

IMPLEMENTATION GUIDEBOOK

2018 FATIGUE RISK MANAGEMENT GUIDELINES FOR EMERGENCY MEDICAL SERVICES

October 2018

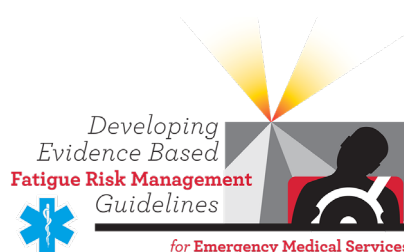
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With Support From:

National Highway Traffic Safety Administration
Contract Number: DTNH2215R00029



DISCLAIMER/DISCLOSURE

Work performed on this guidebook/document was supported with funding from the U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) to the National Association of State EMS Officials (NASEMSO): contract/grant number: DTNH2215R00029. The information, views, and/or opinions contained in this guidebook/document are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.

This document may be updated periodically following the release of new data, research, or other information relevant to fatigue risk management in the EMS setting, or at the request of the NHTSA or other organization. Updates will be signified with a new version number (e.g., Version #, Month, Year).



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EXECUTIVE BRIEF

FATIGUE

Fatigue refers to *“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 Work-related fatigue affects greater than half of Emergency Medical Services (EMS) personnel.² In addition, greater than half report poor sleep quality and inadequate recovery between scheduled shifts.³

FATIGUE AND SAFETY

Fatigue is a threat to the safety of EMS personnel, their patients, and the public. The odds of injury, medical error, patient adverse events, and safety compromising behaviors are higher among fatigued EMS personnel than non-fatigued personnel.⁴ Ambulance crashes, line of duty deaths, and patient mortality have been linked to sleep and fatigue of EMS personnel.^{5, 6, 7, 8} Despite the dangers of fatigue, guidance for mitigating fatigue in the EMS workplace has been limited.⁹

EVIDENCE-BASED GUIDELINE

Evidence-Based Guidelines (EBGs) are *“statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative options.”*¹⁰ In 2013, the National EMS Advisory Council issued an advisory that recommended examination of the evidence germane to fatigue mitigation and dissemination of that evidence to EMS administrators.¹¹ In 2015, the National Highway Traffic Safety Administration’s (NHTSA) Office of Behavioral Safety Research funded the National Association of State EMS Officials (NASEMSO) and academic partners at the University of Pittsburgh Department of Emergency Medicine to develop an EBG for Fatigue Risk Management in EMS.⁹ In 2016 and 2017, researchers were guided by 7 research questions and reviewed more than 38,000 publications germane to fatigue in shift work. In 2017, a panel of experts reached agreement on 5 recommendations that comprise an EBG for Fatigue Risk Management in EMS.¹² The recommendations are intended to aid EMS administrators in their decisions related to the development of fatigue risk management systems and programs at the local level.

FATIGUE RISK MANAGEMENT

Fatigue risk management refers to the methods, procedures, protocols, and policies used by organizations and employers to mitigate the negative effects of fatigue in the workplace.¹³ Key characteristics of fatigue risk management include:

1. **Science-based:** Based on science and supported by established peer-reviewed research;
2. **Data driven:** Decisions are driven by the objective analysis of data;
3. **Cooperative:** Employers, employees, and other stakeholders involved;
4. **Fully implemented:** System-wide use of tools, systems, policies, and procedures;
5. **Integrated:** Built into the corporate/organizational culture and management systems;
6. **Continuously improved:** Use of feedback, evaluation, and analysis of data to modify and improve where needed;
7. **Budgeted:** Financial commitment to mitigation and examination of return on investment;
8. **Owned:** Senior leadership accepts responsibility to lead.¹³

The purpose of this guidebook is to help EMS administrators with implementation of the Evidence Based Guidelines for Fatigue Risk Management in EMS. This document is intended to complement the scientific papers with a condensed summary of each recommendation and sample policy statement templates that may be tailored/edited to the needs of local agencies.

Full access to “Evidence Based Guidelines for Fatigue Risk Management in Emergency Medical Services” is now available online in *Prehospital Emergency Care* at <https://tandfonline.com/doi/full/10.1080/10903127.2017.1376137>. All companion materials, including background information, systematic reviews, evidence tables, and expert commentaries are also available.

