

ONE MORE THING FOR MANAGERS TO MANAGE: SLEEP DEPRIVATION

Article

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One More Thing for Managers to Manage: Sleep Deprivation

At 7:00 a.m., Darren's wife wakes him from his deep sleep. After going to bed at 2:30 a.m., his 4 ½ hours of tossing and turning while sleeping have not been enough. His wife kisses him good bye, reminds him it is his turn to pick up the kids today at 2:30 p.m. and that the kids both have religion class from 3:00 p.m. to 4:00 p.m. After showering and shaving, Darren drives the 14 miles to the community college where he is taking three classes to further his formal education. Today, classes are from 8:50 a.m. to 12:20 p.m. At 12:30 p.m., Darren leaves school and drives to the dry cleaners, where he picks up his uniform in preparation to work the graveyard shift tonight. Darren's pager goes off and when he returns the call he finds that his wife wants to meet him for lunch. Leaving their favorite restaurant at 2:00 p.m. just gives him enough time to get to the school and pick up the kids. Darren drops them off at religion class and has time to get gas and have the car washed. Picking the kids up from church, he drives the eight miles to his in-laws' house who will watch the kids until his wife gets off work. Darren then jumps on the freeway to drive the 56 miles to work.

Today is Darren's "Monday", he is working the 3/12, graveyard shift (6:00 p.m.-6:00 a.m.) at Springville Police Department. As Darren slides into briefing, just beating the clock, his sergeant lets him know that one of the day watch officers will not be in until 10:00 a.m. and that he will need to cover for him. Darren, needing the extra money to cover his education expense, does not protest. So, at 10:00 a.m., after being awake for more than 27 hours straight (or about 39 hours in a 48 hour period), Darren starts his 56-

mile trip back home. After getting home without remembering the last ten miles of his drive, Darren climbs into bed and considers himself lucky, for this is a light week. Darren has no scheduled overtime, no subpoenas, no training, no collateral duties to handle, and no meetings to attend. This week, he vows to catch up on sleep.

Sound familiar? Maybe, or maybe not. If this scenario sounds familiar, it is because you are aware of how employees on compressed work schedules juggle their personal and professional lives. If it does not sound familiar, as a manager, you may just be naïve.

While the compressed work schedules are probably here to stay and will become increasingly common by 2008, the importance of managing an employee's time on the job is becoming even more important. Due to the recent changes in employee retirement programs, agencies are losing officers at a faster rate than they can replace them. This presents a problem in the recruitment and retention of qualified officers and will continue for at least the next five years. The competition between municipal law enforcement agencies is at an all-time high. To many prospective and lateral police officers, the compressed work schedule is very attractive and looks to become an essential component of an effective recruitment and retention program. As a result of the unprecedented number of retirements, most medium-sized agencies just do not have the available officers to cover all shifts, creating the need for other officers to work significant amounts of overtime.

Officers are also being tasked with additional duties and responsibilities. These duties are more intrusive because they do not normally coincide with the officer's normal work hours. The officers may have to go home after their duty hours, before coming

back to open the firing range, attend training or go to court. The compressed work schedule allows the employee another option that quickly becomes problematic. The employee can live farther away from work, because in their eyes, they only have to work their “3”, and then they are off. Employees seem to be moving farther away from the cities they work in to find more attractive and affordable housing, thus adding to their overall awake time due to the extended commute.

When is enough, enough? Hopefully, before someone gets hurt or hurts someone else as a result of sleep deprivation and fatigue. Webster’s dictionary has several definitions for fatigue: “1) weariness from labor or exertion; 2) nervous exhaustion; 3) the temporary loss of power to respond induced in a sensory receptor or motor end organ by continued stimulation; 4) the tendency of a material to break under repeated stress.”¹ However, the term “fatigue” has not yet been defined in a concrete fashion.² In human performance literature, fatigue is presented as the “deterioration in human performance, arising as a consequence of several potential factors, including sleepiness.”³ “Sleepiness, according to an emerging consensus among sleep researchers, and clinicians, is a basic physiological state (like) hunger or thirst. Deprivation or restriction of sleep increases sleepiness and as hunger or thirst is reversible by eating or drinking, respectively, sleep reverses sleepiness.”⁴ Fatigue is treated as a concept that occurs in response to predefined conditions and has physiological and performance consequences.

¹ Merriam Webster, Ninth New Collegiate Dictionary, 1991, 452.

² Battelle Memorial Institute, “An Overview of the Scientific Literature Concerning Fatigue, Sleep, and the Circadian Cycle.” 1998, 2.

³ Ibid.

⁴ Roth et al., 1989, cited by Mendelson, Richardson, Roth, 1996, 2.

The cumulative effect of sleep debt is significant in two respects. As would be expected, sleep-deprived individuals do not perform as well as well rested ones, particularly in monotonous tasks such as driving a car. Secondly, sleep deprivation studies have shown an additional impairment upon job performance through the worker's motivation and attitude. Absenteeism, tardiness and carelessness are common to irritable shift workers, and these issues might outweigh the direct influences of sleep deprivation upon performance levels.

