

10-2014

Flight Physician - October, 2014

Civil Aviation Medical Association

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Flight Physician

a publication of the Civil Aviation Medical Association



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Welcome to Reno!

Details for Annual Scientific and Educational Meeting Set

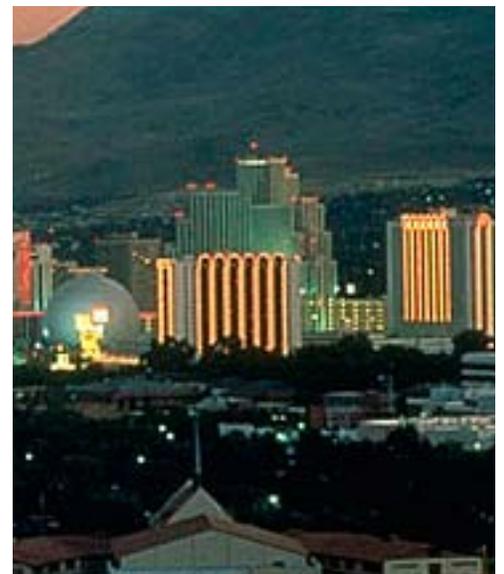
Civil Aviation Medical Association Executive Director David Millett announced that registration for this year's scientific meeting October 9-11 has increased compared to prior years and that the speaking lineup includes experts in a variety of topics directly and indirectly related to aeromedical certification.

"We are looking forward to hosting our members and others engaged in practicing clinical aviation medicine," said Millett. "Reno provides a wonderful backdrop for us to offer not only a set of presentations that cover topics not typically covered in some of the FAA seminars, but also for enjoying the ability to network with individuals across the globe."

Once again, the FAA has agreed to offer AME credit for attending the sessions, and will bring staff from the Office of Education to coordinate the topics that involve review of specific FAA topics that include updates for AMEs and completion of a scored test that will be administered on the final day of the conference for those interested in AME credit.

This year, the CAMA Honors Night dinner will be scheduled for Friday instead of Saturday in order to capture attendance from the greatest number of individuals, according to Millett. New CAMA fellows will be named at that meeting as well as several other prestigious awards presented.

"CAMA has continued to strengthen its commitment to its members by offering annual meetings that will provide pertinent topics that will assist the AME not only in assessing pilots aeromedically but also to present topics with cutting edge information that can be used directly in practice. Topics on issues such as international health and infectious diseases management, issues pertaining to female pilots, and topics on several cardiovascular issues have been included this year in addition to a panel discussion on sleep-related disordered breathing."



Flight Physician

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PRESIDENT'S MESSAGE



Greetings to all CAMA members,

The summer has come and gone but the memories of a very productive presence at the 85th Annual Aerospace Medical Association meeting this past May in San Diego linger.

On May 11, Dr. Russ Rayman put together an extremely interesting scientific morning session as part of CAMA's Sunday activities at the ASMA meeting. Entitled, "Sleep Apnea and Aviation," the session was designed to be provocative and capture the discussion that had bubbled over in a variety of organizations and settings after the FAA introduced concepts of mandating polysomnography for specific body mass index thresholds. Dr. Nick Lomangino reviewed the FAA policy as well as how future development of policies were changing as a result of the strong feedback from AMEs and pilots alike. Dr. Michael Bagshaw from the United Kingdom presented data on the limitation of utilizing BMI as a surrogate threshold for mandating testing. Dr. John Hastings concluded the meeting by providing an overview of evaluations and regulatory challenges for obstructive sleep apnea in the future.

A productive CAMA Board of Directors meeting included discussion and passage of several by-law changes performed in order to simply and update certain procedures and to streamline all language into one document. Dr. Courtney Scott attended a portion of the meeting to discuss a possible electronic application program for guiding AME's on the certification of airmen.

Dr. Larry Steinkraus from Mayo Clinic in Rochester, Minnesota was the luncheon speaker and he focused on the added value of the flight physical in clinical aeromedical practice.

There are a number of ongoing issues regarding aeromedical certification and the future of medical certificates for airmen in the future. It is important to voice your opinions and share your thoughts on how best to ensure aviation safety. CAMA continues to be a "voice of reason" to the FAA and other flying enthusiasts. CAMA has always possessed a strong political voice to preserve public safety.