SUMMARY OF EVIDENCE-BASED RECOMMENDATIONS

Five recommendations comprise the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS.¹²

These recommendations include:

1. Recommend using **fatigue/sleepiness survey instruments** to measure and monitor fatigue in EMS personnel.
2. Recommend that EMS personnel work **shifts shorter than 24 hours** in duration.
3. Recommend that EMS personnel have **access to caffeine** as a fatigue countermeasure.
4. Recommend that EMS personnel have the **opportunity to nap** while on duty to mitigate fatigue.
5. Recommend that EMS personnel receive **education and training** to mitigate fatigue and fatigue-related risks.

This document is structured to provide EMS administrators with concise information that addresses the Who, What, When, Why, and How of each recommendation.

Sample policy statements are included. These provide a template that may be tailored to fit local agency needs.

A checklist appears at the end of this guidebook. This checklist may be useful to administrators as a first step towards implementation and evaluation of a fatigue risk management program.

There is no 'one-size-fits-all' approach to implementation of the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS.

Administrators and managers of EMS organizations may choose to adopt one or more recommendations and tailor implementation to local needs.

RECOMMENDATION 1

RECOMMEND USING FATIGUE/SLEEPINESS SURVEY INSTRUMENTS TO MEASURE AND MONITOR FATIGUE IN EMS PERSONNEL

WHO?

Fatigue assessment of all EMS personnel is optimal. Targeted assessment of personnel who work extended duration shifts, overnight shifts, or shift patterns that are assumed to increase fatigue is recommended.

WHAT?

Fatigue— *“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

Sleepiness— drowsiness, one’s tendency to fall asleep (sleep propensity), and decreased alertness.^{14, 15}

WHEN?

It is recommended that administrators assess fatigue at least once every 3 months and target their assessments on shifts or shift patterns that may increase the risk of fatigue, such as shifts of extended duration and overnight shifts.¹⁶

WHY?

To mitigate fatigue, administrators will need to assess the magnitude of the problem and monitor for changes in fatigue over time. Repeated assessments with reliable and/or valid instruments will allow administrators to assess the impact of various fatigue mitigation strategies and address questions germane to return on investment.

HOW?

Administrators should assess fatigue and/or sleepiness with one or more survey instruments that have been shown to be reliable and/or valid. A list of fatigue and sleepiness survey instruments with detailed instructions for their use are

available in the Online Supplement Appendix E of a separate publication.¹⁷ Administrators may incorporate this open access document as part of a fatigue risk management program.

Fatigue risk management is “Data Driven.” Administrators should include regular assessments of fatigue/sleepiness and use the findings to guide decisions germane to fatigue mitigation in the workplace.

Lerman et al., 2012; PMID-22269988

See the next page for a sample fatigue risk management policy statement specific to this recommendation. Administrators may use this sample as a template for creation of their own policy statements.



SAMPLE POLICY STATEMENT FOR USE OF SURVEY INSTRUMENTS TO MEASURE AND MONITOR FATIGUE IN EMS PERSONNEL

Administrators should tailor this template to fit local needs.

The assessment of fatigue and/or sleepiness is a key component of fatigue risk management and mitigation. It is the policy of _____ to assess fatigue and/or sleepiness regularly as recommended in the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS.

ADMINISTRATION IS RESPONSIBLE FOR:

1. Identifying a survey instrument considered reliable and/or valid for the assessment of fatigue and/or sleepiness of EMS personnel.
2. Administering survey instrument(s) to EMS personnel – a minimum of once per quarter – and providing adequate time to complete and return the survey(s).
3. Keeping EMS personnel responses confidential (anonymous is preferred).
4. Providing EMS personnel with a description of the algorithms and calculations used to analyze and report survey responses.
5. Providing EMS personnel with a timely report of survey findings.
6. Providing EMS personnel with the opportunity to comment in response to survey findings, and suggestions that may help reduce fatigue and/or sleepiness in the workplace.
7. Providing EMS personnel with a draft plan of action, goals and/or objectives in response to survey findings, and the opportunity to comment on the draft plan of action, goals and/or objectives.
8. Providing EMS personnel with the final plan of action prior to implementation.
9. Providing EMS personnel with the opportunity and instructions to provide ongoing feedback regarding the assessment of workplace fatigue and/or sleepiness.