Regulatory agencies, such as the National Transportation Safety Board and Nuclear Regulatory Commission have attributed many serious human errors to sleep deprivation. The Three Mile Island and Chernobyl nuclear disasters have been attributed (in part) to fatigued shift workers. Scores of railroad accidents and countless highway accidents have been attributed to inadequate sleep. Most sleep-related accidents occur between 1 a.m. and 6 a.m.⁵

There are four critical factors to examine when looking at how fatigue affects performance:

1. Time on task, including duty period duration.
2. Time since awake when beginning the duty period.
3. Acute and chronic sleep debt.
4. Circadian disruption and shift work.

Time on task and duty period duration focus on the amount of time an individual is spending performing a specific task. Factors that increase fatigue include boring or monotonous work, stressful work and extended duty periods.

⁵ Thomas J. Aveni, "Shift Work and Officer Survival", Law Enforcement for the Preservation of the Second Amendment. Internet. <http://www.lepsa.org/shift_work_and_officer_survival.htm> Accessed: April 17, 2003.

Time since awake when beginning the duty period is often a problem found with police personnel assigned to shift work. On an employee's "Monday," when assigned to the graveyard shift, officers typically rise in the morning, spend the day performing off-duty tasks, and then come to work after being awake for more than 8 to 10 hours. They then work their duty shift which may be in excess of twelve hours. The fact that they are working a twelve-hour shift is not as critical as the fact that they are starting the shift after being awake for an extended period. It is the cumulative amount of hours the individual is awake that affects performance.

Acute and chronic sleep debt comes into play when you examine the totality of the responsibilities that the officers have in both their professional and personal life. Marriage, children, social obligations and education weigh heavily on their personal side. Normal duty hours, court, overtime, training, travel time, and collateral duties weigh on the professional side. Either one of these, professional or personal, would be enough to affect a person's sleep, but when combined, affect the individual exponentially.

Shift work affects the body's circadian clock, which regulates different bodily functions at different times of the day. Some of these bodily functions include regulating body temperature, urine production, and levels of blood steroids. The circadian system is not able to adjust instantaneously to changes in routine, such as shift work. In addition, a person's ability to adjust to shift work deteriorates with age.⁶

Humans are by nature diurnal (day orientated) as opposed to nocturnal (night orientated) beings, meaning that our physiological functions are geared towards daytime activity and nighttime rest.

⁶ Lauber, J.K. and Kayten, P.J. (1988). Sleepiness, Circadian Dysrhythmia, and Fatigue in Transportation Systems Accidents. *Sleep*, 11 (6): 503-512.

Research has shown in fact that our physiological functions fluctuate in cycles, or rhythms, which are regulated by an internal biological clock in the brain. These rhythms range from minutes, for example in the stages of sleep, to days, for example in the female menstruation cycle.⁷

Studies have shown that the main physiological functions such as core body temperature, hormone production, heart rate, blood pressure, gastric activity, and the sleep/wake cycle, all have cycles or rhythms of approximately 25 hours. These cycles are known as circadian rhythms (from the Latin 'circa' = about, and 'dia' = a day).⁸

Normally our circadian rhythms are synchronized to one another by the internal biological clock. They are entrained (reset daily) to the 24-hour day and night cycle by external time cues, namely the variation in sunlight and the increase in environmental and family activity around us. A typical cycle of core body temperature, for example, normally has two peaks (around 11:30 a.m. and 7:00 p.m.) and two troughs (around 4:00 a.m. and 2:00 p.m.).⁹

When we work rotating shifts, we have to adjust our natural sleep and wake cycle to suit whichever shift we are on. However, our other circadian rhythms do not adjust instantaneously. In fact, different rhythms change at different rates and typically take a week or more to adjust to the new sleep and wake cycle. A useful analogy is that of an orchestra where initially the different sections are playing in harmony under the one conductor. If another conductor appears and starts a different beat there will be discord as the different sections change at their own rate to the new beat.¹⁰

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

Rotating onto night shift causes the greatest disruption to our circadian rhythms as we attempt to remain active and alert during the night when our circadian rhythms are falling to their lowest and try to sleep during the day when our circadian rhythms are rising to their peaks. When this happens, we can experience sleep loss and gastrointestinal problems. Loss of sleep leads to fatigue, irritability and lethargy and a decline in performance such as poorer concentration, alertness and decision making. This in turn increases the risk of making errors which may affect not only our own safety but also that of our colleagues.¹¹

How quickly our circadian rhythms adjust to a new sleep/wake cycle depends on internal factors. These factors include the age, gender, physical health and chronotype of the individual, external factors such as the shift pattern and work load, and family and social circumstances. If we rotate onto another shift before our circadian rhythms have had time to adjust to one sleep and wake cycle, then our circadian rhythms may become in a perpetual state of internal desynchronization where they are never fully synchronized to one another.

Although the effects of shift work on our circadian rhythms cannot be eliminated completely, there are steps that can be taken at both the organizational level and individual level to minimize these effects.

The Albuquerque, New Mexico, Police Department (APD) conducted a study on the effects of sleep disorders and fatigue as it relates to public safety officials. The National Sleep Foundation assisted them in developing a special program which was

¹⁰ Ibid.

