FATIGUE IN EMS

Developing Evidence Based Fatigue Risk Management Guidelines for Emergency Medical Services

WHAT IS FATIGUE?

Fatigue is...

> *a subjective, unpleasant symptom, which incorporates total body feelings ranging from tiredness to exhaustion creating an unrelenting overall condition which interferes with an individual's ability to function to their normal capacity.*[1]

1: Ream E, Richardson A. Fatigue: a concept analysis. Int J Nurs Stud. 1996;33(5):519-29.

THE FATIGUE IN EMS PROJECT

The overall goal of this project was to develop, test, and disseminate evidence-based guidelines for fatigue risk management tailored to the EMS setting. The project was comprised of three phases.

PHASE 1 aimed to evaluate the quality of evidence germane to use of caffeine, napping during shift work, shorter shift duration, and other strategies to mitigate fatigue. The primary outcome of PHASE 1 was a set of recommendations based on a review of the best available evidence and collated into a guideline for fatigue mitigation. Evidence-based guidelines are

> *systematically developed statements designed to help administrators, practitioners, and patients make decisions about appropriate health care for specific circumstances.*[2]

PHASE 2 aims to test one or more recommendations, and PHASE 3 aims to develop a freely available biomathematical model for EMS administrators to use while creating shift schedules.

2: Institute of Medicine. Clinical Practice Guidelines We Can Trust. March 23, 2011. The National Academies of Sciences, Engineering, Medicine.

Learn more about Fatigue in EMS: *www.emsfatigue.org*

RECOMMENDATIONS FOR MITIGATING FATIGUE

1. Reliable and/or valid fatigue and sleepiness survey instruments should be used to measure and monitor fatigue in EMS personnel. [1]
2. EMS personnel should work shifts shorter than 24 hours in duration.
3. EMS workers should have access to caffeine as a fatigue countermeasure. [3]
4. EMS personnel should have the opportunity to nap while on duty to mitigate fatigue. [4]
5. EMS personnel should receive education and training to mitigate fatigue and fatigue-related risks. [5]

ABOUT THESE RECOMMENDATIONS

These recommendations were developed following a rigorous process known as the GRADE Methodology (Grading of Recommendations, Assessment, Development, and Evaluation).

Evidence from more than 38,000 pieces of literature was reviewed by more than two-dozen investigators. A summary of the evidence connected to seven research questions and six fatigue mitigation strategies was evaluated by a panel comprised of experts in sleep medicine, fatigue science, emergency medicine, prehospital emergency care, risk administration, and public safety.

Prior to formulating recommendations, the panel deliberated: 1) the quality of evidence; 2) the balance between benefits and harms for different strategies; 3) the values and preferences of EMS constituents; and 4) costs associated with different fatigue mitigation strategies.

The panel reached consensus on five recommendations. These recommendations are supported by a review and synthesis of the best available evidence. EMS administrators that choose to create a fatigue risk management program of their own should consider one or more of these recommendations to guide decision making regarding specific fatigue mitigation strategies.

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PERFORMANCE MEASURES

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ABOUT THESE MEASURES

This handout includes an overview of the performance measures created by the panel of experts for EMS administrators. The intent of these performance measures is to aid EMS administrators with **evaluation of impact** and **monitoring of progress** following the adoption of one or more of the recommendations.

Performance measures 1-4 should each be measured over a one-year period.

1. Demonstrated use of reliable/valid fatigue and/or sleepiness survey instruments to measure and monitor fatigue in EMS personnel on at least a quarterly basis.

GOAL
Assess fatigue/sleepiness of EMS personnel with reliable/valid survey instrument(s) quarterly (4 out of 4 quarters annually).

NUMERATOR
Number of quarters in previous year when reliable/valid fatigue/sleepiness survey instruments were used to assess fatigue/sleepiness.

DENOMINATOR
Four quarters over same time period selected for numerator.

NOTES
- Assessing fatigue/sleepiness for a random sample of scheduled shifts (rather than all shifts) may reduce respondent burden and improve the rate of participation by EMS personnel.
- Targeted assessments are recommended. Specifically, the assessment of fatigue/sleepiness is recommended with reliable/valid survey instruments for any shift schedule (pattern/structure) suspected of elevating the risk of fatigue, such as extended duration shifts (e.g., ≥12 hours).

2. Percent of all shifts that are less than 24 hours in duration.

GOAL
100% of shifts are less than 24 hours in duration.

NUMERATOR
Number of shifts that are less than 24 hours in duration.

DENOMINATOR
Number of all shifts.

NOTES
- Shifts performed contiguously should be counted as a single shift period with a total duration (e.g. two 12-hour shifts performed contiguously by a single provider should be counted as a 24-hour shift).

3. Percent of all shifts where EMS personnel have access to caffeine.

GOAL
100% of shifts with access to caffeine.

NUMERATOR
Number of shifts with access to caffeine.

DENOMINATOR
Number of all shifts.

NOTES
- Example of access to caffeine includes availability of caffeinated beverages for free or for purchase while on duty within reasonable access to on-duty EMS personnel.

4. Percent of all shifts where EMS personnel are provided with access to and permission to take a nap while on duty.

GOAL
EMS personnel are provided with access to and permission to take a nap while on duty in 100% of extended shifts (e.g., ≥12 hours) and shifts taking place overnight.

NUMERATOR
Number of extended shifts (e.g., ≥12 hours) or shifts taking place overnight where EMS personnel are provided with access to and permission to take a nap while on duty.

DENOMINATOR
Number of all shifts ≥12 hours in duration or taking place overnight.

NOTES
- We define a nap as a short period of sleep (duration is not specified).
- The EMS agency that permit EMS personnel the opportunity to nap on duty is best demonstrated with a written policy.
- To ensure reasonable access to take a nap while on duty, there should be a scheduled time to take a nap or an unrestricted opportunity to take a nap throughout the shift, and an appropriate place to take an uninterrupted nap.
- Agencies may wish to consider the napping strategy regardless of shift duration and include shifts <12 hours as part of the performance measure if personnel work contiguous shifts and/or consecutive shifts with limited recovery between shifts (including combinations of shifts involving different agencies).

5. Percent of EMS personnel who have: (1) received education and training to mitigate fatigue and fatigue-related risks during new employee orientation/training; and (2) received education and training to mitigate fatigue and fatigue-related risks within the previous two years.

GOAL
(1) 100% of EMS personnel have received fatigue education and training as part of new employee orientation/training; and (2) 100% of EMS personnel have received fatigue education and training within the previous two years.

NUMERATOR
Number of EMS personnel who have received fatigue education and training 1) during new employee orientation/training, or 2) within the previous two years.

DENOMINATOR
All EMS personnel.

NOTES
- Functional memory, knowledge, and skill can decay rapidly after initial education and training. Education and training every two years is recommended to address decay in memory, knowledge, and skills in dealing with fatigue in the workplace.

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