EMS PERSONNEL ARE ASKED TO BE RESPONSIBLE FOR:

1. Contributing to fatigue risk management in the organization by answering survey instruments that assess fatigue and/or sleepiness on a regular basis.
2. Providing feedback on the processes by which fatigue and/or sleepiness are assessed with reliable and/or valid survey instruments.
3. Providing feedback on the survey findings and suggestions that may help reduce fatigue and/or sleepiness in the workplace.
4. Providing feedback on a draft plan in response to survey findings.
5. Providing feedback on the final plan in response to survey findings prior to implementation.
6. Providing ongoing feedback regarding the assessment of workplace fatigue and/or sleepiness.

This policy statement is authorized by: (Print): _____.

(Signed):_____. (Title):_____.

(Date): _____.

RECOMMENDATION 2

RECOMMEND THAT EMS PERSONNEL WORK SHIFTS SHORTER THAN 24 HOURS IN DURATION

WHO?

All front-line EMS personnel who work in shifts.

WHAT?

It is recommended that administrators reduce shift duration for all shifts to less than 24 hours in duration. This recommendation pertains to both scheduled shifts and contiguous shifts that total 24 or more hours.¹⁶

WHEN?

It is recommended that administrators evaluate the application of this policy on shift duration annually.

WHY?

Shifts less than 24 hours in duration are associated with improved outcomes related to safety, performance, acute fatigue, sleep, and other outcomes than are shifts greater than or equal to 24 hours.¹⁸

HOW?

Administrators should assess shift schedules at least annually to identify occurrences when EMS personnel work 24 consecutive hours or longer. Administrators should evaluate the ability to decrease or eliminate shifts greater than or equal to 24 hours. When shifts greater than or equal to 24 hours occur or are necessary, administrators should (1) consider a policy that gives EMS personnel permission to call a "time-out" and rest for a reasonable period; and (2) consider adopting multiple other fatigue mitigation strategies outlined in the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS.

"Restricting work hours is only one of many ways in which fatigue-related risk can be reduced." Limiting shift duration is often referred to as a "twentieth century tactic" for fatigue risk management.

Modern approaches combine limits on shift duration with other strategies to comprise a comprehensive fatigue risk management program or system.

Dawson & Zee, 2005; PMID-16145032; Gander et al., 2011; PMID-21130218.

Jones et al., 2005

See the next page for a sample fatigue risk management policy statement specific to this recommendation. Administrators may use this sample as a template for creation of their own policy statements.



SAMPLE POLICY STATEMENT FOR SHIFTS LESS THAN 24 HOURS IN DURATION

Administrators should tailor this template to fit local needs.

Reducing negative outcomes linked to shift duration is a key component of fatigue risk management and mitigation. It is the policy of _____ to reduce the occurrence of any shifts worked consecutively to less than 24 hours as recommended in the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS.

ADMINISTRATION IS RESPONSIBLE FOR:

1. Identifying occurrences in the schedule when the total duration of a single shift or consecutive shifts is 24 hours or longer.
2. Reducing or eliminating shifts greater than 24 hours in duration.
3. Notifying EMS personnel if they are scheduled for any single or consecutive shifts greater than 24 hours in duration.
4. Providing EMS personnel the opportunity to request a "time-out" when scheduled for any single or consecutive shifts greater than 24 hours in duration.
5. Providing EMS personnel with the opportunity to comment on the method by which shift durations greater than 24 hours in duration are identified and reduce/eliminated, and the opportunity to comment on the method selected.
6. Providing EMS personnel with a draft plan for reducing or eliminating shift durations greater than 24 hours.
7. Providing EMS personnel with the final plan of action prior to implementation.
8. Providing EMS personnel with the opportunity and instructions to provide comment on an ongoing basis germane to reducing or eliminating shifts greater than 24 hours in duration.