Happy Landings,

Mark Eidson, MD

Mark C. Eidson, MD

Notes from the CAMA Executive Director

By David P. Millett, M. D.,
Executive Director, CAMA

This year is going to be another banner year for CAMA.

The CAMA Board meeting on February 8, 2014 in Dallas was

extremely productive and covered a wide variety of issues, including some revisions and updating of the CAMA By-Laws.



Dr. Millett

The scientific meeting of the Airlines Medical Directors' Association (AMDA) took on Saturday, May 10, 2014, prior to the beginning of the Aerospace Medical Association (AsMA) meeting in San Diego. I am very proud to have been selected to be the President Elect of the AMDA for 2014.

CAMA Sunday, during the Annual Scientific Meeting of the Aerospace Medical Association (AsMA) in San Diego was a huge success. With Clayton Cowl, Jack Hastings, and Russell Rayman leading the way, the CAMA Sunday program theme of this year was "Sleep Apnea – Aeromedical Considerations." This was a timely topic and, we are sure the information presented was quite valuable and very informative for the seventy-five medical professionals who attended. The Mayo Clinic graciously provided coffee service for CAMA Sunday, which was much appreciated!

The CAMA Luncheon on Monday May 12th, was a sold-out event featuring an exceptional presentation by CAMA member Dr. Lawrence Steinkraus of Mayo Clinic on the subject of the added value of the AME. CAMA maintained and staffed an information desk during the AsMA meeting, which resulted in a number of renewals from old members, eight new members, and one new corporate member.

The program for the 2014 CAMA Annual Scientific Meeting, at the Silver Legacy Resort, Reno, Nevada, October 9-11, 2014, has been finalized by Dr. Andrew Miller and his Education Committee. The program has been rated for 22.25 Prescribed credits/Continuing Medical Education (CME), and FAA recurrent training credit is available as well. The meeting begins at 8:00 AM on Thursday, October 9th and will conclude at 5:00 PM on Saturday, October 11th. The Thursday night field trip and dinner at the National Automobile Museum promises to be an entertaining outing with opportunities for participants to socialize and to network together. We are holding the Honors Night Banquet and Awards on Friday night, so that all participants can attend. Everyone is free to leave on Saturday afternoon when the meeting ends at 5:00 PM.

As in past years, CME certificates will be prepared for all registered attendees and may be picked up at the CAMA table on Saturday afternoon.

Finally, two new CAMA Fellows were announced – Doctors James Vanderploeg and Jay Danforth were recognized for their years of loyalty to CAMA and for their excellence in aerospace medicine.

Dues notices for 2014 have been emailed to CAMA members and meeting attendees. Please note that annual dues will be \$125.00, and a life membership one-time payment will be \$1250.00. Please make sure that CAMA has a current and correct email address for you, so that you do not miss any publications, notices, or correspondence.

Thank you for your support of CAMA and aviation medicine. **FP**

CAMA Mourns the Loss of Long-Time Supporter



Evelyn "Lovie" Beard

Evelyn Love "Lovie" Beard, loving wife of Dr. Earl Beard and friend of CAMA, passed away on the 14th of August in Houston, Texas. Lovie was born on the 19th of February 1922 in a rural area outside of Philadelphia, Pennsylvania. Lovie came from a prominent political family in Germany. Her mother was Katerina Wilhelmine von Papen. Under Kaiser Wilhelm's rule, her uncle, Franz von Papen, became Chancellor of Germany. Lovie's father was Edward Morris Love. He was an engineer and traveled frequently between Philadelphia and Chicago. The family moved closer to the city while Lovie was in grade school and that is when her classmates started calling her "Lovie." She attended Horscham Elementary School and Hathboro Middle School in Hackberry where she learned to play grass hockey.

In 1946, she was accepted at Northwestern University in Evanston, Illinois, where she pursued an advanced RN degree in nursing. Upon completion of her certification, she accepted a position at the Mayo Clinic in Rochester, and in 1948 met Earl Beard, a postgraduate trainee at Northwestern pursuing his cardiology fellowship. Lovie and Earl were married in 1950. Lovie worked at MD Anderson until she retired in 2000.

