Steps needed to reduce likelihood that pilot commuting practices could pose safety risk

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Commuting practices among airline pilots could potentially contribute to their fatigue, and because fatigue can reduce performance, pilots, airlines, and the Federal Aviation Administration should take steps to reduce the likelihood that commuting will pose a safety risk, says a new report from the National Research Council. However, there are currently too little data to determine the extent to which it poses a safety risk or whether commuting should be regulated. The FAA should support a study to gather data on how commuting practices are related to risk factors for fatigue.

The report offers guidance for how pilots should manage their sleep and awake time in order to avoid fatigue levels that could affect performance. Pilots should plan their commutes and other pre-duty activities so that they will have been awake no more than approximately 16 hours when their duty is scheduled to be completed, and they should endeavor to sleep for at least six hours prior to reporting for duty.

Airlines should collect more data on their pilots' commuting practices and educate pilots about potentially fatiguing effects of commuting, said the committee that wrote the report. These companies should also consider policies to help pilots plan predictable, nonfatiguing commutes and minimize negative consequences when disrupted commutes lead to fatigue.

"Some commutes have the potential to contribute to fatigue in pilots, and fatigue can pose a safety risk, but at this point we simply don't know

very much about actual pilots' commuting practices," said committee chair Clint Oster, a professor in the School of Public and Environmental Affairs at Indiana University, Bloomington. "Airlines and FAA should gather more information on pilots' commutes, and also work with pilots to lower the likelihood that fatigue from commuting will be a safety risk."

The report was requested by Congress due to concerns about pilots' commuting practices and whether they could lead to dangerous levels of fatigue, given that some pilots do not live near the airports where they are based and must travel long distances before beginning their flight duty. Such concerns increased following a fatal Colgan Air crash in Buffalo, N.Y., on Feb. 12, 2009.

Lack of Data

There is insufficient evidence to determine the extent to which commuting by pilots has been a safety risk, in part because little is known about specific commuting practices and in part because the existing safety checks, balances, and redundancies in the aviation system may mitigate the consequences of pilot fatigue, the report says.

The committee could find no systematic data on pilots' commuting practices, such as the distance traveled or modes of transportation used. Nor were there any systematic data on the duration or quality of pilots' sleep before or during their commutes.

Defining what constitutes a fatiguing commute based on time or distance is difficult, the committee added, because the length of commute does not necessarily determine whether a pilot reports well-rested and fit for duty. A pilot may commute a long distance, for example, but arrive in time to get adequate sleep at a local accommodation before flying. Conversely, a pilot could live close to the airport where he or she is

based, sleep poorly for any number of reasons, and report to duty fatigued. Given the nature of flight scheduling, most pilots do not commute on a daily basis; in fact, some commute only a few times a month.

At this time there is not enough data to support regulation of pilot commuting, and additional information will be needed to determine the extent to which commuting is linked to fatigue and whether a regulatory approach ultimately would be appropriate, the committee concluded. FAA should fund a study of the relationships between commuting distances and primary risk factors for fatigue, such as sleep quantity in the 48 hours before the end of duty on each day of the trip. The study should include a large random sample of pilots from multiple companies representing major parts of the industry, and it should collect objective data on sleep and waking time using reliable technology as well as sleep-wake diaries.

Lowering the Risks

Research shows that fatigue can lower performance if a person is awake continuously for more than about 16 hours or sleeps less than six hours on the day prior to work, the report says. In light of this, pilots should plan their commutes and other pre-duty activities so that they will have been awake no more than approximately 16 hours at the time their duty is scheduled to be completed. Pilots should also try to sleep for at least six hours before reporting for duty and should get more than six hours of sleep per day whenever possible to prevent cumulative fatigue from chronic sleep restriction.

The international aviation industry, under the auspices of the International Civil Aviation Organization, has been developing Fatigue Risk Management Systems to help airline operators understand fatigue and how to mitigate the risks it poses. These systems focus on integrating

scientific knowledge about fatigue and its management with the realities of airline operations. They also should include a component on understanding the effects of commuting practices on fatigue, said the committee. The adoption of this approach by U.S. airlines would help spot and mitigate potential problems, and it would give both the airlines and the FAA more information on whether commuting is contributing to fatigue and whether fatigue levels are within or beyond an acceptable level of risk.

In addition, FAA should fund an independent organization such as the Flight Safety Foundation to convene a joint industry, labor, and government working group to assess industry policies and develop best practices regarding pilot commuting, sick leave, attendance, and fatigue. FAA also should commission efforts to develop protocols and materials that train pilots to make decisions about commuting easily and effectively.

FAA has proposed a rule that would allow others to assess whether a pilot is fatigued. However, there are currently no valid and reliable tools and techniques to detect fatigue in pilots in an operational setting, the committee said. Further research would be needed to scientifically validate these tools and techniques and their use in a real-world context.

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