EMS PERSONNEL ARE ASKED TO BE RESPONSIBLE FOR:

1. Identifying occurrences in the schedule when the total duration of any single shift or shifts worked consecutively is 24 hours or longer and notifying administration.
2. Notifying administration if the personnel scheduled for extended periods needs a "time-out" for a brief period of rest and recovery.
3. Providing administration with feedback on an ongoing basis germane to the organization's strategy for reducing or eliminating shifts greater than 24 hours in duration.

This policy statement is authorized by: (Print): _____.

(Signed):_____. (Title):_____.

(Date): _____.

RECOMMENDATION 3

RECOMMEND THAT EMS PERSONNEL HAVE ACCESS TO CAFFEINE AS A FATIGUE COUNTERMEASURE

WHO?

All front-line EMS personnel who work in shifts.

WHAT?

It is recommended that EMS personnel be provided access to caffeine (e.g., beverages).¹⁶ There is no recommended optimal dose.

WHEN?

The goal, as proposed in the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS, is that access to caffeine be provided for 100% of shifts.¹²

WHY?

Evidence shows that consumption of caffeine during shift work has positive effects on performance, acute fatigue, and acute sleepiness.¹⁹

HOW?

Administrators should assess the number (percentage) of shifts when EMS personnel do not have access to caffeine (beverage or other). Access may be particularly challenging for EMS crews deployed in ambulances for the duration of their shift. In this type of deployment model, administrators may need to determine level of access, and if necessary, find creative ways to enhance access to caffeine for free or for purchase (e.g., supply crews with coolers that include caffeinated beverages, or position crews and ambulances proximal to a facility or resource where it is feasible for crew members to purchase caffeinated beverages). A goal set by the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS is to have administrators provide EMS personnel with access to caffeine for 100% of shifts for free or for purchase.

Caffeine may be readily available in many EMS organizations; however, access to caffeine may be limited or non-existent in some EMS operations.

There is no prescribed optimal dose. This recommendation is focused on providing EMS personnel with access to caffeine. Consumption of caffeine for purposes of fatigue mitigation in the workplace should be guided by education and training.

Patterson et al., 2018; PMID-29324069

See the next page for a sample fatigue risk management policy statement specific to this recommendation. Administrators may use this sample as a template for creation of their own policy statements.



SAMPLE POLICY STATEMENT FOR PROVIDING ACCESS TO CAFFEINE TO EMS PERSONNEL WHILE ON DUTY

Administrators should tailor this template to fit local needs.

Use of fatigue countermeasures is a key component of fatigue risk management and mitigation. It is the policy of _____ to provide access to caffeine on all shifts and to all EMS personnel as recommended in the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS.

ADMINISTRATION IS RESPONSIBLE FOR:

1. Providing access to caffeinated beverages (e.g., coffee).
2. Providing EMS personnel with the opportunity to comment on the method by which caffeine is made available to front line EMS personnel.
3. Providing EMS personnel with a draft plan of action, goals and/or objectives for maintaining or increasing access to caffeine during shift work, and the opportunity to comment on that plan.
4. Providing EMS personnel with the final plan of action prior to implementation.
5. Providing EMS personnel with the opportunity and instructions how to provide comment on an ongoing basis germane to maintaining or increasing access to caffeine during shift work.

EMS PERSONNEL ARE ASKED TO BE RESPONSIBLE FOR:

1. Providing feedback (and suggestions for improvement) on the processes by which caffeine is made accessible to EMS personnel.
2. Providing feedback on administration's plan for making caffeine accessible on 100% of shifts to EMS personnel.
3. Providing feedback on the final plan to make caffeine accessible to EMS personnel for 100% of shifts.
4. Providing feedback on an ongoing basis germane to how administration makes caffeine accessible to EMS personnel for 100% of shifts.

This policy statement is authorized by: (Print): _____.

(Signed):_____. (Title):_____.

(Date): _____.

RECOMMENDATION 4

RECOMMEND THAT EMS PERSONNEL HAVE THE OPPORTUNITY TO NAP WHILE ON DUTY TO MITIGATE FATIGUE

WHO?

All front-line EMS personnel who work in shifts.

WHAT?

It is recommended that EMS personnel be provided the opportunity to nap while on duty to mitigate fatigue and fatigue-related risks.

WHEN?

It is recommended that all EMS personnel be provided the opportunity to nap during 100% of extended duration shifts (e.g., shifts greater than 12 hours) and during shifts that take place overnight.

