air Surgeon's Medical Bulletin*, Spring 2003, page 6] was very interesting, but the similarities between my boss and Dr. Crane were so obvious that my article did not sound very original.

They were both in the Army Air Corps, but Dr. Rice was not there as a physician, he was the commander of a B-29 and flew 27 missions. On one of these missions, his plane lost two engines, and they had to land at Iwo Jima. A book and a movie, *The Last Mission*, were based on the group's heroic acts.

I think the varied aspects of Dr. Rice's medical practice contribute to his skills as an aviation medical examiner. He opened his office November 9, 1953, and will soon be celebrating his 50th anniversary in the same office. He sees patients from four generations and some of the pilots from two generations. Many of his regular patients also get their FAA exams done by him. The younger pilots often bring their young children with them and show them the pictures and models of the kinds of planes Dr. Rice flew. David Gray, a pilot and wonderful artist, gave him an amazing 14 by 18-inch pencil sketch of a B17; the most recent picture to adorn the walls is a signed picture from a retired Thunderbird pilot.

Dr. Rice spent many years as the physician for the deputies and prisoners at the Marion County [Indiana] jail. He saw a lot of prisoners who found sick call as a way to get out of their cell. (Conversely, as an AME, he sees a lot of pilots who are reluctant to admit to any signs or symptoms of illness!) Dr. Rice and the sheriff had a friendly feud going that included many practical jokes. The most famous joke involved the releasing of a greased pig in the sheriff's private office.

Dr. Rice also spent a number of years as a deputy coroner, he was a team physician, first at the high school and later for the *Capitols* (Indy earliest pro football team), he did occupational health care before it was called that, he delivered babies for 22 years, he served as chief of staff of the local hospital, he did physical examinations for the Murat Shriners, and in 1992, he got his first hole-in-one.

Our office is not fancy, but the eight rooms are adequate for our needs. The secretary schedules the FAA exams. We routinely ask what day the pilot would prefer and if he (or she) would prefer morning or afternoon. The office can be hard to find, so we ask all new pilots if they need directions to find us. Pilots who wait until the last minute to call for an appointment, the ones who arrive on the wrong day, and the ones who are late because they could not find the office can usually be seen that day.

The part-time nurse worked here for thirteen years, left for thirty years, and returned six years ago to work part-time and fill in for vacationing staff. She does eye exams and EKGs. I am the full-time nurse and have been here thirty-six years. I do vision, EKGs, and transmit the exams to Oklahoma City.

Like Dr. Crane, we had to buy computer equipment in 1999 to meet the FAA's new requirements. We all signed up for a night class at the local high school to learn computer basics. We all found we liked working with computers, and each of us bought one to use at home. ***(continued)***

"Best Practice" Suggestions

Dr. Rice says that, in addition to the usual questions to ask an applicant, there are "little things" he tries to observe. For instance (in his own words),

- Observe how much time it takes the applicant to fill out the form (a pilot must be able to make quick and accurate decisions).
- I always ask a few questions about where the flight instruction is being taken, when the applicant plans to solo, and so on.
- There's no box to check on this, but you should have a pretty good idea of what the guy is like—where the interest in aviation came from—did their father get them interested? Was it pictures of airplanes and pilots?
- Take sufficient time to ask enough questions. One of my medical school professors always said, "If you haven't taken an adequate history, you haven't made the diagnosis." Take enough history to make an adequate decision about an applicant.
- Sort out what is useful; sometimes it's not too hard to find out if they're telling the truth.

Regarding the work that aviation medical examiners do on behalf of the Federal Aviation Administration, Dr. Rice say that it is important that "you enjoy what you're doing to do a good job."

He believes that an appreciation of aviation is "a must" for aviation medical examiners. "There should be a way interest to young docs in becoming pilots because it's far better to understand the issues that pilots face by personally experiencing them."

CUSTOMER *from page 1*

What makes this practice among "the Best? I'm not sure. I think our combined years of experience count for a lot. We enjoy doing the exams and working with the pilots. The pilots are one of the best parts of this job, as they are always interesting to talk to and generally don't have any complaints.

