Aerospace Medical Association

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Executive Director
Russell B. Rayman, M.D.
Association Home Office

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Dr. Tony Evans
Chief Medical Officer
ICAO
Montreal , Quebec, Canada
H3C 5H7

Dear Dr. Evans,

Fatigue has been identified as the largest preventable cause of mishaps in transportation operations and specifically as a causal factor in 4-7 percent of aviation accidents (many experts believe this is an under-estimate). Scientific evidence indicates that aircrew fatigue is largely a function of scheduling factors (night duty, extended work periods, early report times, etc.) which prevent the accumulation of adequate sleep and often require crew members to work at less-than-optimal circadian periods. Although the pressures of 24/7 aviation operations make it impossible to completely eliminate fatigue from the aviation environment, a number of strategies can effectively mitigate fatigue risks.

Two highly efficacious counter-fatigue interventions are 1) short-acting hypnotics to optimize the restorative value of "out-of-phase" off-duty/layover sleep; and 2) short, in-seat cockpit naps to compensate for insufficient day-to-day sleep. Both strategies can augment the counter-fatigue value of well-planned aircrew scheduling and other currently-authorized fatigue-mitigation strategies.

Short-acting hypnotics: As described in the attached review paper, zolpidem and zaleplon can safely mitigate sleep loss by enhancing the duration and quality of sleep in less-than-optimal circumstances. Neither agent produces potentially problematic hangover effects provided there is 10 hours between the time at which the compound is ingested and the time of takeoff. The safety and efficacy of these compounds have been proven in a variety of placebo-controlled and epidemiological studies, and it has been demonstrated that both zolpidem (10mg) and zaleplon (10mg) do not disrupt normal sleep architecture or pose significant risks of dependence and/or addiction. Although the effective use of these medications currently is not authorized by most civil aviation authorities, these medications have long been authorized and successfully used in military operations.

Cockpit naps: As further described in the attached review, naps ranging from 20 minutes to 120 minutes have been scientifically proven to bolster alertness in a variety of circumstances, and a NASA study (on 3-member crews) determined that 40-minute in-seat, in-flight napping opportunities (affording an average of 26 minutes of sleep) during cruise segments enhanced performance and reduced pilot sleepiness during critical flight phases without subsequently compromising the quality or quantity of layover sleep. Furthermore, in-seat cockpit napping is already sanctioned by some military organizations. Also, there is published evidence that despite the apparent prohibition by civil aviation authorities of cockpit napping, such naps are being utilized by some crews in two-pilot operations as an effective counter-fatigue strategy (NASA/TM-1999-208799).

Recommendations: In light of the forgoing information and the fact that aviation fatigue management has become a major priority globally, we respectfully recommend that appropriate steps be taken to authorize the proper use of short-acting hypnotics and in-seat napping procedures as counter-fatigue interventions for civil commercial aviation operations. We further recommend that appropriate aeromedical and fatigue experts be consulted to establish detailed scientifically-based guidelines to ensure the safe and effective implementation of these procedures/strategies in the operational civil aviation context.

Thank you in advance for your kind consideration. Please feel free to contact the Aerospace Medical Association (703-739-2240, x-103; rrayman@asma.org) if we may be of assistance.

Sincerely,

Russell B. Rayman, M.D., MPH
Executive Director
Aerospace Medical Association