A memorial service was conducted on the 24th of September at the Houston Racquet Club, 10709 Memorial Drive in Houston.

Published in Houston Chronicle from Aug. 28 to Aug. 31, 2014.

The pages of *Aviation, Space and Environmental Medicine* are a rich source of clinical information for the aeromedical practitioner. Indeed, the excellent monthly articles titled, 'You're the Flight Surgeon' provide a series of carefully prepared accounts of aircrew with degenerative diseases, intracranial tumors, aneurysms, syncope, seizures, sleep disorders, headache, and with disorders of hearing, vision and of the vestibular system. It could well be said that, as far as medical certification of aircrew is concerned, disorders other than those of the nervous system predominate, but it is the experience of many that neurological disorders as a group run a close second to those of the cardiovascular system.

There is a particular feature of many neurological disorders that is highly relevant to aircrew. These primarily impair the critical skill of responsiveness. In this context they have much in common with the disturbances that aircrew can experience in their day to day work. As far as the diagnosis and prognosis of disturbances of the nervous system that impair responsiveness are concerned, neurological disorders that afflict us all and the adverse effects of a demanding environment must receive equal consideration. In this article we look at the nature of responsiveness as it relates to aircrew: it is dependent on the integrity of the states of wakefulness, awareness and consciousness, and these states are interdependent.

EXCESSIVE DAYTIME SLEEPINESS

Wakefulness is sometimes referred to as an enabling state. It underpins the ability of aircrew to keep watch for possible difficulties - usually referred to as vigilance. The state of wakefulness may be impaired when transport aircrew have difficulty in

“Although relatively rare, neurological disorders often rank a close second to complex cardiovascular conditions (in terms of needing waivers).”

copied with the irregularity of rest and activity that is inherent in operating worldwide and in aircrew involved in intensive military operations. Limitations to duty hours avoid the worst excesses, but it is the experience of all aeromedical practitioners that fatigue related to disturbed sleep remains a significant problem. It is likely to remain a problem in the practice of aviation medicine as its abolition would have serious economic consequences to airlines and significantly downgrade the operational capability of military forces. But the investigation of aircrew complaining of difficulty in coping with demanding work and rest schedules must exclude the possibility of a sleep disorder. Of recent years there has been increasing interest in disorders of the sleep-wakefulness continuum that lead to impaired wakefulness during the day. In the clinical world such disorders are often referred to as 'excessive daytime sleepiness' though

their manifestation may be more subtle than just excessive sleepiness. These include circadian disorders such as the delayed phase syndrome when sleepiness appears at inconvenient times of the day, narcolepsy, idiopathic hypersomnia, the restless legs syndrome and, perhaps most prevalent of all, obstructive sleep apnea with its concomitant pathology of obesity.

The clinical picture and informed clinical judgement are the keys to the investigation of a possible sleep disorder in aircrew but it is useful, early on, to have some idea whether there is any likelihood of an undue background of sleepiness independent of that induced by the working schedule. The Epworth Scale, carried out when the rest and activity of the individual would not be complicated by the potential effects of a demanding schedule, may be helpful as it would enable the aeromedical practitioner to decide whether



Continued on page 5

sleepiness that needs further investigation. Polysomnography may be needed in the assessment of some sleep disorders. Neurological disorders such as narcolepsy and hypersomnia are unlikely to be compatible with the demands of flying, but adequate management of sleep apnea (including weight loss) may prove useful.

DISORIENTATION

Awareness facilitates perception and is dependent on the wakeful state. However, awareness does not imply that what is perceived is adequately interpreted. That involves the state of consciousness, or to put it another way 'being aware of being aware'. The state of awareness relates to the appreciation of the spatial environment and to the overall operational demands of flying (situational awareness).

There can be a temporary loss of orientation in demanding situations – sometimes referred to as distraction. When a pilot makes an error in the attitude or spatial position of the aircraft the pilot is said to be disorientated and to have suffered an illusion, though a pilot can be aware of the illusion without being disorientated. Some illusions are visual in origin and some are linked to the vestibular system.