One pilot I will never forget is a bilateral, upper-extremity amputee who had the old-fashioned hooks to use as prosthesis. He wore contact lenses, and at that time we had to check their vision with and without their lenses. Watching a man put in contact lenses with hooks, rather than hands, makes you realize how much they must love flying.

Patients in the waiting room recognize fellow pilots by the form they have to complete. They almost always end up talking to each other about flying.

We tend to get suspicious when a new applicant seems nervous about leaving a urine specimen. When you ask for more details and they get defensive you can find even more questions to ask.

Most pilots are well groomed even in casual summer wear, so the ones who look like bums tend to stick out. The ones who deny ever getting a letter from the FAA (when we have a copy in the file) raise suspicion. A favorite response is "My family doctor says I am OK to fly," and you have to learn a polite way of telling them Oklahoma City wants to know what Dr. Rice thinks about whether they should fly or not. We encourage them to bring in any additional reports so we can send them in with the hard copy of the Form 8500-8.

Finally, a few more facts: I have been Dr. Rice's nurse for 36 years and his daughter for 60 years. Dr. Rice is 82, the father of four (I am the oldest), grandfather of three, and great-grandfather of five. A lot of the patients have heard that Dr. Rice and I are related. For years, they automatically asked if I was his daughter. He must be aging better than I am because for the last year, they automatically ask if I am his wife.

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outcomes associated with their inquiry or request
- A timely and complete response to inquiries and requests
- A clear explanation of FAA decisions
- An environment without fear of retribution if decisions are challenged
- Fair and careful consideration of their issue
- Clear guidance on how to elevate concerns to the next higher level of FAA authority

WE ASK OUR CUSTOMERS TO:

- Understand that the FAA's first priority is *aviation safety,*
- Display the same level of professionalism with which they wish to be treated,
- Provide all pertinent information in a timely manner, and
- Use our "chain-of-command" to elevate concerns.

As an aviation medical examiner, you are the applicant's first point of contact and the primary source of information in the medical certification process. Therefore, our customer service begins with you. You support the CSI with your professionalism when you:

- Provide quality medical examinations submitted in a timely manner,
- Assist applicants through the complexities of the certification process, and
- Provide good and complete instructions on FAA policies as they pertain to airman medical certification, including appeals.

Appeals. The review and reconsideration process for medical certification is contained in Part 67 of the Code of Federal Regulations. In as simple terms as possible, an airman whose medical certification is denied by an AME may request reconsideration of the decision by the Manager, Aerospace Medical Certification Division (AMCD) or a Regional Flight Surgeon (RFS). If the AME simply defers issuance of a certificate (as is most frequently the case when a medical certificate should not be issued), the AMCD or the RFS, as appropriate, will automatically review the application and inform the applicant of the decision. For those conditions enumerated in the Part 67 medical standards that are specifically disqualifying (e.g., history of a myocardial infarction, angina pectoris, diabetes that requires use of a hypoglycemic medication), the denial by the AMCD or an RFS is final and may be appealed directly to the National Transportation Safety Board (NTSB). For conditions that are not specifically disqualifying (e.g., "No other disease that the Federal Air Surgeon finds …") a denial by the AMCD or RFS may be appealed to the Federal Air Surgeon (FAS).

As a practical matter, even when the AMCD or RFS issues a final denial, the airman may request and receive reconsideration of the decision by the FAS. An unfavorable decision by the FAS may be appealed to the NTSB. As appropriate, an Administrative Law Judge will schedule and conduct a hearing on the question of the airman's eligibility for certification. If the Administrative Law Judge's decision is unacceptable to the airman or the FAA, the matter may be appealed to the full board. If the full board affirms the denial of certification, the airman may seek review by a U.S. Court of Appeals. From an adverse decision by a Court of Appeals, the airman may ask for review by the U.S. Supreme Court.

In our letters denying airmen medical certification, we inform airmen of their rights of appeal/reconsideration within the FAA and to the NTSB. In providing customer service to airmen, however, it is helpful for you to be knowledgeable regarding the appeals process and to assist in guiding the airman through a rather complex system.

For additional information on the customer service initiative, visit:

http://www1.faa.gov/avr/customerservice

For specific information on appealing medical certification decisions:

http://www2.faa.gov/avr/aam/acans2.htm

or

http://www.cami.jccbi.gov/aam-300/amcdfaq.html

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Dr. Saenger is a medical officer in the FAA Office of Aerospace Medicine's Medical Specialties Division at headquarters.