¹¹ National Sleep Foundation, "National Sleep Foundation Names Albuquerque 'Healthy Sleep Capital' for Police Department Program to Prevent Sleep Deprivation," Internet, <http://www.sleepfoundation.org/PressArchives/healthysleepcap.html> Accessed: May 10, 2003.

aimed at reducing sleep deprivation among officers, particularly those working the graveyard shift.

The APD program was begun in December 1998 and was designed to identify incidences and effects of sleep deprivation among department personnel. The department then applied intervention solutions to alleviate the adverse effects of sleep deprivation. The results of the study showed that the personnel working the ten-hour shift from 10 p.m. to 8 a.m. had the most sleep deprivation. The department found that employees were driving while drowsy, had a greater inability to cope with minor irritations, had trouble remembering things, were less physically fit, and had a greater inability to enjoy family life.¹²

As a result of their findings, the Albuquerque Police Department implemented changes in their standard operating procedures manual. The major change was implementing a sixty-hour work cap on the number of hours officers can work in one week. This cap includes department overtime as well as outside employment. These two items had been unrestricted in the past. The department also sponsored a shift work adjustment class to help their personnel working the graveyard shift with the issues and concerns regarding sleep deprivation. The National Sleep Foundation (NSF) praised the APD study, which illustrated the dangers of fatigue and sleep deprivation on both the individual and society. The NSF feels that sleep deprivation is a particular problem for this nation's growing force of shift workers, especially police officers, who are expected to be highly productive and alert at a time when their bodies want to sleep.¹³

¹² Ibid.

¹³ Ibid.

Throughout the years, the job of a police officer has increased in complexity. This increase in job complexity, coupled with a faster paced lifestyle, increased educational demands, information overload, and trying to keep pace with technology compounds sleep debt. This pace is only expected to increase in the future. It is important to manage this sleep debt to be able to maximize an employee's performance, and to help them minimize injuries and sickness in order to achieve a full service retirement.

So what is the answer? Since the compressed work schedule is probably here to stay and will continue to increase in popularity, as managers, we need to develop a fatigue management plan that is workable for our individual agencies. The workload demands on officers in the future will undoubtedly increase. This future increase must be planned for and properly managed. No one plan will work for everyone, so it is important to factor in the specific needs of the organization when creating the plan.

Fatigue can represent a huge problem in employee performance. Organizations need to first be willing to admit that employee fatigue could have a negative effect on current and future levels of employee performance, which is detrimental to the department's goals and image to the community. Assessments should be made regarding the following factors:

- Total number of work hours per week.
- Total number of work days per week.
- Minimum number of hours between working.
- Time spent on collateral duties.
- Number of citizen complaints.

- Travel time spent to and from work.
- Monitoring of performance indicators.
- Monitoring off-duty work schedules.
- Projections of officer's duties in the future.

An important component for the monitoring of work hours of an employee is to have one person responsible for tracking these hours. Typically, personnel are requested to work overtime by different supervisors and managers, other than the ones they are assigned. When these multiple sources are all drawing from the same pool of personnel, it becomes easy for individuals to work an extraordinary number of hours without supervisory personnel realizing that there is a problem. Although some employees would be quick to point out that they had just worked overtime, and may request the supervisor find someone else, others, for whatever reason, would work no matter how tired they were. By designating one person as a scheduling sergeant or lieutenant, this individual would be better able to track possible over-employment of personnel.

The organization should have written policies regarding the number of hours an employee may work in variable situations. These can be developed ahead of time through meetings with employee groups and by allowing employees to voice their opinions and concerns about the issue. Through pre-planning, many controversial issues that could have negative impacts on the organization may be avoided.

Supervisors should be given training on identifying employees who are fatigued. While most supervisors are well versed in the detection of employees who are under the influence of alcohol or drugs, actively seeking and identifying personnel who are fatigued

is uncommon.

Collateral duties need to be shared in a more equitable fashion. Typically in an organization, there is a core group of employees who seem to be involved in everything and those who are involved in virtually nothing, other than their standard assignment. While it is easy to say that there are certain people in the organization who are not desirable for collateral duties, and may be difficult to assign to a task, this actually represents a breakdown in their career development. These employees have probably not been encouraged to stay engaged in departmental functions and have very little desire to be involved in anything past their primary duty assignment.

The department can also look towards having sleep rooms available for officers who are so fatigued they cannot function. These rooms could be used for off-duty sleeping as well as possible on-duty sleeping in extreme conditions.

As managers, none of us would allow an employee to come to work while they were under the influence of alcohol or drugs; however, employees commonly show up to work under the influence of sleep deprivation. While alcohol and drugs have a negative connotation to them, sleep deprivation is usually not given a second thought. By increasing organizational awareness regarding sleep deprivation and creating a plan to manage it now and in the future, we can fulfill our obligation of maintaining a safe environment for our employees, communities, and organizations.

Overall, the need to manage employee sleep deprivation appears to be critical. As a result of proper management, our employees will be safer, production will increase, liability and citizen complaints will decrease, and overall customer service will meet the expectations of the communities we serve.

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