The fact that illusions may arise from dysfunction of the vestibular system raises the question whether pathology of that system may be involved. Indeed, a disturbance of vestibular function may arise from a change in atmospheric pressure with an abrupt onset of vertigo, though it is usually a short lived episode. Such an event (alternobaric vertigo) is more likely to occur with an upper respiratory tract infection. However, though in-flight incapacitations due to vestibular disease appear to be a rarity, spells of vertigo, dizziness or unsteadiness in aircrew need careful attention. An individual with Ménière's syndrome or with vestibular neuritis (labyrinthitis) may never be free of symptoms. These conditions are unlikely to be compatible with flying unless the practitioner is assured of the relief of symptoms and recovery of function. It is evident that unravelling the etiology and predicting the prognosis of a vestibular disorder demands not only the skills of an aeromedical practitioner familiar with the manifestations of vertigo and the physiology of orientation and disorientation but also those of a neurologist specializing in otology.

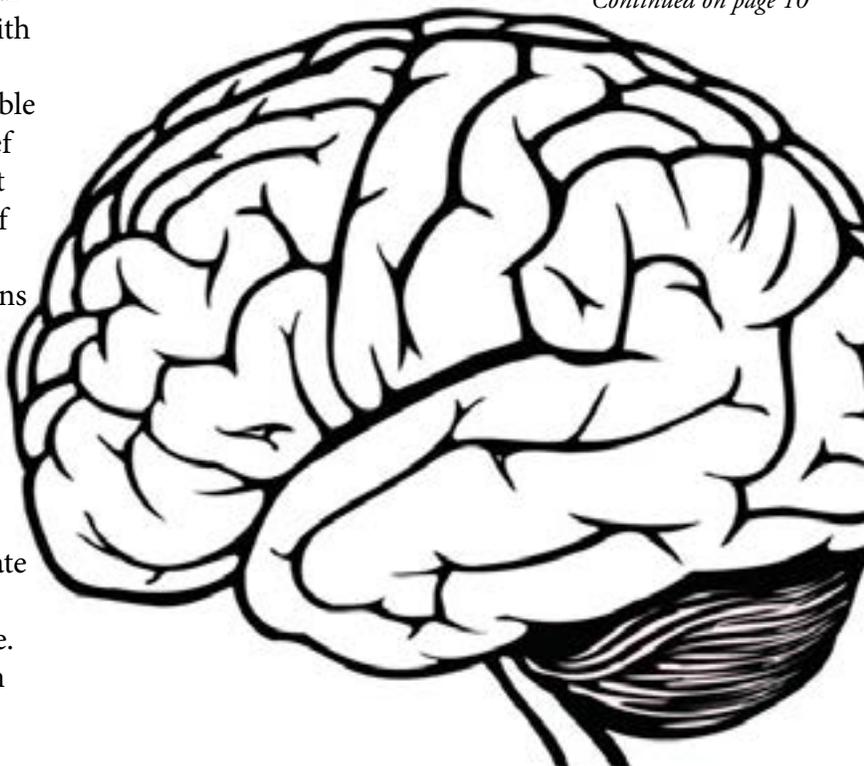
LOSS OF CONSCIOUSNESS

Consciousness is a much less understood phenomenon than wakefulness and awareness but, clearly, it is the state of the nervous system that interprets the information that is gathered when the individual is awake and aware. Impairment of consciousness linked to the hypotension

induced by positive accelerations has been experienced by military aircrew for many years, but of more recent times the high accelerations that can be achieved by agile aircraft may lead to sudden and dramatic loss of consciousness – an event often referred to as 'G-Induced Loss of Consciousness'. Consciousness may also be impaired with loss of pressurisation at altitude where 'Time of Useful Consciousness' becomes an important consideration. However, there is much uncertainty as to what is 'lost' and what is 'useful', and that extends the discussion from the neurosciences to the discipline of philosophy. Such operational events are unlikely to be encountered by the aeromedical practitioner engaged in civilian practice, but the practitioner may well be involved in the investigation of aircrew that have experienced a disturbance of consciousness. There is always the possibility of a history of a mild head injury, and the aeromedical physician may be called upon to assess the risk of a significant operational problem arising in the future. Such assessments are only likely to be needed when the trauma was of limited severity and there are no compounding factors. Examples are extradural hematomas without brain contusion and with return of consciousness within 24 hours, and subdural hematomas, again without brain contusion and free of focal signs. Considerations of prognosis may demand specialist skills including cognitive assessments and neuroimaging.

