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SLEEP HEALTH

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Awakening a nation: A call to action

The tipping point

Recently, the National Transportation Safety Board (NTSB) held a public forum on drowsy driving [1]. In the context of noncommercial vehicles, the forum examined the scope of the problem, risk factors, and countermeasures to address the drowsy driving issue. While progress has been made, there remains an unmet need to enhance driving safety across the country. The distinguished forum panelists emphasized that the drowsy driving problem is grossly underestimated. There are many diverse and complex risks—thus, there is a need to implement effective countermeasures and develop new strategies.

Perhaps, the most striking outcome was the realization that drowsy driving is a surrogate and symbol of a national crisis created by the many risks present in our sleep-deprived society. The science has been established for decades: sleep loss, circadian disruption, and sleep disorders cause significant safety, health, performance, and mood-related risks [2]. For example, sleep and circadian science have provided a structured approach to examine fatigue factors in NTSB accident investigations [3]. Using this approach, the agency has cited fatigue due to a variety of sleep and circadian factors as a probable cause, contributing factor, and factual finding in accidents across all transportation modes. In an analysis of major NTSB investigations conducted between January 1, 2001, and December 31, 2012, fatigue was identified in 20% of those cases [4]. In total, more than 200 safety recommendations specifically focused on fatigue have come from the agency's investigations.

These examples of the NTSB's fatigue-related findings and recommendations provide a context for understanding the scope of these risks and the magnitude of the fatigue crisis. It is translated every day into lives lost and injuries, with associated effects on families, the workplace, and society. Of course, these crashes and incidents also have economic costs. Just extend these safety risks beyond transportation to every work setting—broadly defined, this includes health care, manufacturing, public safety, energy, technology, security, economic, and other sectors. Then, extrapolate these risks further, beyond work safety to the known consequences for health, performance, and mood. Because of our most basic biological design and requirement for sleep, every person is potentially affected, creating widespread fatigue in our population. The dangers, costs, and pervasive nature of fatigue provide the building blocks of a national crisis.

Barriers to change: “I’ll sleep when I’m dead”

Current social attitudes and behaviors reflect a longstanding cultural association between sleep loss and the virtues of a strong work ethic. To many people, it is a badge of honor to claim sleeplessness in the context of getting the job done. It is the unspoken message

that carries the greatest consequence: “I don’t need sleep,” or “I can overcome the sleep loss,” or “sleep loss doesn’t affect me.” These attitudes and beliefs drive individual, organizational, and societal behavior, reflecting how we grossly underestimate the risks and costs to our safety, health, performance, and mood. It represents one of the most challenging barriers on the path to change—aligning our attitudes and actions with established scientific knowledge.

Quantifying the scope of the problem remains a major concern, and again, the NTSB drowsy driving forum provided important information about some of the other pervasive barriers and challenges. In the drowsy driving arena, for example, experts repeatedly highlighted obstructive sleep apnea—a known crash risk [5]. However, the experts also acknowledged that the dangers associated with other sleep disorders are either virtually unknown or significantly underestimated. This acknowledgement emphasizes the need for, and importance of, further quantifying the safety, health, performance, and mood risks associated with sleep loss, circadian disruption, and sleep disorders. This includes a better understanding of the significant economic costs associated with these risks.

Another challenge is the diversity of known risks, as well as the factors yet to be identified. Some of these risks include work and school schedules, sleep disorders, developmental or age differences, the inaccuracy of self-diagnosis or misperception of fatigue, technology, medications, and many more. The variations and complexity of these risk factors underlie the difficulty in implementing effective countermeasures. Interventions may be possible in the realms of education, laws and policies, technology, design, sleep disorder diagnosis and treatment, fatigue management programs, and other approaches.

A call to action: The opportunities

The diversity, pervasiveness, and complexity of the known risk factors and potential countermeasures preclude a simple solution. There is no magic bullet. Rather, there is an urgent need for a scientifically-based, comprehensive, and sustained effort that will manage the dangers of fatigue and enhance safety, health, and performance for all. Solutions must be data driven, broadly applied, and regularly evaluated to improve effectiveness. Near-term efforts should focus on laying the groundwork for the foundational knowledge and programs that become institutionalized as the cultural norm. A long-term strategy should acknowledge and emphasize efforts that will be accomplished over time and will lead to the cultural change this nation needs.

There are opportunities at every level of society and for each individual to make all of us safer and healthier. Federal and state governments can: incentivize change; implement programs in areas such as sleep education, the diagnosis and treatment of sleep disorders, and

fatigue management; establish science-based work and scheduling policies; and provide models for managing the known risks effectively. Optimally, organizations could have parallel efforts in these areas and be the interface among the concepts, policies, and activities that touch individuals' work and school lives. Every person can be educated about sleep, circadian rhythms, and effective countermeasures to achieve optimal safety, health, performance, and mood. Such knowledge would inform individuals so they can adjust their behaviors, enhancing safety, a responsibility shared with organizations and government, to effect change on a countrywide scale.

This national awakening can lead all of us to safer and healthier lives with better sleep, performance, and mood. We must be prepared for an effort measured not in months, but in years. It must be comprehensively applied, and there likely will be challenges to progress at every turn. Many safety and health examples already exist that demonstrate the potential for success. This moment can be our tipping point, providing a path for our society and each one of us to be safer and healthier.

Disclosure

The opinions expressed in this article are the author's own and do not necessarily reflect the views of the National Transportation Safety Board, the National Highway Traffic Safety Administration, or the United States Government.

This commentary was written while Dr. Rosekind was a Member of the National Transportation Board. He is now the Administrator of the National Highway Traffic Safety Administration.

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