WHY?

Evidence shows that napping during shiftwork reduces feelings of acute fatigue (sleepiness).²⁰

HOW?

Administrators should provide EMS personnel who work in shifts the permission and opportunity to nap during shift work, especially during extended shifts (e.g., shifts greater than or equal to 12 hours and overnight shifts). Nap duration is not specified; however, naps of short duration (e.g., 10-15 minutes) have been shown to have a positive impact on fatigue and fatigue-related outcomes.²⁰

“Providing EMS personnel the opportunity to nap on duty is best demonstrated with a written policy.”

This document does not contain a recommendation for the optimal duration of a nap.

Martin-Gill et al., 2018; PMID-29324060

See the next page for a sample fatigue risk management policy statement specific to this recommendation. Administrators may use this sample as a template for creation of their own policy statements.



SAMPLE POLICY STATEMENT FOR PROVIDING EMS PERSONNEL PERMISSION TO NAP DURING SHIFT WORK

Administrators should tailor this template to fit local needs.

Napping during shifts is a key component of fatigue risk management and mitigation. It is the policy of _____ to provide EMS personnel permission and opportunity to nap during shifts as recommended in the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS.

ADMINISTRATION IS RESPONSIBLE FOR:

1. Informing EMS personnel that they have permission to nap during shifts.
2. Defining the periods of opportunity when EMS personnel may take a nap during shift work.
3. Providing EMS personnel with the opportunity to comment on the method by which EMS personnel are permitted to nap during shifts.
4. Providing EMS personnel with a draft plan of action, goals and/or objectives for use of naps during shift work as a strategy to mitigate fatigue, and the opportunity to comment on the plan of action, goals and/or objectives.
5. Providing EMS personnel with the final plan of action prior to implementation.
6. Providing EMS personnel with the instructions and opportunity to provide comments on an ongoing basis germane to a napping policy.

EMS PERSONNEL ARE ASKED TO BE RESPONSIBLE FOR:

1. Providing feedback for process improvement regarding implementation of napping during shift work.
2. Providing feedback on a draft plan of action, goals and/or objectives that provide the opportunity to nap.
3. Providing feedback on the final plan of action, goals and/or objectives.
4. Provide ongoing feedback on how the organization provides EMS personnel the permission and opportunity nap during shifts.

This policy statement is authorized by: (Print): _____.

(Signed):_____. (Title):_____.

(Date): _____.

RECOMMENDATION 5

RECOMMEND THAT EMS PERSONNEL RECEIVE EDUCATION AND TRAINING TO MITIGATE FATIGUE AND FATIGUE-RELATED RISKS

WHO?

All front-line EMS personnel who work in shifts.

WHAT?

It is recommended that EMS personnel receive education and training in sleep health and fatigue during new employee orientation (onboarding), and at a minimum, every two years.

WHEN?

During new employee orientation (onboarding) and every two years.

WHY?

Evidence shows that education and training in sleep health and fatigue has a positive impact on sleep and related outcomes among shift workers (i.e., sleep quality).²¹

HOW?

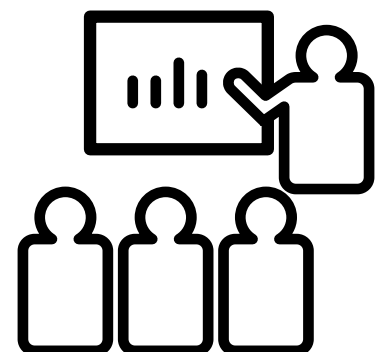
Administrators should incorporate education and training focused on sleep health and fatigue as part of new employee orientation, and repeat this education and training at a minimum of every two years. Administrators should tailor the education and training of their EMS personnel to fit the needs of their organization. The content, method of delivery, and costs will vary between EMS organizations. Previous research suggests that program costs may range from \$130 to \$150 per employee per year.^{22, 23}

EMS personnel should be educated and trained on the following:

1. Hazards of fatigue;
2. Impact of chronic fatigue;
3. Fatigue can be managed but not eliminated;
4. Adequate sleep is key;
5. Basics of sleep physiology;
6. Core components of sleep health and hygiene;
7. Sleep disorders;
8. Importance of diet, exercise, & stress management;
9. Fatigue recognition;
10. Alertness strategies;
11. Advice on managing personal relationships for shift workers.

