

Coping with Night Call: Part II: Developing Strategies and Skills, and the Top Ten Tips for Survival

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Part I of this two-part series, published in the November 1999 issue of *Hospital Physician*, discussed the benefits and challenges associated with being on call (night call), emphasized the 10 reasons for this medical tradition, and outlined the 10 most negative effects of being on call. These benefits and challenges are summarized in **Tables 1** and **2**. In addition to understanding these aspects of being on call, residents must find effective ways to cope with the night call scheduling system. Part II of this series provides tips for residents to help them cope with night on call.

THE NEED TO RESPOND TO RESIDENTS' AMBIVALENCE ABOUT NIGHT CALL

It is no surprise that residents feel professionally and personally ambivalent about night call. This ambivalence may amplify into a love-hate relationship that may generalize into major dissatisfaction with other facets of medical practice or even with the choice of medicine as a career.^{1,2} For residents, this ambivalence developing from night call alone may lead to "extreme dysfunctional modes of existence," as a means to cope with being on call, described by the terms *covering over* or *overreflecting*.³

- **Covering over**—The extreme process of covering over leads residents to disconnect from their own feelings and patients' feelings by overfocusing on learning the mechanics of the medical technique or procedure, which is accomplished to the neglect of their and the patients' humanness. For example (to paraphrase one resident), "I just became a machine myself, treating other malfunctioning machines . . . they stop being real people to me . . . and that's how I get through the night."

- **Overreflecting**—The extreme process of overreflecting leads residents to obsessively ruminate, overdo, overthink, overfeel, and overfocus on the hardships of night call and their patients' situations. The resident experiences increasing self-doubt, the sense of

too much responsibility, and difficulty trusting colleagues to do as good a job or to appropriately monitor work, until eventually the resident is so overwhelmed that he or she experiences burnout or develops dramatically diminished enthusiasm for caring for patients at night. For example, one resident described herself as:

. . . not able to sleep even when I get a chance because I'm still worrying and rehashing if I did the right thing for Mr. X or if Mrs. Y's catheter discomfort got worse or whether the nurse on the unit will really monitor Mrs. Z the way I want her to, until I just start crying out of frustration at all there is to do on call.

The strength of such ambivalent feelings may fuel dramatic shifts between these two modes, compounding the resident's stress. The authors of this article contend that, if a resident develops effective ways of coping with call, the potential for this ambivalence to lead to covering over or overreflecting may be diminished or at least be more constructively handled.

THE NEED TO HELP RESIDENTS COPE WITH NIGHT CALL Limitations of the Current Literature

Traditional call is a specific stressor that results from a dysfunctional schedule and requires coping strategies to mediate the negative effects that may develop. Much of the literature on resident physician stress looks globally and nonspecifically at sources of stress or at the overall accumulated effects of stress on physicians. Less attention is paid to *how* physicians cope with this stress^{4,5} and even less attention is paid to how to cope

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Table 1. The Top Ten Benefits of Being on Call

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- 1) "Every third night" is a time-honored tradition . . . why change it?
 - 2) Night call is a rite of passage
 - 3) Traditional call is academically sound
 - 4) Traditional call develops mental and physical endurance
 - 5) Most residents cope with call without major emotional or behavioral problems
 - 6) Traditional call provides quality and continuity in patient care
 - 7) Traditional call benefits resident education and learning
 - 8) Night call supports cost containment
 - 9) Being a physician is not the only occupation that requires night shift work . . . but is physician night call different?
 - 10) Traditional call is the price of choosing to become a physician (but some complaining is allowed)
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with very specific stressors, such as night call. The medical literature about traditional call is limited, and little research investigates direct relationships among traditional call, sleep and circadian patterns, and potential associated outcomes with residents, patient care, or residency education. Much of the relevant literature from shift work and sleep research has been ignored or inadequately integrated into the literature about resident night call.

The authors of this article have two major criticisms regarding the limited existing literature focused on residents and night call shifts. The first criticism is that the literature focuses primarily on either defending the benefits or describing the negative effects of call. The second criticism is that the literature does not adequately focus on reasonable approaches for residents to cope effectively with the existing dysfunctional night call scheduling systems.

Hospital or Institutional Support for Residents

Another more general criticism is that medical education systems, especially training hospitals and residency programs, have neither proactively determined methods for lessening the negative side effects of call nor been very responsive in promoting or providing institutional solutions to support resident coping strategies. Basic institutional solutions, such as adequate sleep rooms for residents on call, are still problematic in many hospitals. Nor have most hospitals promoted or willingly tested alternative call scheduling solutions, such as night float systems.

Unfortunately, expecting this type of hospital sup-

Table 2. The Top Ten Challenges of Being on Call

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- 1) Chronic sleep deprivation
 - 2) Mood changes and emotional disorders
 - 3) Physical fatigue
 - 4) Mental fatigue
 - 5) Emotional fatigue and burnout
 - 6) Negative effects on interpersonal relationships
 - 7) Negative effects on resident learning
 - 8) Negative effects on patient care
 - 9) Long-term physical risk factors
 - 10) Legal liability
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port may not be realistic. In fairness, large institutions are unable to quickly uproot established systems and protocols. Competitive changes in the medical marketplace are currently receiving more priority attention than the human costs of night call. Although cost pressures mount on hospitals as a result of managed care, this pressure further affects resident night call experiences as new stressors arise, such as gate keeping, improved cost effectiveness, and quicker discharge for patients.

