

Aerospace Medical Association



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Document Management Facility
U.S. Department of Transportation
400 7th Street, SW
Nassif Building, Room PL-401
Washington, DC 20590-0001

Re: Docket Number FAA-2007-27812

TO WHOM IT MAY CONCERN:

The Aerospace Medical Association (AsMA) is an organization of approximately 3,000 members engaged in clinical aerospace medicine and related research in the areas of civil aviation, military aviation, and the space program. We respectfully submit our response to the above Docket.

Periodicity is a term in use to define the time interval between medical examinations for pilots and other crew members. Its purpose is to detect illness that could jeopardize flying safety either by causing incapacitation or performance decrement. Current regulations for certification intervals have not been based on scientific study. Of particular concern are illnesses that can cause sudden incapacitation such as acute coronary syndromes (ACS) and stroke.

Fortunately the incidence of these illnesses is very low in the under age-40 population although significant increases become more perceptible with aging. This begs the question: how often should a medical examination be done to detect illness that could cause inflight incapacitation?

For an evidence-based answer, it would be necessary to follow several cohorts of pilots with each cohort given medical examinations at different intervals, e.g., every 6 months, 12 months, and 18 months after which the incidence of detected incapacitating illness in each cohort could be compared. We are aware of only one such study (cited in this NPRM) by DeJohn et al (DeJohn CA, Silberman WS, Lareker JG. The periodicity of pilot first-class medical examinations. *Aviat Space Environ Med* 2006; 77(3):222.) that followed such a protocol. They found for holders of a 1st class medical certificate, there was no difference in the detection of medically significant pathology whether pilots (under age-40) were examined every 6 or 12 months. (It should also be noted that the U.S. military services require annual medical examinations for pilots with no apparent added threat to flying safety.) In addition, Hastings stated, "... extending the first-class examination interval from six to twelve months should have no impact on aviation safety from a neurological perspective (Hastings JD, *Periodic examinations and neurological events. Aviat Space Environ Med* 2006; 77(3);223).

We also reviewed the National Transportation Safety Board (NTSB) database of General Aviation accidents occurring between January 1, 1991 and December 31, 2000. There were 18,044 accidents reported 64 of which were determined to be caused by incapacitating illness; in 8 others, incapacitating illness was believed to be a factor contributing to the accident.

AEROSPACE MEDICAL ASSOCIATION
THE INTERNATIONAL LEADER FOR EXCELLENCE IN AEROSPACE MEDICINE
78th ANNUAL SCIENTIFIC MEETING, MARRIOTT & SHERATON HOTELS
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<u>Condition</u>	<u>Cause</u>	<u>Contributing Factor</u>
Anoxia/Hypoxia	6	0
Carbon Monoxide	8	0
Cardiovascular	24	1
Hypoglycemia	0	1
Loss of Consciousness	11	1
Stroke	4	0
Unknown	<u>11</u>	<u>5</u>
Total	64	8

We did not have specific diagnoses for the categories of Cardiovascular and Loss of Consciousness although it is a reasonable presumption that the standard medical examination would not have revealed the pathology. In any event, 64 medically related accidents out of a total of over 18,000 during a 10 year interval is evidence that these are very rare events. Unfortunately there are no studies of General Aviation accidents correlating them with periodicity as was done by DeJohn et al for class I medical certification.

Consequently, we are faced with a question that cannot be answered today by evidence-based medicine. The best we can do, at least for the time being, is to rely upon our experience as aviation medicine practitioners and best-educated guess in determining periodicity keeping in mind that medical events rarely cause aircraft accidents. Furthermore, there is crew redundancy with two pilots in commercial aviation.

Based upon what we know today and upon our best judgment as practitioners, the Aerospace Medical Association sees no added threat to flying safety if class I medical examinations are conducted every 12 months and class III medical examinations every 60 months for those under age 40. As an aside, the proposed NPRM is consistent with the International Civil Aviation Organization (ICAO) policy.

Thank you for the opportunity to comment on this most important NPRM.

Sincerely,

Russell B. Rayman, M.D.
Executive Director