Lerman et al., 2012; PMID-22269988

See the next page for a sample fatigue risk management policy statement specific to this recommendation. Administrators may use this sample as a template for creation of their own policy statements.



SAMPLE POLICY STATEMENT FOR PROVIDING EMS PERSONNEL WITH EDUCATION AND TRAINING ON SLEEP HEALTH AND FATIGUE

Administrators should tailor this template to fit local needs.

Education and training on sleep health and fatigue are key components of fatigue risk management and mitigation. It is the policy of _____ to provide EMS personnel who work in shifts education and training in sleep health and fatigue as recommended in the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS.

ADMINISTRATION IS RESPONSIBLE FOR:

1. Providing all EMS personnel with education and training in sleep health and fatigue with initial hire.
2. Provide all EMS personnel with education and training in sleep health and fatigue a minimum of every two years.
3. Providing EMS personnel with the opportunity to comment on the method by which EMS personnel are educated and trained in sleep health and fatigue.
4. Providing EMS personnel with a draft plan for education and training in sleep health and fatigue as a strategy to mitigate fatigue, and the opportunity to comment on the plan.
5. Providing EMS personnel with the final plan prior to implementation.
6. Providing EMS personnel with the instructions and opportunity to provide ongoing feedback regarding education and training on sleep health and fatigue.

EMS PERSONNEL ARE ASKED TO BE RESPONSIBLE FOR:

1. Providing feedback (and suggestions for improvement) on the processes by which EMS personnel are educated and receive training on sleep health and fatigue.
2. Providing feedback on a draft plan to provide education and training on sleep health and fatigue management.
3. Providing feedback on the final plan.
4. Provide ongoing feedback on how the organization provides EMS personnel with education and training on sleep health and fatigue.

This policy statement is authorized by: (Print): _____.

(Signed):_____. (Title):_____.

(Date): _____.

KEY FEATURES

OF FATIGUE RISK MANAGEMENT

FATIGUE MANAGEMENT POLICY

The ultimate responsibility for fatigue risk management is senior management.

Senior management should make a commitment to fatigue risk management, provide an ongoing display of that commitment, and commit the resources necessary for an enduring effort to mitigate fatigue in the workplace.

Lerman et al., 2012; PMID-22269988

RISK MANAGEMENT

"In general, fatigue risk management is a shared responsibility between the organization and the employee."

Lerman et al., 2012; PMID-22269988

REPORTING

Fatigue risk management is "Data Driven."

Administrators should include regular assessments (every 3 months) of fatigue and/or sleepiness, and use the findings to guide decisions germane to fatigue mitigation in the workplace.

Lerman et al., 2012; PMID-22269988

INCIDENT INVESTIGATION

The aim of an investigation is to determine if fatigue may have played a role, and to mitigate similar events in the future.²⁴

Investigations may include the following elements:

1. Time of day when the event occurred?
2. What was the fatigue level of crew?
3. How long was the crew awake prior to incident (look back 24 hours)?
4. What was the crew's sleep history / sleep debt over past 72 hours?
5. What was the crew's work history over past 72 hours?

Answers may help determine if fatigue or sleepiness was a factor, and help identify ways to mitigate fatigue in the future.

National Transportation Safety Board, 2006

TRAINING AND EDUCATION

EMS personnel should be educated and trained on the following:

1. Hazards of fatigue;
2. Impact of chronic fatigue;
3. Fatigue can be managed but not eliminated;
4. Adequate sleep is key;
5. Basics of sleep physiology;
6. Core components of sleep health and hygiene;
7. Sleep disorders;
8. Importance of diet, exercise, & stress management;
9. Fatigue recognition;
10. Alertness strategies;
11. Advice on managing personal relationships for shift workers.

Lerman et al., 2012; PMID-22269988

INTERNAL AND EXTERNAL AUDITING

Senior management should consider forming a team to establish policies, procedures, education and training, and processes for acquiring the data needed to implement a fatigue risk management program. In addition, the team should create procedures for internal audits and use of external resources for audits and program evaluation.