Any current hospital concern or support system for residents coping with being on call is dilute (and hopefully appreciated) but not that different from past precedent. From the medical literature reviewed, the momentum for the limited attention to resident work hours and on-call schedules may be attributed to institutional (hospital) reactivity to external pressures created by the Libby Zion legal case, not to institutional humanitarianism (the 1984 Libby Zion case alleged that this young woman died because of resident error caused by fatigue from working long hours). External legal pressure is not the only reason that the issue of helping residents cope with night call should be addressed, but perhaps this message is the one that hospitals hear most clearly. Unfortunately, the message remains that the responsibility for developing coping methods for being on call rests primarily with the individual residents and not with their hospitals or residency programs.

DEVELOPING STRATEGIES AND SKILLS FOR COPING WITH NIGHT CALL

Remember the Benefits of Night Call

Coping with call begins with the resident remembering the benefits of night call (Table 1). Each resident can add her or his own unique positive experience to

these benefits. For example, some residents have noted:

- “Call is the only way to perform as many deliveries as I want . . .”
- “Call allows me more experience putting in nasogastric tubes, running code blues . . .”
- “What that patient taught me tonight was valuable . . . too bad it was in the middle of the night . . .”

Remember the Challenges of Night Call

Coping with call also begins with the resident remembering the negative side effects of night call, both acute and potentially chronic (Table 2). Residents should be aware that other residents are experiencing some of the same negative effects and having the same negative thoughts and feelings about night call. Residents have a universal support group of other residents who suffer with them—some are even in the same hospital on the same night!

It may be helpful for residents to remember that all interns and residents are vulnerable to the negative side effects of night call because they are human first and physicians second, not because of a weak character or “bad protoplasm.” Everyone has energy limits and sleep requirements that are biologically governed by circadian rhythm and sleep physiology principles. Residents should not believe the bad protoplasm argument and convince themselves that they are more adversely affected by call because they are weak, inadequate or less adequate than other residents, or because of preexisting vulnerabilities that they somehow fooled the admissions committee into overlooking. Residents need to accept themselves as humans, not as *Minor Deities*.

Recognize Different Tolerance Levels

Residents can also begin coping with night call by recognizing that individuals vary in their baseline tolerance to shift work. This recognition differs from blaming a resident’s difficulty in coping on personal vulnerability, but is rather a true recognition of the unique difference among residents in their ability to tolerate night call. Generally, most individuals tolerate clockwise and slowly rotating shifts better than counterclockwise and rapidly rotating shift schedules. However, variation exists in how individuals tolerate shift work, especially rapidly rotating shifts similar to traditional night call. Several individual variations are described in the shift work literature;^{6–9} these differences in tolerance are empirically derived from nonphysician samples. This knowledge provides information about spe-

Table 3. Tolerance Profiles for Night Call

Greater Tolerance	Lesser Tolerance
Slowly rotating shift schedule	Rapidly rotating shift schedules
Clockwise rotation	Counterclockwise rotation
More commitment to shift work	Less commitment and greater conflict with shift work
Younger than age 40 years	Age 40 to 50 years or older
Less experience of or exposure to working nights	More years of experience with night call and more exposure to working nights
“Night owl”	“Morning lark”
Greater flexibility in sleep habits	More rigidity in sleep habits
More ease in overcoming drowsiness	More difficulty in overcoming drowsiness
Extrovert	Introvert
Optimist	Pessimist
Excellent health	Health problems (chronic diseases)
Negative prior health history (no depression and/or substance use/abuse)	Positive prior health history (depression and/or substance use/abuse)
Light or no domestic load	Heavy domestic or parenting load
Good support systems	Lack of support systems
Does not moonlight	Chooses to moonlight

cific differences for people who have greater or lesser tolerance to night shifts. Although this information does not allow prediction of tolerance levels for the shift work common to physicians, the research is still useful for this discussion. When applying these findings to the physician population, the authors of this article can only speculate that physicians experience tolerance in similar ways. Whether these same tolerance factors empirically apply for resident physicians remains to be studied. Some of these tolerance factors are summarized in **Table 3**.

Tolerance profile. In terms of tolerating call, residents may be generally divided into three groups:

- 1) Residents who cope with night call reasonably well and without too much extra effort
- 2) Residents who experience problems coping with night call, but manage
- 3) Residents who are seriously affected by the strains of night call and experience difficulty coping

Table 4. Top Ten Tips for Coping with Call One Night at a Time

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- 1) Take time to eat, drink plenty of fluids during the day, and use the bathroom
 - 2) Go outside for a few moments
 - 3) Call significant others at least once during night call
 - 4) Focus on the positive
 - 5) Remember there are choices, even the choice of career path
 - 6) Maintain nighttime alertness
 - 7) Seek sanctuary when necessary
 - 8) Use sleep discipline on call and post-call
 - 9) Use extra caution when driving home post-call, and arrive alive
 - 10) Use sleep hygiene strategies for the long-term goal of surviving residency
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Normal individual variation in tolerance to shift work or night call may explain some of this variation among residents. It may be helpful for residents to estimate which of the following two evidence-based tolerance profiles may best fit them before moving on to other coping tips.

High tolerance profile. Individuals with greater tolerance to night call may fit the following profile: They are young (age early 20s to mid 30s) and have less exposure to on-call night shifts. They may demonstrate a strong willingness to schedule their personal, social, and family lives (as well as their sleep habits) to accommodate working nights, and they may have support from others for their schedule. This type of individual may be described as a “night owl,” the type of person whose natural circadian rhythm is to be more active as the afternoon and evening progress, but who has difficulty waking in the morning. Individuals with a night-owl type of biologic clock may be less susceptible to physical and social time cues, which allows them “greater ease in overcoming drowsiness”⁶ when it occurs. These individuals may show “greater flexibility in their sleep habits”⁷ and may be able to sleep or nap anytime they choose. They may have an optimistic and extroverted personality. They may be in excellent physical health, with no history of depression or heavy use or abuse of substances. They also may have no major parenting or domestic responsibilities, and they may have strong support systems. They choose not to moonlight as a second job nor volunteer to work extra shifts for pay.