An episode of impaired consciousness may indicate a transient or episodic disorder such as epilepsy or syncope. As far as epilepsy is concerned the question may

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What's next in Aviation Medicine?

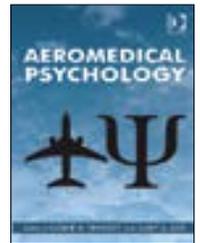


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Civil Aviation Medical Association

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The financial resources of individual member dues alone cannot sustain the Association's pursuit of its broad goals and objectives. Its fifty-plus-year history is documented by innumerable contributions toward aviation health and safety that have become a daily expectation by airline passengers worldwide. Support from private and commercial sources is essential for CAMA to provide one of its most important functions: that of education. The following support CAMA through corporate and sustaining memberships and we recognize the support of our lifetime members:

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arise in potential aircrew as well as those already employed as such. The differential diagnosis involves other paroxysmal events such as syncope and migraine. A single seizure must be taken seriously as there is the possibility of a recurrence – possibly for ten years or more after the event. Electroencephalography is an important tool in the investigation of seizures, but interpretation needs to be in the hands of an experienced neurologist. Indeed, the interpretation of abnormalities require much clinical experience and expertise as there is the possibility that such recordings a benign condition.

Syncope may well be a benign event in aircrew bearing in mind the varied stresses of the aviation domain. But such an event has to be carefully investigated as it could involve the cardiovascular system, as with arrhythmias, or be mediated through the autonomic system as with vasovagal syncope. The physical examination is often normal and so the history is likely to be of significance. The differential diagnosis between syncope and epilepsy can present a problem. Syncope occurs in the upright position preceded by nausea, yawning and deep breathing with the possibility of visual symptoms. There is a sudden collapse and a brief period of unconsciousness. On recovery there is usually little or no apparent confusion though there may be brief movements. Sweating and palpitations suggest syncope while an aura or aphasia suggest epilepsy. However, a definitive diagnosis may be difficult to achieve.

SUMMARY

The diagnosis and prognosis of impaired responsiveness in aircrew demand high levels of clinical acumen. Disturbances of wakefulness, awareness and consciousness may well be features of operating in the aviation environment, but such events need

investigation in case there was an underlying or concomitant clinical disorder.

Difficulty in coping with demanding schedules of work and rest may overlay a disorder of the sleep-wakefulness continuum that impairs alertness, and the expertise of a respiratory physician and/or a neurologist, each versed in sleep medicine, may be essential. Disorientation in flight or episodes of vertigo, dizziness and unsteadiness may involve pathology of the vestibular system and the opinion of a neurologist specializing in otology may be needed. Decisions with regard to the possible sequelae of a mild head injury demand the clinical expertise and experience of the neurosurgeon and the specialist skills available in a neurosurgical unit. An episode of impaired consciousness in aircrew needs to be taken seriously with the possibility of epilepsy or of a significant cause of syncope, and where there is uncertainty it is essential to seek the opinion of a neurologist with expertise in epilepsy or of a neurologist with expertise in cardiovascular autonomic disorders.

However, whether the disturbance is linked to wakefulness, awareness or consciousness, the expertise that is at hand is such that the aeromedical practitioner will be well supported to advise on the prognosis and on the future employment of aircrew.

FP

The author has referred to the writings of many colleagues who have given due consideration to the issues discussed in this article. For detailed information on the diagnosis and prognosis of neurological disorders relevant to aircrew the reader is referred to:

*'The Neurosciences and the Practice of Aviation Medicine'
Edited by A N Nicholson
Ashgate Publishing Company
Suite 3-1, 110 Cherry Street, Burlington,
VT 05401, USA.*

READY FOR YOU IN RENO!

CAMA Annual Scientific Meeting

**October 9-11,
2014**



**Silver Legacy
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Letters to the Editor

As an active pilot member of the Aircraft Owners and Pilots Association (AOPA) and the Experimental Aircraft Association (EAA), I would like to state my support for the original "Petition for Exemption from Federal Aviation Regulation Sections 61.3 and 61.23 to allow AOPA and EAA Members to conduct certain operations of aircraft without having to hold an FAA-issued medical certificate." However, I am also a full-time Aviation Medical Examiner and member of the Civil Aviation Medical Association and the Aerospace Medical Association, and strongly oppose Senate Bill S.2103 [General Aviation Pilot Protection Act of 2014 (GAPPA)] and House Bill HR 3708, since they are substantially different from the AOPA/EAA Petition and, in my aeromedical opinion, will significantly compromise the safety of the National Airspace System.