HCV from page 8

or portal hypertension. Pertinent exam findings included a well-healed bucket handle scar across the anterior upper abdomen with upward extension under the right costal margin.

Lab. Laboratory studies, including the LFTs from July 2000 to March 2003 were as follows: ALT has ranged from 80 to 166 U/L, currently 103 U/L; AST ranged from 49 to 92U/L, recently 64 U/L; Alkaline phosphatase has been within normal limits at all times as has the bilirubin and complete blood count (CBC). Hepatitis serology was not available.

Aeromedical disposition. As directed by the FAA medical guidance, a pilot with infectious hepatitis is not eligible for certification under the medical standards and may not be issued a medical certificate by a medical examiner. However, 14 CFR part 67.401 provides authority for a special issuance medical certificate. The AME will, therefore, need to request the following documents from their pilots for consideration of special issuance: current and annual status reports from the treating physician documenting medications used, side effects, any complications associated with therapy, and any history of fatigue. In addition, current LFTs, hepatitis serology, and biopsy reports should accompany the initial application.

In the case of chronic HCV infection, two issues are of concern to the FAA. First, has the disease progressed to the point that the cirrhotic liver has elevated portal blood pressure and created esophageal varices? The risk of sudden incapacitation from a bleeding varix may be difficult to quantify. Therefore, it is imperative to follow pilots with cirrhosis closely. Second, an airman with hepatitis undergoing therapy with interferon may be at risk for certain neuropsychiatric side effects such as apathy, cognitive changes, and irritability (1). Depression and anxiety are seen in 20% to 30% of patients and are two of the more common psychiatric reactions that can occur during treatment (4). Patients undergoing interferon therapy are often started on anti-depressant therapy to circumvent the depression that develops during treatment (3). This treatment alone is grounds for denial. Adding oral ribavirin to interferon therapy increases the risk of developing hemolytic anemia. Fatigue is another consideration in patients undergoing interferon therapy and occurs in up to 50% of the treatment population (1,5).

In the present case, the pilot was not undergoing treatment, had stable interval examinations and LFTs, was not experiencing excessive fatigue, and had no evidence of cirrhosis or esophageal varices. He was subsequently certified by the AMCD with a time-limited SI for 12 months, and he would require a current status report and LFTs for re-certification. A warning accompanied the SI that, in the event the pilot experiences new symptoms or adverse changes occur or any time medication and/or treatment is required, operation of aircraft is prohibited under Federal Aviation Regulations, Section 61.53.

In general, if a pilot seeks 3rd-class certification and remains stable, the FAA will consider AME-assisted authorization for special issuance (Quick Cert). First- and second-class re-certification will be issued as a time-limited SI after receiving the annual report.

Diagnosis. Tests for HCV infection are directed at the detection of HCV antibody (anti-HCV) in the serum. Detection of anti-HCV in patients infected within 15 weeks of exposure is 80%, improving to ≥90% within 5 months after exposure, and in ≥97% by 6 months after exposure (1). The course of acute HCV is variable, but elevations in serum ALT, often in a fluctuating pattern, are its most common feature. Serum ALT may return to baseline, suggesting full recovery, but it is frequently followed by elevations that indicate progression to chronic disease. Therefore, it is important to follow patients with multiple measurements of ALT at regular intervals to identify those individuals who have developed chronic HCV and to make appropriate treatment decisions.

Treatment. Antiviral therapy is currently recommended for patients with chronic HCV who are at greatest risk for progression to cirrhosis. Individuals who are anti-HCV positive and have persistently elevated ALT levels, detectable HCV-RNA, and a liver biopsy that shows either portal of bridging necrosis or moderate degrees of inflammation and necrosis should be identified early in the disease course for treatment (1).

