



WORKING PAPER

ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

Agenda Item 30: Other issues to be considered by the Technical Commission

OBSTRUCTIVE SLEEP APNEA (OSA)

(Presented by the United Arab Emirates)

EXECUTIVE SUMMARY

Obstructive sleep apnea (OSA) is a main cause of excessive daytime sleepiness and increases the risk for driving accidents, which can be normalized by treatment with continuous positive airway pressure ventilation. Since it is estimated that OSA is not diagnosed in about 80% of cases, recognition of patients at risk for accidents is a problem from both medical and societal points of view. Strategies to enforce best screening tools to identify subjects at high risk for accidents is paramount in order to improve flight safety, especially for commercial pilots, who show an increased risk of OSA in accordance with the GCAA current statistics.

Action: The Assembly is invited to:

- a) acknowledge that OSA is an emerging medical issue that could significantly affected human performance and current detection means may not be effective;
- b) instruct ICAO to develop current medical guidance that will include education and awareness solutions to the attention of aviation medical examiner (AME) license holders which focus on maintaining healthy life style and early identification of OSA to decrease the development of the diseases;
- c) instruct ICAO to define new protocol to enhance detection of OSA through more appropriate screening tools used by the AME, diagnostic methods, and treatments options; and
- d) urge States to apply safety management principles, and use the aeromedical data to enhance global flight safety by reviewing their methods to identify high risk license holders ,treat them and eventually decrease the morbidity and mortality of the individual and decrease the burden on insurance companies and at same time decrease the impact of this medical conditions causing fatigue.

<i>Strategic Objectives:</i>	This working paper relates to the Safety Strategic Objective.
<i>Financial implications:</i>	N/A
<i>References:</i>	<i>Manual of Civil Aviation Medicine (Doc 8984)</i>

1. INTRODUCTION

1.1 Obstructive sleep apnea (OSA) is a main cause of excessive daytime sleepiness and increases the risk for driving accidents, which can be normalized by treatment with continuous positive airway pressure ventilation. Since it is estimated that OSA is not diagnosed in about 80% of cases, recognition of patients at risk for accidents is a problem from both medical and societal points of view. Strategies to enforce best screening tools to identify subjects at high risk for accidents is paramount in order to improve flight safety, especially for commercial pilots, who show an increased risk of OSA in accordance with the GCAA current statistics.

1.2 OSA is the most frequent type of sleep-disordered breathing in the adult general population. OSA is often associated with obesity but can occur in normal-weight subjects. OSA has been attributed to aircraft accident and it is one of the medical causes of fatigue in aircrew and ATC.

1.3 The establishment of a system for early identification for those of risk of sleep apnea can significantly reduce the risk of fatal accident and decrease the mortality and morbidity associated with undiagnosed OSA.

2. DISCUSSION

2.1 There are no statistics on the prevalence of OSA in flight crew or air traffic control (ATC), from a retrospective data analysis from GCAA record, it is present in 1.5% of total number of Class 1 and Class 3 applications (66/4384). Total number of individual referred for sleep specialists consultation based on stop-bang score of equal to or more than 3, 66 license holders were found to have OSA with different severity.

2.2 Risk factors for developing OSA include obesity, male gender, smoking and alcohol along with other factors. All these factors are apparently significant from aviation perspective. Obesity is the most important modifiable risk factor for OSA.

2.3 Obstructive sleep apnea is increasing in prevalence and significantly increases cardiovascular morbidity and mortality (cardiacdysrhythmias, myocardial infarction, stroke, sudden cardiac death, and hypertension), and has significant safety implications because it can cause excessive daytime sleepiness, personality disturbances, and cognitive impairment such as decreased memory, attention, planning, problem-solving and multi-tasking. OSA is considered one of the most common medical cause of fatigue.

2.4 Evidence from large observational studies across various geographical regions and ethnic groups yielded similar prevalence rates of the OSA syndrome in various geographic regions and amongst a number of ethnic groups. And aviation personnel are not different from the rest of the sociality in their tendency for obesity and consumption of alcohol. So, it is appropriate to design and adopt internationally recognized screening tool and diagnostic tools to identify the people of risk of OSA.

2.5 Several tools exist for screening patients for sleep apnea with variable degrees of ease of administration and sensitivity and specificity. The most sensitive and easy to administer screening tool appears to be the stop-bang questionnaire; utilization of this screening tool would improve identification of patients at high risk for sleep apnea (with higher scores identifying higher-risk patients).

2.6 Treating sleep apnea improves cardiac function and reduces complications related to hypertension, congestive heart failure, and atherosclerosis.

2.7 The medical examiners should be aware of this condition and how it may be identified as many of those suffering from OSA are not diagnosed or treated for OSA. AME will screen for the risk for OSA using a comprehensive assessment of history, symptoms, and physical/clinical findings.

2.8 The most important and clinically useful screening tool exhibits the qualities of being easily administered and incorporated into clinic as well as having the highest sensitivity and specificity. There are many screening tools widely recognized as being fairly easy to administer: stop-bang (SB) and Epworth Sleepiness Scale (ESS). GCAA highly encourage the use of the stop-bang tools as it showed great identification tools.

2.9 The ESS score is a good estimate of excessive daytime sleepiness in symptomatic OSA patients but cannot be considered totally reliable. For example, the need to renew a pilot's license and the fear of losing one's job as a professional pilot are known causes of voluntary underreporting of symptoms by the patient. Therefore, objective assessment of sleepiness is needed by polysomnography (PSG) in the sleep laboratory to assess the occurrence of OSA and its severity.

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