The follow are key differences between the AOPA/EAA Petition and the GAPP, which you should be aware of:

1. Aircraft:

a. AOPA/EAA: single engine fixed-gear aircraft with no more than four seats, and transporting the pilot and no more than 1 passenger.

b. GAPP: any aircraft with a maximum certificated takeoff weight of not more than 6000 pounds, and not authorized to carry more than 6 occupants.

c. Comment: The AOPA/EAA petition would be limited to the types of aircraft that are generally used for primary flight training. The GAPP would extend to aircraft that are defined by the FAA as "high-performance" and "complex." Aircraft in these categories would include some turboprop and jet aircraft. The AOPA/EAA petition states that their request would simply extend to the aircraft that pilots are already most familiar with. However, this is not a limitation of GAPPA. The typical GA aircraft described above by AOPA/EAA would have a maximum certificated takeoff weight of less than 2500 pounds.

2. Airspace:

a. AOPA/EAA: must operate the aircraft below 10,000 feet above mean sea level (MSL).

b. GAPP: may operate up to an altitude of 14,000 feet MSL

c. Comment: aircraft operating above 10,000 ft MSL are generally high performance complex aircraft. Whereas there is a speed limit below 10,000 ft MSL of 250 knots, there is no such speed limit above that altitude. In addition, whereas airline traffic entering and exiting the major airport hubs fly in protected airspace

below 10,000 ft MSL (Class B airspace) there is no such protection above that altitude. Therefore, operations above 10,000 ft MSL place a much greater demand on pilots both physiologically and medically. A pilot who must only "self-certify" to be medically qualified, will present a clear and present danger within the National Airspace System at these higher altitudes and airspeeds.

3. Pilot-In-Command (PIC)

a. AOPA/EAA: besides holding a valid state driver's license, the PIC must have satisfied the aeromedical training course requirements (to be established) within the preceding 24 calendar months, and must self-assess his/her medical ability to safely operate the aircraft.

b. GAPP: the individual possesses only a valid State driver's license.

c. Comment: AOPA/EAA pledged to develop a training program which pilots would be required to complete every 2 years and would guide them in their self-assessment decision making process. This is NOT in the GAPP. In some cases, asking pilots to self-certify medically may be comparable to evaluating one's ability to drive a vehicle after consuming alcohol!

4. Additional limitations in the original AOPA/EAA Petition not present in the GAPP:

a. AOPA/EAA: flights are limited to daytime only and pilots must maintain visual reference to the surface at all times.

b. GAPP: no such limitations

c. AOPA/EAA: flight is not for compensation or hire; not in furtherance of a business; not on a demonstration flight; not towing any object (eg. glider)

d. GAPP: not for compensation

Whereas the aircraft described in the AOPA/EAA petition are training-style aircraft flying at relatively low altitudes and airspeeds (below 150 knots), the aircraft in the GAPP are much more likely to include complex high-performance aircraft at high altitudes and airspeeds up to 250 knots (287 mph). In addition, whereas the AOPA/EAA aircraft described will have at most a pilot and one passenger on board, the GAPP aircraft may have up to 6 souls on board.

I strongly recommend maintaining the preservation of medical oversight for pilots until the proposed GAPP can be reformulated along the lines of the original AOPA/EAA.

Fred A. Furgang, M.D.
Miami, Florida

Dr. Larry Steinkraus, Chief of the Aerospace Medical Section at Mayo Clinic in Rochester, Minnesota speaks to CAMA members at the ASMA luncheon in May in San Diego.

His stimulating lecture on what real value the aeromedical examination has on pilots across the flying community was well received and demonstrated the importance of AMEs taking an active role in performing comprehensive flight physicals on pilots who they examine.



Future CAMA Meetings

2015 Fort Worth, Texas

2016 Rochester, MN (Mayo Clinic)