Combination therapy with alpha-interferon and ribavirin is approved for the naïve treatment of patients with chronic HCV infection (1,4). The recently approved recombinant interferon alfa-2a conjugated to polyethylene glycol has improved the half-life of interferon alpha from 4-6 hours to 80-90 hours. After subcutaneous injection, serum concentrations peak at 72-96 hours, and once-a-week dosing results in sustained blood levels (5). Patients who received peginterferon alpha-2a in combination with oral ribavirin had a higher sustained virologic response (no detectable HCV RNA at 24 weeks) of 56% versus 29% for peginterferon alone, and 44% for combination therapy with standard interferon ($p<0.05$) (2). Hence, pegylated interferon therapy plus ribavirin is the treatment of choice for chronic HCV infection. It is important to note that combination therapy costs >$16,000 for 48 weeks of therapy (5).

Note that once airmen begin this therapy, they will be grounded because of the neuropsychiatric risks associated with interferon alpha-2a or alpha interferon (beta interferon treatment for multiple sclerosis might be waiverable).

References

1. Center for Disease Control and Prevention. Recommendation for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. *Mor Mortal Wkly Rep* 1998; 47: 1-39.
2. Fried MW, et al. *N Engl J Med* 2002; 347:975.
3. Gelenberg A, Depression associated with alpha interferon therapy. *Biol Ther Psychiatry* 2001; 24:8.
4. *Med Letter* 2002; 44:14.
5. *Med Letter* 2003; 45:20.

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Dr. Scheuring was a Wright State University resident in aerospace medicine when he wrote this case report at the Civil Aerospace Medical Institute.

747 Aircraft Environment Research Facility is dedicated in a ceremony held at the permanent site on Will Rogers World Airport in Oklahoma City. Speaker is Dr. James Whinnery. Inset: The 747 AERF during a research activity.

747 Facility Officially Dedicated in Ceremony

Unique national research and training asset shows progress made

By James Whinnery, PhD, MD

IN A RIBBON-CUTTING ceremony on September 23, 2003, the Civil Aerospace Medical Institute's 747 Aircraft Environment Research Facility (AERF) was officially entered into service at the FAA Mike Monroney Aeronautical Center. The retired Boeing 747 has been extensively refurbished to begin a new career as an aerospace medical research facility.

An asset of the Civil Aerospace Medical Institute's Cabin Safety Research Team, the AERF is utilized for many different assignments: training aircraft accident investigators, leading research into cabin air quality/chemical-biological threats, and providing a platform for fire, police, and disaster response exercises. The AERF was used to support an Air Force One electromagnetic impulse protection research and development project, and, in conjunction with the National Aeronautics and Space Administration, it was used for clear air turbulence research —in determining the time required to secure the cabin in response to impending clear air turbulence.

In addition, the 747 AERF has been used by Nickelodeon to film an educational series designed to assist "Kids Flying Alone," and the huge aircraft is a main attraction for tours of the Mike Monroney Aeronautical Center that promote public understanding of the FAA's safety mission.

The 747 AERF will continue to be used in these collaborative safety, security, and health-related projects.

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

HE'S BACK!

Medical Review Officer Dr. **Henry Boren** returns to his certification duties at the CAMI Aerospace Medical Certification Division after serving on active military duty in Iraq. Dr. Boren says he is happy to be back at his desk, in comfortable surroundings, and more in control of his destiny. He is pictured in military flight suit.

FAA Chief Psychiatrist Selected

By R. Mark Adams

Charles Chesanow, DO, was welcomed to headquarters as the new Chief Psychiatrist for the Office of Aerospace Medicine on September 22nd. Dr. Chesanow is originally from East Islip, NY, and replaces **Barton Pakull**, MD, who retired earlier this year.

Dr. Chesanow has more than 20 years of professional psychiatric experience with a broad background in addiction medicine. He recently served as the System Chief Clinical Officer of the Alcohol, Drug, and Mental Health Board in Columbus, Ohio. He was previously a Clinical Assistant Professor at both the University of South Dakota and Ohio State University. He is currently a Clinical Associate Professor at Ohio State University. Dr. Chesanow graduated from Case Western Reserve University with a Bachelor of Arts degree in Psychology in 1974 and received his DO degree from the College of Osteopathic Medicine and Surgery in Des Moines, Iowa, in 1977. Dr. Chesanow completed an internship at the Medical College of Ohio and his residency at the Cleveland Clinic Foundation. He is board certified by the American Board of Psychiatry and Neurology and has additional qualifications in both addiction psychiatry and forensic psychiatry. Dr. Chesanow is also certified by the American Society of Addiction Medicine.