Less tolerance profile. Individuals with less tolerance to night call may fit the following profile: They are older

(age 40 to 50 years or older), and they may have many years’ experience working on-call night shifts. They demonstrate less willingness and have less flexibility to arrange their personal, social, and family lives to work on call night shifts. They experience more resentment and conflict within themselves and from others about organizing their life to work nights. This type of individual may be described as a “morning lark,” an “early to rise and early to bed” person who typically finds it difficult to stay awake at night or to sleep in late in the mornings. People with this type of biologic clock are more governed by physical and social time cues, causing them “more difficulty in overcoming drowsiness.”⁶ These individuals show “more rigidity in sleep habits,”⁷ may need to keep to the same bedtime schedule (even on vacation), and may find it difficult to sleep or nap during the day. They have an introverted personality and the need to be alone at times, and they tend to be pessimistic. They may have preexisting health problems, such as chronic diseases (gastrointestinal problems), cardiovascular problems, or diabetes. They may also have a history of depression or of sleep or somatic problems, and they may have a history of heavy use or abuse of substances. They may have a heavy domestic workload and/or parenting responsibilities with minimal backup support. In addition, their social support systems may be lacking or compromised by tension. Persons with a less tolerant profile may choose to moonlight or work more shifts on weekends or evenings for financial gain. (Residents may experience a perverse satisfaction or empathy when they realize that attending physicians, by virtue of their older age and “overexposure” to on-call schedules, may have less tolerance to night call.)

Gender differences. No major gender differences in tolerance to shift work are apparent. The few studies comparing men and women with similar workloads do not find major gender differences in tolerance to shift work; however, pregnancy, maternity time, and having younger children at home may contribute.

TOP TEN TIPS FOR SURVIVING NIGHT CALL

This discussion focuses on practical methods for coping with night call *one night at a time*, with a long-term goal of encouraging residents to develop a coping pattern that will work over time. **Table 4** summarizes the top 10 tips for night call one night at a time; **Table 5** summarizes long-term strategies for coping with night call. The authors of this article encourage residents to develop immunities to the negative side effects of sleep deprivation by slow titration—coping effectively one night at a time—rather than relying on catch-up

coping when they may already be emotionally exhausted by chronic sleep deprivation.

Call schedules are stressful, and stress-reduction strategies must be tailored initially toward surviving call one night at a time, then for several months' duration (up to 1 year or more), until a significant vacation or rotational break occurs. Residents are not like many other shift workers in that residents lack the power and control to structure their own schedules.

Most stress-reduction strategies are not tailored for the stresses typical to a resident rotating on a traditional call schedule. In fact, most stress-reduction texts would recommend avoiding this type of schedule altogether if possible. The gold standard of the circadian biologic clock is to work regular day shifts, not rotating night shifts. Residents typically find themselves in the paradoxical position of recommending stress-reduction strategies for their patients, which do not work for the residents because of night call. Stress-reduction strategies that recommend 8 hours of sleep and regular exercise are unrealistic for the unique stress that residents encounter. Likewise, not every coping tip or strategy outlined in this review fits all individuals. The following coping tips are generic and geared toward residents struggling with working every third or fourth night call while working day jobs as well.

Tip 1: Take Time to Eat, Drink Plenty of Fluids During the Day, and Use the Bathroom

Residents often neglect these basic biologic needs. Anecdotal complaints of constipation, bladder infections, and mild dehydration are not uncommon in residents and are often attributed to being on call. When residents are busy during the day and postpone these basic physical needs, more than discomfort can be involved when they go on call that evening. One resident recounts how continually postponing her need to go to the bathroom while caring for a patient in labor, led to "complications." Eventually, the resident's own emergency required her to go to the bathroom, only to have the patient dilate rapidly and deliver the baby while the resident was in the bathroom. Interestingly, most health care colleagues and attending physicians understand the need to take time out to eat, drink, and use the bathroom . . . or at least one of the three. Anecdotal data indicate that more than one resident has tried to accomplish all three simultaneously.

The food available while on call often consists of vending machine cuisine and gourmet junk food preceded by pizza lunches offered by drug companies, rather than balanced meals that include fruits, vegeta-

Table 5. Developing Long-Term Strategies for Coping with Call

- 1) Develop coping strategies for staying in touch with personal support system, especially spouse, family members or significant others, and enlist their support for sleep protection
 - 2) Develop or make use of existing support systems provided by resident programs
 - 3) Develop attitude readjustments: maintain a commitment to coping with night call and focus on the positive; at a minimum monitor fatigue, sadness, irritability, and depression potential with a trusted colleague
 - 4) Maintain a sense of choice and negotiate control whenever possible
 - 5) Maintain overall stress-reduction strategies, but adjust strategies to fit call schedules
 - 6) Continue experimenting with stress-reduction strategies that may help cope with call
 - 7) Use relaxation training or self-hypnosis training as an aid to sleep induction
 - 8) Follow sleep hygiene strategies to protect against the development of chronic sleep deprivation or desynchronization of the circadian biologic clock
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bles, and grains. Drinking enough fluids during the day is often difficult, resulting in drinking more liquids at night. Eating heavy meals at night or after call, before going to bed the next morning, also complicates cues and rhythms of the biologic clock. Residents must ensure that they take care of these three basic biologic needs during the day and while on call. The body's basic needs to refuel, rehydrate, and recycle merits attention, and meeting these needs helps residents survive being on call.

