**Sleep, Alertness, and Fatigue Education in Residency (SAFER) Program**
**Background information and References**

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## Introduction

Acute and chronic sleep loss, whether partial or complete, substantially impair physical, cognitive, and emotional functioning in human beings. In addition, the influence of circadian physiology dictates both that wakefulness and alertness are for the most part at optimal levels during daylight hours, and that sleepiness is maximized during the night. Failure to adhere to this need for both appropriately-timed and adequate amounts of sleep results in an increase in sleepiness and fatigue levels and a decline in waking function that are likely to be particularly relevant to performance of daily tasks in the context of occupational settings.

However, modem society expects performance and productivity on a 24-hour basis. This need for round-the-clock operations in many spheres, including healthcare, often assumes precedence over the basic physiologic principles governing sleep and wakefulness. In particular, the long continuous shifts, reduced opportunities for sleep, and minimal recuperation time traditionally experienced by medical students and house staff during training, and frequently by physicians in practice as well, impact their work, their health and well-being, and the quality of their educational experience.

In response to such concerns, the ACGME in 2001 charged its Work Group on Resident Duty Hours and the Learning Environment with deye10ping a set of recommendations regarding common requirements for resident duty hours across accredited programs in all medical
specialties. These recommendations include an 80-hour work week, continuous duty hours limited to 24 hours, and one day in seven free of patient duties. Every residency program in the United States is required to implement these recommendations by July 1, 2003. The overriding goal of these recommendations was to create the opportunity for medical trainees to experience adequate rest, and enable them to perform and learn at their optimal level on a consistent basis.

The Need for Education

However, work hour regulations in and of themselves are necessary but not sufficient to achieve this goal. Education regarding the antecedents and consequences of sleep loss and fatigue and alert management strategies form the necessary foundation for any sleep loss and fatigue management strategies, including work hour regulations, and must be part of any comprehensive and integrated approach to this issue:

- Education is necessary to effect any substantial and sustained behavioral change on the individual level (i.e., the individual needs to understand the rationale for the changes in order to "buy into" them, and also accepts personal responsibility for instituting them).
- Education is often the only vehicle for affecting changes in lifestyle or personal behaviors that impact fatigue and alertness, as these behaviors are not likely to be amenable to external regulation (like amounts of baseline and recovery sleep obtained by residents on non-call nights, and moonlighting practices).

- Education is a critical part of affecting change at the social dynamic level, where one of the most powerful identified barriers to adherence to work hour regulations is the "culture" of the medical workplace. This culture implies that physicians need to "learn" how to manage without sleep.
- Education is necessary at the pragmatic level, where system-wide changes need to support and complement the changes in individuals (i.e., the hospital should provide adequate call room space for napping).

The ACGME work hour guidelines call for "education of faculty and residents in recognizing the signs of fatigue" and "applying operational countermeasures," and mandate the inclusion of sleep education in all residency programs. Unfortunately, medical students and house officers typically receive little or no education about normal sleep and circadian rhythms, or the essential role of sleep in maintaining adequate health and performance. Furthermore, the guidelines clearly state that monitoring of work hours within institutions must not be the only outcome measured, and refers to the need to monitor such parameters as "the physical and emotional well-being of residents," "the effects of sleep loss and fatigue," and "effect on performance." Many residency programs and program directors do not have expertise in sleep medicine or access to extensive educational resources, and are likely to need assistance on employing these parameters operationally, evaluating or monitoring them, and making "adjustments" or interventions to achieve the required goals. This perceived educational need provided the impetus for the development of the SAFER sleep education curriculum program.

SAFER Educational Goals

The goal of the SAFER program is to increase knowledge and awareness about sleep and fatigue among medical students and residents, and to help create a learning environment that maintains optimal performance and alertness. The first specific objective in achieving that goal was to develop the following educational curriculum module for medical professionals on sleep, fatigue, and alertness management, and to make it available to every residency program in the country. The module was designed to be easily adaptable to a variety of target audiences, including medical students, residents, residency directors, hospital administrators, and "support staff' (other health care professional that work with medical trainees as well as for residents' families). The SAFER curriculum was developed by a task force of individuals with diverse backgrounds and expertise in sleep medicine, medical education/curriculum development, and residency training programs. The task force was headed by members of the AASM Board and AASM Medical School Education Committee, as well as resident representatives, and representatives from ACGME and the AMA. The SAFER program stresses the importance of supporting balanced, evidence-based, and socially responsible policies regarding sleep, sleep loss and fatigue in medical education settings. The SAFER program also provides standardized and empirically-based information, including strategies that have already been developed in other industries facing similar needs (transportation, aeronautics).

**SAFER Curriculum Content**

The basic content areas of the SAFER curriculum include:
- Principles of sleep and chronobiology.
- The impact of sleep loss and fatigue on medical trainees (mood, health and safety, work performance, medical education, medical errors).
- Myths and misconceptions about sleep loss and fatigue.
- A framework for developing strategies at the systems levels and at the individual level for addressing and managing sleep loss and fatigue.

The 50-minute PowerPoint presentation is designed to be given by non-sleep as well as sleep medicine faculty to a variety of target audiences, and to present an educational overview of the issues that are accessible and pragmatic. Most of the key educational points are contained in the content of the slides themselves; the accompanying speaker's syllabus was developed to provide users with the empirical basis for the slide presentation content, and to supplement the information contained therein. The syllabus also contains a pre- and post-test evaluation tool for assessment of educational goals and objectives.

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