Lerman et al., 2012; PMID-22269988

CHECKLIST

PROPOSED PERFORMANCE MEASURES AND STRATEGIES FOR IMPLEMENTATION OF THE FATIGUE RISK MANAGEMENT GUIDELINES FOR EMERGENCY MEDICAL SERVICES

Martin-Gill et al., 2018; PMID-29324060¹⁶

RECOMMENDATION 1: ASSESSING FATIGUE

1. Select use of a fatigue and/or sleepiness survey instrument (refer to Online Supplement Appendix E in a separate publication).¹⁷
2. Distribute survey at least quarterly to EMS personnel across shifts.
 - a. Random or targeted sampling of EMS personnel is recommended, such as during extended duration (greater than or equal to 12 hours) shifts, overnight shifts, or during work periods of high task load.
 - b. Paper or electronic surveys.
3. Review results of completed surveys on at least a quarterly basis.
4. Develop a plan to address shifts that are associated with excess fatigue and/or sleepiness, and then repeat measures to determine if there was a change.

RECOMMENDATION 2: SHIFT DURATION

1. Determine the percent of all EMS personnel shifts that are:
 - a. Less than 24 hours: N = ____ per month (____ %)
 - b. Greater than or equal to 24 hours: N = ____ per month (____ %)
2. If there are shifts that are greater than or equal to 24 hours:
 - a. Evaluate ability to decrease the number of shifts that are greater than or equal to 24 hours and decrease or eliminate if possible.
 - b. If unable to eliminate shifts that are greater than or equal to 24 hours, ensure maximal use of all other fatigue mitigation recommendations provided in this guideline.
3. Consider implementation of a policy for EMS personnel to have the right to call "time out" and be granted a reasonable rest period if the individual determines that he or she is unfit or unsafe to continue duty, without adverse personal action or undue pressure to continue in this circumstance. Policy should include management monitoring use of the "time out" policy.

RECOMMENDATION 3: ACCESS TO CAFFEINE

1. Determine the number of shifts where EMS personnel have access to caffeine:
 - a. List all shifts (scheduled and unscheduled): N = ____
 - b. Identify during which shifts EMS personnel have access to caffeine: N = ____ (____ %)
2. If EMS personnel do not have access to caffeine for 100% of shifts, identify ways to increase the availability of caffeine on the remaining shifts (e.g., availability of caffeinated beverages for free or for purchase while on duty).
3. Identifying the type, length, and location of shifts without access to caffeine can assist in identifying ways to increase the availability of caffeine.

RECOMMENDATION 4: PERMISSION TO NAP DURING DUTY

1. Establish a policy that allows for napping by EMS personnel while on duty.
 - a. Policy should identify a scheduled time to take a nap by shift or an unrestricted opportunity to take a nap throughout a shift.
 - b. Policy should focus particularly on extended duration (greater than or equal to 24 hours) or overnight shifts.
 - c. Policy may include all shifts, especially where EMS personnel may work contiguous shifts and/or consecutive shifts with limited recovery between shifts (including combinations of shifts involving different agencies).
2. Establish access to a location where EMS personnel can have reasonable access to take a nap (defined as a period of sleep).
3. Consider and mitigate potential risks associated with sleep inertia (transient performance impairment immediately after awakening from a nap).
 - a. Consider staggering naps among members of the same duty crew.
 - b. Consider use of caffeine to minimize the effects of sleep inertia.

RECOMMENDATION 5: EDUCATION AND TRAINING

1. Establish an educational and training program on fatigue risk management to be delivered to all EMS personnel during new employee orientation/training and every two years.
2. Develop a tracking mechanism for this training for all EMS personnel in the agency.
3. Audit the rate of delivery of this education:
 - a. New orientees in prior year (total): N = ____
New orientees that received fatigue education/training: N = ____ (____ %)
 - b. All EMS personnel: N = ____
All EMS personnel who received fatigue education/training in prior 2 years: N = ____ (____ %)
4. If either percentage is less than 100%, determine ways to improve completion of this training.

CHECKLIST NOTES

An organization's fulfillment of each evidence-based recommendation should be reassessed on an annual basis to better incorporate the recommendations into practice and ensure their ongoing use.

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