Tip 2: Go Outside for a Few Moments

Residents need to try to go outside and breathe some fresh air at least once during a call shift, if only for a few minutes. It is surprising what a breath of fresh air can do for a resident who probably goes to work in the dark, goes home in the dark, and is inside for 10- to 24-hour stretches. If possible, residents should try to go outside during sunset and sunrise because these times can provide esthetic and metaphoric value. As depicted on the television show *ER*, however, even an alley or ambulance bay on a cold windy night can provide an outside break. In addition to the benefit of fresh air, an outdoor break is an important reminder that life exists outside the hospital.

Tip 3: Call Significant Others at Least Once During Night Call

Speaking with a significant other is another reminder that there is life outside the hospital. Dating or being married to another resident or health care professional on rotating shifts complicates this contact and may require extra creativity, but such contact is not impossible. It is also important for the resident to speak daily with someone who is an immediate member of the resident's personal support system. Colleagues and patients tend to understand the value of this need when the resident is working long hours.

Staying in touch with a spouse, significant other, or family when on call also minimizes the interpersonal risks of being on call. On-call days are long, and rotating call cycles are frequent. Time away from loved ones can decrease personal contact time, emotional availability, and energy level when spending time together. A pager/beeper can be part of the coping strategy to counteract potential isolation from a spouse or significant other. In fact, this device may even become the "friendly beeper," rather than the "damn beeper."

Residents can provide a secret code of numbers that a spouse or significant other can use to call on the beeper. A significant other can use elaborate codes to page the resident with messages of support, to help the resident engineer a break to return a phone call, or to alert the resident when the spouse has a priority need to connect. This system reciprocally avoids any sense of isolation or "out of touchness" that may occur between either partner. Examples of elaborate codes may be 45888 (I luv u), 910 (called to talk when you can), and 911 (priority, please call as soon as possible). Creativity in beeper codes is up to the individuals and may flourish with secret romantic codes, even among fatigued residents.

At times, social phone contact must be scheduled into an already overscheduled day and evening. It is important to stay in touch with one personal or professional support person, even if it is the backup resident colleague or the attending physician (and especially if the resident is single or does not want to make long distance calls while on call). The value of maintaining contact with primary sources of social support is a major enhancement for coping and a stress buffer.^{10,11}

Finally, when coming off call, residents may need to use existing resident support systems or recommend these systems as necessary. These support systems can exist in many forms. Enlightened residency programs often provide support groups or Balint^{12,13} groups as a means for residents to reconnect, recollect, and reflect on intense experiences with patients during night call that they may have been too busy to deal with at the

time or too tired to think about afterward. These support groups allow residents to capture and reflect on accomplishments and any residual emotional components left over from call that they did not have time to process or that may have interfered with sleep.

Tip 4: Focus on the Positive

Although the phrase *focus on the positive* sounds cliché, the experience works,^{11,14–16} however, this is easy to say and not always easy to do. Residents can try to think positively—and remember the saying, *When there ain't much fun in medicine, there's good medicine in fun*. This attitude, worthy of a Zen master, is achievable for brief moments, even in fatigued residents.

When on call, it is helpful for residents to practice spending a minute to privately or publicly reflect on an accomplishment or on good news about a patient before moving on to the next problem or "medical disaster" awaiting attention. This task may take significant effort; however, eventually, thinking in this pattern becomes automatic and the thought, "What is the good news in all of this?" will arise spontaneously. The power of positive thinking and positive reappraisal,¹⁷ or positively reframing situations (eg, the glass is half full rather than half empty), is an effective coping mechanism.

It is helpful for residents to consider that they are trying to focus on the positive when their attitude is clouded by sleep deprivation and an honest admission that "call sucks." Sometimes residents are so busy that they cannot afford the luxury of a single negative thought. Although helpful at the moment, this opposition to negative thoughts may contribute to covering over; losing touch with the feeling, human side of patients and self; or becoming cynical.³

Avoiding the pitfalls of a pattern of negative, pessimistic thinking is helpful, although, again, easier said than done. Obsessively overreflecting on the negative side effects of call is not helpful and may lead to a depressive style of coping. Ongoing monitoring for depression is often necessary when working frequent on-call shifts. Sometimes the reality of being on call creates too much of a struggle to find or focus on a positive accomplishment. If finding the positive is not possible, residents may shift the focus to what they are hoping for or looking forward to after call.

Seeking an emotional balance is the recommendation, not creating a false "Pollyanna" attitude that denies the reality that bad events and feelings occur on call. Maintaining and practicing an appropriate sense of hope and humor¹⁸ and having a sense of irony helps as well. Mentally and emotionally training to focus on the positive and not overly focus on the negative goes

beyond the philosophy about the power of positive thinking. Optimism is a strategy that receives widespread empirical support as a major source of coping and emotional resilience.^{11,14–16} Shift work research also confirms that an optimistic attitude and positive commitment toward tolerating night shifts are important long-term coping strategies. These strategies are re-fueled and enhanced by maintaining a daily, sometimes hourly, focus on the positive when on call.

Tip 5: Remember There Are Choices, Even the Choice of Career Path

It is helpful for residents to remember that they are in control of their commitment to the challenges of medicine, and even the choice of career.^{19–21} According to one researcher,⁷ a person's commitment to shift work (ie, willingness to order and arrange their personal, social, and family life and sleep habits to accommodate shift work) was the most important coping factor.

It is not uncommon, however, for interns to “hit the wall of call” at various points during residency and to seriously question their decision to pursue medicine. Invariably, many interns or residents report that, while being on call in the middle of a fatiguing night, they have asked themselves, “Why did I choose to become a physician?” and have seriously contemplated quitting. This struggle is a predictable process in the life cycle of an intern, especially in the months of January and February.