In announcing the new Chief Psychiatrist's appointment, Federal Air Surgeon **Jon L. Jordan**, MD, stated, "I am very pleased that we have selected a new Chief Psychiatrist, Dr. Charles Chesanow. He brings a wealth of experiences to the Office of Aerospace Medicine, and I am confident that he will be a strong contributor to the success of our programs." For his part, Dr. Chesanow acknowledges that he has some "large shoes to fill," but he is looking forward to the challenge of applying his psychiatric expertise to the field of aerospace medicine.

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Mr. Adams manages the Office of Aerospace Medicine's Program Management Division at headquarters.

CME Credits Available

Did You Know That You Don't Have to Wait Three Years to Attend an AME Seminar?

By Doug Burnett

DID YOU KNOW that some aviation medical examiners (AMEs) attend an AME seminar every year? This may become more important to some of you, as AME seminars are now approved by the Board of Preventive Medicine to provide continuing medical education (CME) credit applicable to the Board's maintenance of certification requirements.

Apparently, based upon questions asked at seminars, some AMEs think that they have to wait until the end of their three-year training cycle to attend AME seminars.

As long as space is available, and it usually is, AMEs may attend seminars as often as they like. Some are asking because they haven't had the opportunity to attend all four of the theme topics, and they don't want to take 12 years to do so at the usual rate of one every three years. Others simply enjoy the interactions. With some AMEs having more than 40 years' experience, there have been a lot of friendships made with seminar speakers, FAA staff, and other AMEs; the opportunities for networking are endless.

When AMEs voluntarily attend training, they also gain by moving their mandatory training date further into the future. For example, an AME who is not due for training for another year, and who voluntarily attends a seminar, will not be required to complete AME training for three years after completion of the voluntary seminar.

Free continuing medical education is also available through the following distance education courses: Multi-media Aviation Medical Examiner Refresher Course (MAMERC), Clinical Aerospace Physiology for Aviation Medical Examiners (CAPAME), and Medical Certification Standards and Procedures Training (MCSPT). These courses also qualify for maintenance of certification, offering a total of 19 hours of CME. There will be more such computer-based courses available in the future.

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Doug Burnett is the Team Leader of the Civil Aerospace Medical Institute's Aviation Medical Examiner Program.

COMMENTS *from page 9*

- I enjoy being a flight surgeon. I enjoy flying. I have a strong desire to become a mission specialist.
- I like pilots.
- [My] father was a senior AME.
- [I] was a flight surgeon…continued as service to my patients.
- Enjoy seeing the pilots.
- I fly!

We appreciate all of the comments and suggestions you have provided on the questionnaire. You might take another step further by writing in more detail about your needs in the medical certification of aviators. How can we assist you in providing the best service possible to the aviation community? What do you need that we might provide to help you to become (or maintain your position as) a pillar of your aviation community? Please write, phone, or E-mail me at:

FAA Civil Aerospace Medical Institute
Editor, FASMB
AAM-400, P.O. Box 25082
Oklahoma City, OK 73125
Phone: (405) 954-6208
E-mail: Mike.Wayda@faa.gov

Aviation Medical Examiner Seminar Schedule

2003

November 3–7 --------- Oklahoma City, Okla. ---------- Basic (1)

2004

January 9–11---------- Charlotte N.C. ---------- N/NP/N (2)
March 15–19---------- Oklahoma City, Okla. ---------- Basic (1)
April 23–25 ---------- Dallas, Texas ---------- AP/HF (2)
May 3–6 ---------- Anchorage, Alaska (AsMA)----------CAR (3)

June 21–25 ---------- Oklahoma City, Okla. ---------- Basic (1)
July 9–11 ---------- Denver, Colo. ----------OOE (2)
August 6–8 ---------- McLean, Va. ---------- AP/HF (2)
September 13–17 ------ Oklahoma City, Okla. ---------- Basic (1)
November 5–7 --------- Tampa/Ft. Lauderdale, Fla., area N/NP/N (2)
November 15–19 ------ Oklahoma City, Okla. ---------- Basic (1)

CODES

AP/HF Aviation Physiology/Human Factors Theme
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) 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.

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