

*AVIATION FATIGUE MANAGEMENT SYMPOSIUM:
PARTNERSHIPS FOR SOLUTIONS*

”Comment on Barriers to Change”

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First let me extend kudos to the FAA for organizing this wonderful conference, and all of you for participating, and for participating in the discussion sections. Our discussion section was simply excellent, and we had a variety of different opinions and perspectives expressed.

I'm going to extract from all the talks a set of higher order barriers to good management of fatigue and sleep, barriers to the implementation of fatigue risk management.

Taking a step back, one of the big barriers is the investment in prescriptive hours of service rules.

Another barrier is the apparent conflict between cost, productivity and efficiency on one hand, and safety on the other.

And a third barrier, growing out of this mix of things, is the sometimes adversarial relationship between regulator, industry and labor, and advocacy groups instantiated in agreements and negotiations, and culminating in a general suspicion of other people's motives.

Looking at prescriptive rules, it seems, despite the development of sleep science - we know cockpit napping improves performance; we know that the circadian rhythm modulates sleep propensity and performance - ,we seem to be unable to integrate sleep science into prescriptive regulation. Cockpit napping is not available to

U.S. carries; current prescriptive rules ignore circadian modulation.

With respect to circadian rhythm, a prescriptive rule that is very safe if you are flying, maintaining, or working during the day and sleeping at night, is totally inadequate if you are trying to sleep during the day at adverse circadian phase, and then working through the circadian trough at night. It is day and night, the difference.

The productivity and efficiency and safety issues must all be integrated in some way. If you look at successful fatigue risk management programs, it appears that there are improvements in productivity and efficiency that go hand in hand, and maybe even lead, to improvements in safety.

Successful development and implementation of a fatigue risk management systems simultaneously overcomes all three of these barriers in an interesting and potentially very useful way.

Thus development and implementation of FRMS requires some lightening of the rigid one-size-fits-all prescriptive regulatory scheme that, at times, is overly restrictive, and at other times, potentially unsafe.

The Union Pacific Railroad has initiated a successful implementation of FRMS. The UP took the existing prescriptive rule and developed

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FRMS within it. The Federal Railroad Administration enforces hours of service rules required by legislation (as opposed to regulation). Union Pacific found that FRMS led to improvements in safety, and, also, found improvements in productivity. Union Pacific found greater throughput of trains on their railroad using fatigue risk management.

Union Pacific did many other things at the same time to improve efficiency of operations, so they will tell you that they can't really ascribe the improvement in throughput to fatigue risk management; nevertheless, it was associated.

If you look at the wonderful presentation we heard yesterday from easyJet, using an FRMS system in aviation, they have reduced their insurance cost 30 percent, a substantial savings; and, they reduced their regulatory costs, because they pay to be regulated and they are being visited less often because the regulator has confidence.

In implementing FRMS, Union Pacific was, with the agreement of labor and the Federal Railroad Administration, to take fatigue out of the arena of labor management negotiations, where it is for lots of industries, and put it into the safety management system, making it less adversarial. And you see in the case of easyJet, they were working very closely with their regulator, and were enabled to get some relief for regulations.

The same was true in the Air New Zealand case that we heard about. Thus, we have three successful implementations of FRMS that improve safety, employee wellbeing, and also reduce costs and improve the bottom line.

In other words, if one takes a comprehensive FRMS approach, you may be able to really lighten prescriptive rules; resolve the apparent contradiction between productivity and safety; and in the process of developing the FRMS reduce the tension and adversarial nature of

relationships through the establishment of what people have talked about at some length at this conference, and that is, a just culture.

There are some other subsidiary issues. Napping in the cockpit, we've known for a long time, is effective in restoring performance. It's not just cockpit napping; it is napping in general. If you have a situation where you are sleeping during the day, and only getting five hours of sleep, and working through the night, it should be routine in every workplace - in aviation for pilots, maintenance, tech ops, flight attendants, ATC - there should be provision for a short nap during the night. That should be built into the workplace. That should not just be for aviation but for all workplaces where there are 24/7 operations. You simply cannot get decent amounts of sleep by sleeping during the day.

Pharmacology should be considered. This is a taboo issue. "Pilots sleeping in the cockpit" or "Pilots taking drugs", everybody thinks this is going to be on Jay Leno, and everybody is going to have a fit about it. Yet the solution is, perhaps, a matter of education - as a number of people at this conference have touched upon.

One final thing, we talked about the disconnect between the schedule as planned and the schedule as flown. That presents a huge problem. And here FRMS also can be of help. If you combine FRMS, including mathematical sleep/performance prediction modeling, with actual measurements of sleep through actigraphy or self-report then you actually can handle exceptions in real time, and re-optimize your operation to maximize all the different constraints, including economics, routes available, crew availability, plane availability, and fatigue issues and sleep.

So as I see the situation, looking over the issue of prescriptive rules, productivity, safety and efficiency, and the adversarial climate, FRMS emerges as a tool to resolve all of those things

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yielding safer, more efficient, more profitable operations.

A copy of Dr. Gregory Belenky's biographical information is provided in Appendix C.