Some research supports the theory that admitting “call sucks” and questioning why one chose to enter the field of medicine may be helpful. Valko²² found this type of questioning to be a significant factor in differentiating between interns who became depressed and those who did not. Interns who did not become depressed seriously considered quitting; however, they did not quit, but paradoxically reminded themselves they had a choice about their career—they may have felt less trapped and helpless than depressed interns. Thus, remembering that *call is a choice* that a resident makes and that accompanies a medical career is powerful—empowering oneself to rechoose during a middle-of-the-night, cynical questioning episode may be an uncomfortable but healthy way of coping.

Tip 6: Maintain Nighttime Alertness

How can a resident stay alert on call, even if it is absolutely necessary to be awake all night? How can sleepiness be avoided? How can a resident shake off grogginess after being awakened from a nap on call? There are several methods for staying alert on call, even all night long.

Use caffeine, carefully. Caffeine normally stays in the blood stream for 5 hours. Drinking a cup of coffee or another source of caffeine between 6 PM and 7 PM for the night shift is reasonable and preserves the ability to sleep or nap after midnight. Although one or two cups of coffee between 10:30 PM and 1:30 AM may improve alertness throughout the night shift, napping may be difficult or the opportunity to sleep more than 2 hours may be compromised.^{23,24} Any caffeine after 3 AM may help maintain alertness for staying up all night, but may interfere with plans to sleep immediately after call. If the plan is to go home to bed immediately after call, avoiding caffeine in the middle of the night is wise. A 1-hour-to-go milestone treat of juice or a decaffeinated drink may be helpful.

Become more physically active at targeted times. The normal circadian cycle involves a 4 AM to 6 AM slump;⁶ remaining awake or maintaining alertness during this time period is most difficult. If a resident must be awake and cannot nap during this time, the key tip is to keep physically active. Some specific techniques include moving around, writing notes while standing up, stretching, or talking to and socializing with others. If residents are awakened from a nap by a pager but remain groggy, they must physically activate their energy quickly. Automatically engaging in more vigorous physical activity on awakening (eg, walking up the stairs, doing a couple of jumping jacks) works for some individuals.

Fool the biologic clock with the use of artificial bright light. Using artificial bright light treatment, which simulates daylight levels, is reported to be effective in helping shift workers adapt to all-night shifts by fooling the day and night cues for circadian rhythms.^{25–27} Moving into bright light may stimulate alertness, especially if the hospital has installed artificial lighting from 5000 to 10,000 lux intensity at nursing or intern workstations.

Accomplish any repetitive or boring tasks earlier in the night shift. Delaying boring or repetitive tasks until residents are about to go off duty at 6 AM or 7 AM is not recommended because the normal 4 AM to 6 AM slump effect makes these tasks more difficult to complete.

Tip 7: Seek Sanctuary When Necessary

Call can carry with it some emotionally overwhelming moments. After doing what is medically necessary, feelings may arise within the resident that are accompanied by the question, “Where can I go to take care of my feelings or hide out besides the bathroom?” Experience teaches that hospital chapels are underused havens of refuge from distractions and provide a

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safe, quiet space for a resident to collect his or her thoughts and feelings. The chapel provides a place to hide out and is a socially appropriate place to think, reflect, meditate, cry, and even sleep. Residents remain only a beeper away, so they can still be found when needed.

Tip 8: Use Sleep Discipline On Call and Post-Call

Finding a bed is the first priority when the opportunity to sleep or nap arises. A bed more closely approximates normal sleep at home than does a floor, futon, or chair. However, the seemingly simple task of finding a bed can be amazingly difficult at times in hospitals that are still counting occupied bed spaces or are renovating or remodeling. Residents should use friendly resources among the ward clerks or nurses to help find a desirable bed space for the night. Residents may experiment with staking claims to a bed. Generally, signs that say *Reserved*, *Plague*, or *Radioactivity* are more effective than signs that say *Saved* or *Do Not Disturb*.

Designated resident sleep rooms. Resident sleep rooms that are designated by hospital administration for different services and as protected space from intrusions by others are generally desirable to negotiate in advance. With designated rooms, the resident knows where to go for sleep each rotation through night call. This system prevents hassles, competition for available beds, and lost sleep because of last minute searches for an available bed; however, even this system can become complicated. These authors are aware of one hospital in which the hospital lawyer was required to mediate between a residency director and hospital administrator to negotiate a designated sleep room for the residency director's residents on call. Also, these authors know of one resourceful resident, frustrated by consistently not finding an available bed, who was known to park his camping trailer in the hospital parking lot as an alternative bed, with the secure knowledge he was the only one with a key to the door.

Sleep discipline on call. Sleep tips when on call include the following:

1) *Limit naps on call to 20 minutes to 1 hour.* During a busy night on call, a brief 20-minute to 1-hour nap can be restorative and more helpful than a longer period of sleep. Time-limited naps are better at preventing the grogginess associated with disruption of longer periods of sleep and deeper sleep stages and allow more alertness and quicker responsiveness on call. When a resident requires some sleep but knows that call will be active all night, setting the alarm for 20 minutes to 1 hour may allow better functioning until the resident can experience a longer, uninterrupted period of sleep post-call.

2) *A time-limited maintenance nap of only 1 hour while on call may be restorative of performance and improved alertness, although mood may not improve.*^{1,28}

Sleep discipline post-call. Sleep tips after being on call include the following:

1) *Wear sunglasses outside or use a sleep mask for day sleeping.* These accessories minimize exposure to bright sunlight after call, which activates alertness.

2) *Sleep as soon as possible after call is completed, and sleep for up to 4 hours.* After working a one-out-of-four rotating night shift, residents need to sleep as soon as possible after call and then wake up after 4 hours because this sleep cycle promotes better resumption of normal sleep patterns and circadian rhythm; sleeping longer than 4 hours may retard the next night's sleep and contribute to deprivation of rapid eye movement (REM) sleep or dream sleep.¹

3) *Use specific stress reduction techniques, such as relaxation tapes, white noise machines, or self-hypnosis to aid daytime sleep induction.*

Tip 9: Use Extra Caution When Driving Home Post-Call, and Arrive Alive

Research findings indicate that shift workers are at greater risk for accidents driving to and from work.²⁹ Another study reports that 15% of night shift workers fall asleep while behind the wheel of a car at least one time every 3 months,²⁸ which suggests that residents driving home post-call may also be at greater risk for automobile accidents. Therefore, tips for post-call driving should be taken seriously. Although automobile accident rates for post-call residents have not been studied, anecdotal accounts of car accidents after call are numerous.

Drive with extra alertness. After being on call, residents need to drive with extra caution. In addition to using seatbelts, residents can try to increase alertness by opening car windows for extra ventilation and cold air, chewing ice, or listening to loud music or talk radio or news shows.

Use sunglasses for the ride home. Residents may find that wearing sunglasses on the ride home from work is helpful in reducing the clues from the daylight biologic clock and the activation of wakefulness cycles. Research with night shift workers using "dark goggles" with number seven lenses that reduced daylight to 35% helped them obtain better daytime sleep.²⁵ Lenses this dark may not be wise for residents to wear because these lenses may interfere with alertness, but approximating this technique by using sunglasses may help. Residents using sunglasses on the drive home after call

may find this an effective means to aid daytime sleep after arriving home. However, residents need to ensure that using sunglasses does not interfere with their driving safety.

Avoid driving if possible. If possible, residents may need to find a way to avoid driving home post-call. Some methods for avoiding driving after call include a hospital-provided designated driver, taxi shuttle service, or an appropriate sleep room so the resident does not have to leave the hospital. If hospitals do not provide these services, it may be appropriate to advocate for them. Unfortunately, residents need to be aware that a suggestion that sounds like common sense, "Take a nap before you leave the hospital," may undermine the ability to sleep when the resident returns home and may counteract better sleep hygiene methods; however, if a nap is necessary for a specific day to get home safely, then the resident may nap.

Tip 10: Use Sleep Hygiene Strategies for the Long-Term Goal of Surviving Residency

Sleep hygiene strategies to enhance coping with night call and to reduce the risk of chronic sleep deprivation that may develop from frequent night call are of major importance to survive residency. The long-term goal is not just surviving one night of call, but to get enough sleep to offset, reduce, or prevent potential negative effects from on-call sleep deprivation that can accumulate over time. This goal requires the resident to work at regulating sleep patterns to keep the circadian biologic clock correctly set, or, if necessary, to reset the biologic clock to match the predominant pattern during the day that the resident is practicing medicine.

The sleep hygiene tips discussed here are complicated by several variables. There are many different types of shift work schedules: fixed day, evening, and night shifts; backward-rotating shifts; two- or three-shift slowly rotating schedules; and rapidly rotating shifts. The tips that will be successful for a resident vary depending on the resident's type of shift as well as unique tolerance to night shift work in general. Therefore, designing a one-size-fits-all sleep hygiene strategy for residents is difficult.

This discussion focuses on the rapidly rotating shift, which remains the predominant type of on-call shift in primary care residencies.³⁰⁻³² However, variations also exist within this particular type of shift. Some programs allow residents time off the morning immediately following an on-call night; other programs expect residents at work the next morning after call, and, if not that morning, then by 12 PM; other programs allow residents time off in the afternoon; and yet other pro-

grams schedule the resident to work 36 hours straight through from 5 PM to 5 PM the next day without time off. Most residents work daytime shifts punctuated by an all-night on-call shift of 24 or 36 hours' duration every third or fourth night.

Work with, not against, the individual circadian biologic clock. Sleep is a 6- to 8-hour period that allows for a lengthy time to pass without a person moving, going to the bathroom, eating, or drinking. If the biologic clock is disrupted, these functions are upset and different symptoms develop, such as constipation, low blood sugar, headaches, physical malaise, and irritability. Unfortunately, there is no "chronobiotic pill" to automatically reset the biologic clock. Therefore, the circadian biologic clock must be manipulated using different time cues for sleep adjustment or to adjust to being on night call. Residents can attempt to manipulate daylight and darkness time cues according to the expected times for sleeping and being awake during a 3- to 4-day call cycle. There is no perfect manipulation, however, because being awake all night for 1 out of every 3 or 4 nights does not allow anything better than a dilute compromise.

Daylight and darkness cues can be manipulated in various ways: Artificial bright light and sunglasses have already been mentioned as tools that can fool an individual's circadian clock. These two methods also influence hormonal levels. For example, placing artificial bright lights that simulate daylight in work settings eliminates normal peak levels of melatonin, the natural hormone that facilitates sleep. By reducing melatonin levels, sensations of sleepiness and sleep may be postponed, which helps reset the circadian clock.^{6,27,33}

Use appropriate sleep hygiene for rapidly rotating shifts. For rapidly rotating shifts, the goal is to try to retain a daytime circadian biologic clock, using daytime as the circadian anchor point. Some researchers suggest that rapidly rotating shifts may actually require smaller circadian adjustments because the goal is maintaining a daytime biologic clock.^{6,33} For the 1 day in which sleep is disrupted or must be planned for in the daylight from 8 AM on, other cues can be manipulated to obtain sleep, and these strategies are discussed here. For residents who must continue to work the morning or day after call, some napping strategies may help, which are also discussed here.

1) Retain daytime orientation. Residents on rapidly rotating shifts, although tired and sleep deprived after being on call, should try to continue to live as if they were regular daytime workers. Residents can continue acting as daytime workers who have evenings off and nights to sleep, despite the fact that the schedule does

not quite fit in this structure. Regular daytime routines should be adhered to or approximated as closely as possible. Mealtimes and exercise routines should be geared toward daytime orientation. However, some exceptions may be necessary. For example, if a resident normally exercises after waking up in the early morning, he or she may choose to not do so after call, unless exercise helps cause sleep rather than energizes the resident.

2) *Go to bed as soon as possible after night shift.* These residents should go to bed as close to 8 AM as possible to help maintain daytime orientation. Emergency room physicians support this strategy. Whitehead¹ suggests "after working an isolated night shift, sleeping as soon as possible after work and then getting up after 4 hours promotes immediate [better] resumption of a normal nocturnal sleep pattern." Sleeping longer than 4 hours after working an all night shift may interfere with the next night's sleep, or interfere with certain stages of sleep. This 4-hour sleep period, providing sleep is uninterrupted, also allows the resident to approximate cycling through several five-stage sleep cycles.²⁸

3) *Avoid caffeine.* As mentioned previously, caffeine should be avoided in any form 5 hours prior to a sleep period.²³

4) *Before going to sleep, avoid eating or eat very lightly.* Getting to sleep is not the only problem—staying asleep and getting the right depth of sleep is often the problem when sleep is compromised by caffeine, alcohol, or eating too much right before sleep.

Sleeping while the world is awake. Several tips are offered for day sleepers.

1) *Set the stage.* Residents who are going home to sleep immediately after call must set the stage for this sleep time. Residents need to maintain normal bedtime rituals, such as brushing teeth, changing into pajamas or sleep wear, and avoiding watching television or doing chores. Delaying bedtime until afternoon should be avoided because this delay undermines daytime orientation and potentially disrupts the circadian clock for nighttime sleep.

2) *Minimize or avoid daylight illumination* as much as possible after call. Wearing sunglasses or dark glasses on the way home from call is helpful if it does not compromise alertness for driving. Using a sleep mask to screen out light is also a helpful technique.

3) *Modify the environment.* Before trying to sleep in the early morning right after call, residents should unhook the phone, turn the ringer down, or turn on the answering machine as well as disconnect the doorbell or hang a sign on the door that says *Do Not Disturb* or *Day Sleeper*. Heavy curtains or blinds in the bedroom

create a dark room regardless of the time of day. Earplugs or a white-noise machine may help deaden or minimize intrusive outside noises.

4) *Talk to the spouse, significant other, or children.* Residents need to gain the support and understanding of a spouse, significant other, or children for the resident's efforts to cope with call and protect sleep. Residents also must appreciate and understand how others may have to sacrifice to help protect the resident's periodic daytime sleeping, which is an abnormal pattern for other family members (unless the resident is married to another resident or night shift worker).

Napping strategies. Although this advice may sound obvious, if an opportunity for a sleep break arises while on call, the resident should take it. The sleep and shift work literature is controversial regarding whether the type, timing, and duration of naps helps or hinders long-term coping (ie, for longer periods of shift work and circadian adjustment). The resident should exercise caution in "nap snacking" whenever and wherever the resident desires or prophylactic naps in anticipation of sleep loss on call.³⁴ Patterning naps at the wrong time can throw a resident out of circadian rhythm for daytime orientation. When biologic clocks are mismatched for the hours a resident is supposed to be working, other problems are set in motion.

Maintenance naps. Naps or sleeping breaks that a resident has during a night call shift are called *maintenance naps*. If unusually lucky, naps may extend for up to 3 hours;³⁵ if the "spirits of calls past" are shining on the resident, 4 to 5 hours of sleep may pass without interruption. According to one laboratory study, a 1-hour maintenance nap in the middle of an all-night vigil contributes to improved alertness compared with an awake resting period.³⁶

Replacement naps. Sleeping for 1 or 2 hours immediately after coming off call is called a *replacement nap*. Replacement naps may compensate for acute loss of sleep. Brief replacement naps are also found to be more effective "to maintain alertness or delay its decline" than resting while awake.^{34,36}

Protect sleep, avoid moonlighting. The financial compensation from moonlighting is often not worth the compounding sleep debt in addition to the sleep debt already accumulating from on call nights. It may be more valuable to protect sleep or, at minimum, not incur more sleep debt from moonlighting.

NIGHT FLOAT SCHEDULING SYSTEMS: AN ALTERNATIVE TO TRADITIONAL CALL

Night float scheduling systems were developed as an alternative to the traditional every third or fourth

night on call method. Night float systems were largely a response to revisions emanating from the Libby Zion case and grew more rapidly in New York state than any other state. Night float scheduling systems remain a minority method. There are many variations in how night float scheduling systems are implemented, making comparisons difficult. No consensus has been reached yet in the medical community regarding whether night float systems are a substantial improvement over the existing traditional night call system. Comparisons and evidence are lacking in terms of whether night float systems demonstrate significant improvements in patient care and resident learning or decreases the risks of fatigue or harm to residents sleep. Night float systems are described mostly in the primary care literature, although emergency medicine residency programs are also experimenting with these shifts.² Night float systems in family medicine and obstetrics and gynecology are defined as:

a schedule in which 1 resident or a group of residents is scheduled to be present during most of the evening and night shifts, but is not scheduled to be present during the day . . . this . . . eliminates the need for daytime residents to remain in the hospital during evenings and nights [until it's their turn to cover Night Shift Call]^{30,32}

In family medicine, this system basically involves working from 8 PM to 8 AM for approximately 6 weeks' duration (although some schedules may vary from 2 to 6 weeks); the resident also has 2 days per week scheduled in the family practice clinic, for a total work week of 65 hours with some weekend days off.³⁰

The various types of night float systems are still the minority as a method for scheduling call for residents. Surveys about night float systems in residency programs revealed the following:

- In family medicine, night float systems have grown from 5% in 1988³⁷ to 15% in 1994³⁰
- In obstetrics and gynecology, night float systems are used in 10% of programs outside New York state and in 63% of programs in New York state³²
- In internal medicine, night float systems are used in 30% of programs nationwide³¹

The same surveys noted that, although residency directors from three specialties varied widely in their assessments of night float systems, the general consensus among these directors was that night float systems

decreased resident fatigue and improved alertness and resident satisfaction, but offered mixed results regarding improvements in resident education or in patient care.³⁰⁻³² A study of a New York City hospital system found that night float systems are viewed more positively by residents than by attending physicians.³⁸ The trend in attitude about the benefits of night float systems is generally positive, but the perception is not universal. However, there are residency programs that implemented and then dropped this scheduling alternative because negative side effects (such as not blending with other teaching rotation schedules, missed conferences, attending physicians' dissatisfaction) are perceived as offsetting any advantages.

Sleep Hygiene for Night Float Systems

Different types of night call may require different coping techniques. Although night float systems vary, most systems resemble a fixed night shift for 2 to 6 weeks' duration. This temporary fixed night shift may occur one to four times per year, depending on the program. Consequently, the resident must cycle through two resets of the circadian biologic clock each night float cycle, not accounting for any weekends off. It is probable that this circadian switch is easier because it is a longer duration but less frequent over the course of a year than going through the potential circadian desynchronizations that can occur with traditional (ie, every third or fourth night) call cycles.

With the fixed night shift call, the resident's goal is to achieve a temporary evening circadian biologic clock. Residents must orient to working generally from 8 PM to 8 AM, while sustaining daytime sleeping for either in the early morning or late afternoon for 5 to 7 hours, depending on when they need to work their limited amount of daytime patient care clinics. This schedule requires manipulating time cues very differently than what is helpful for residents who work rapidly rotating shifts. Although sleep strategies may be different with night floats, residents can still use many of the coaching tips already mentioned.

Anchor sleep. The term *anchor sleep* means that the resident sleeps the same time every day (for a period of at least 4 uninterrupted hours) while on a particular shift rotation.²⁸ Anchor sleep is a coping technique that facilitates circadian regularity during the night float duration.

Nap strategies. Nap strategies also may need to be different for night float residents because the resident is trying to adapt to nighttime orientation.

Early morning slump. Residents on night float systems must still be aware of the slump in energy that

Table 6. Strategies That Hospitals Can Employ to Help Residents Cope with Call

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- 1) Designate sleep rooms for residents on call
 - 2) Implement night-float scheduling as an alternative to traditional call
 - 3) Install artificial bright lights simulating daylight at convenient locations in hospital
 - 4) Provide additional staffing to reduce stress on call (eg, ward clerks, transport staff, radiographic technicians, licensed practical nurses, registered nurses)
 - 5) Offer support groups, including people resources and time to attend
 - 6) Offer additional services such as:
 - Shuttle services to minimize residents driving after call
 - Exercise facilities in the hospital
 - Meal vouchers
 - Services to assist resident's domestic chores (eg, personal laundry pickup)
-

occurs from 4 AM to 6 AM and use the coping tips already suggested.

Sleeping while the world is awake. The coping tips suggested previously for sleeping while the rest of the world is awake are also helpful because night float residents are sleeping during the day. Instead of the family or household members adjusting to the resident being home during the day to sleep 1 out of every 3 or 4 days, daytime sleeping must become the pattern for 2- to 6-week increments, with some weekends off. This adjustment can be more difficult for family or household members because they are functioning on a normal daytime orientation. More discussion and planning with family members may be required initially to enlist the support of family and household members for protecting the resident's daytime sleep for 2 to 6 weeks. Some family and household members may find the more sustained, regular pattern of daytime sleep by the resident easier to adjust to.

HOSPITAL SUPPORT

Hospitals can employ many strategies for supporting residents coping with call schedules. **Table 6** summarizes strategies that hospitals can use for helping residents cope with night call. In addition to the support services already mentioned, other strategies are:

- 1) Additional staffing solutions, such as ward clerks, transport staff, radiographic technicians, licensed practical nurses, and registered nurses, may reduce the on-call stress and hassles that

residents attribute to "unnecessary work" such as wheeling patients to rooms for radiography, performing laboratory delivery and pickup, or other tasks that would free up resident time³⁹

- 2) Provision of skilled staff and time for residents to participate in support groups and Balint groups, as noted previously
- 3) Exercise facilities in the hospital
- 4) Meal vouchers so residents and interns can invite significant others or family members to join them for an uninterrupted meal during call
- 5) Assistance with the resident's domestic chore load—anecdotally, even female residents are heard saying, "I need a wife." This expression is not an expression of gender orientation as much as a plea for help with the many daily maintenance tasks for which residents have insufficient time (eg, laundry, house cleaning, grocery shopping). One hospital with valet parking for patients has extended this service to a valet service that, for a fee, would pick up and deliver the resident's laundry at the hospital call rooms. Even the modest effort to arrange for laundry service made this hospital known as a caring institution for its interns and house officers.

CONCLUSION

This review and the coping tips listed in the tables do not exhaust the possibilities for helping residents to cope with night call but are a beginning for residents to consider. The authors of this article hope that the coping tips offered here serve as a stimulus for:

- Creative thinking among residents so they can develop additional coping tips
- Encouragement to experiment with unique coping solutions
- Conversation and an exchange of ideas with other residents about how they cope with call

To continue this dialogue about finding effective ways to cope with being on call, readers are encouraged to e-mail the lead author of this article (Dr. Dale Alexander) at dalexand@med.unc.edu (through June 2000). **HP**

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