



# Nurses Are More Exhausted Than Ever: What Should We Do About It?

A review of the evidence leads to timely recommendations.

**ABSTRACT:** For nurses, the challenges posed by demanding work environments and schedules often lead to fatigue, and this can be exacerbated during crises like the COVID-19 pandemic. In this article, the authors discuss causes and challenges of nurse fatigue and consider several evidence-based strategies and solutions for individual nurses and organizations. Barriers to implementation, including a negative workplace culture and inadequate staffing, are also described, and several resources are presented.

**Keywords:** burnout, fatigue, nurses, patient safety, shift work, workplace culture

By its very nature, nursing work is physically and emotionally demanding, and the current COVID-19 pandemic has increased the risk of fatigue.<sup>1</sup> Occupational fatigue is a known issue in the general U.S. workforce, with an estimated overall prevalence of 38%,<sup>2</sup> and there is evidence that its prevalence among nurses is much higher.<sup>3</sup> Even before the pandemic, nurses typically took few breaks during shifts and often faced greater workloads because of insufficient staffing.<sup>4,5</sup> Shift lengths have increased over the years, with shifts of 12 hours or longer becoming ubiquitous in some settings.<sup>3,6</sup> The use of overtime has also increased,<sup>7</sup> and continues to rise. In a recent national survey, 33% of nurses reported working extra shifts or overtime and 15% reported working on-call shifts within the past year.<sup>8</sup>

Working under such conditions is likely to cause fatigue—feeling very tired or exhausted, both phys-

ically and emotionally—which in turn contributes to poorer physical and mental health outcomes. Indeed, according to the National Institute for Occupational Safety and Health (NIOSH), shift work and long hours have been associated with sleep disturbances; obesity; musculoskeletal disorders and injury; negative immune system effects; chronic health problems such as cardiovascular disease, gastrointestinal disorders, and diabetes; and mood disturbances such as anxiety and depression.<sup>9</sup> Demanding work schedules that don't allow sufficient rest and recovery time contribute not only to fatigue and injury but also to burnout.<sup>10</sup> Burnout among nurses has been linked to caring for sicker patients and having fewer staff to care for them.<sup>11</sup> Such conditions contribute to higher rates of intent to leave and job turnover,<sup>10,12,13</sup> problems that have largely worsened during the COVID-19 pandemic.<sup>14</sup>

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A quiet break room with a sofa, cot, or even just a comfortable chair can make it easier for nurses to take onsite naps; eyeshades and earplugs can also help promote napping. Photo by LightField Studios / Alamy Stock Photo.

It's clear that interventions to reduce and safely manage nurse fatigue are sorely needed. For over two decades, researchers have studied and documented the extent of the problem. Yet despite the many adverse consequences of such fatigue, including its impact on nurse and patient safety and the quality of patient care,<sup>15</sup> implementation of workplace solutions has lagged. But such solutions not only benefit nurses and patients, they also make good business sense. When managers and organizations implement effective fatigue countermeasures, multiple cost savings occur, as evidenced by fewer absences, lower turnover rates, improved care quality, and reduced workers' compensation costs.<sup>9</sup>

The authors are members of the American Academy of Nursing (AAN) who serve on the Fatigue Subgroup of the Health Behavior Expert Panel. As experts in the field of nursing workforce, sleep, shift work, and nurses' health issues, we wrote this article to raise awareness about and promote solutions

to nurse fatigue. (Note: This article has not been formally endorsed by the AAN.)

This article has three purposes:

- to review the job challenges that foster fatigue
- to describe evidence-based solutions that reduce and manage fatigue at the individual and workplace levels
- to discuss barriers to such solutions, along with changes needed to transform nursing culture and workplaces into more supportive environments for nurses

It's critical that we apply what we know in order to mitigate nurse fatigue and improve nurse well-being, which in turn will promote optimal nurse health and patient outcomes.

#### **CAUSES AND CHALLENGES OF NURSE FATIGUE**

The demanding nature of nursing work coupled with typical scheduling practices favors the development of nurse fatigue, and the COVID-19 pandemic has compounded the problem.<sup>16</sup> The sheer

number and variety of the challenges demonstrate the urgent need for solutions.

**Job demands.** The heavy job demands many nurses face are an important factor related to nurse fatigue.<sup>10</sup> Such demands vary, with many being intrinsic to the nature of nursing work. Nurses are frequently exposed—and must respond—to emotionally charged situations, such as caring for patients with uncertain or grave prognoses, patients in crisis (such as acute septic shock, cardiac arrest), and patients who are actively dying—situations people who work outside of health care rarely encounter.<sup>17</sup> Furthermore, there may be concerns with regard to one's personal safety; the nurse may fear being injured by a violent patient or contracting a contagious disease.<sup>18</sup>

## Interventions to reduce and safely manage nurse fatigue are sorely needed.

During the COVID-19 pandemic, job challenges have intensified. In a study of more than 2,000 frontline nurses working during the pandemic in China, 61% reported moderate to severe emotional exhaustion and 91% reported moderate to severe fear.<sup>19</sup> Many health care workers find that extensive use of personal protective equipment (PPE) is tiring and uncomfortable.<sup>9</sup> Yet during the pandemic, PPE has often been inadequate, with limited access to N95 and surgical masks.<sup>20</sup> This likely worsened nurses' fears of contracting COVID-19 and of potentially infecting loved ones.<sup>19</sup> Moreover, some workplaces have reportedly taken nurses' health for granted. For instance, in a national survey of 360 RNs and nursing assistants, Cho and colleagues found that 41% said their institution provided no additional resources during the pandemic.<sup>20</sup> And although 59% reported that their institution provided at least one additional resource (most commonly food services and child-care), these resources weren't always equitably provided across shifts and were sometimes suspended or "taken away."

The way nurses' work is organized, with long hours, few breaks, and limited time off, contributes to job demand challenges for nurses in many settings. For example, nurses might be pressured to work on their days off or while sick, especially if their workplace is short-staffed.<sup>21</sup> Such conditions can lead nurses to neglect their health, contributing further to burnout and exhaustion.<sup>22</sup>

### **Sleep and work schedule challenges.**

A nurse's work schedule can contribute to fatigue by adversely affecting the sleep-wake cycle. Over time, working extended hours (as with rotating shifts or shifts lasting 12 or more hours) can lead to reduced sleep duration and between-shift recovery time, resulting in chronic sleep deprivation.<sup>23</sup> Such deprivation contributes to fatigue, increased daytime sleepiness, and decreased cognitive function, and has been linked to numerous cardiac, gastrointestinal, and metabolic illnesses.<sup>24</sup> Indeed, chronic lack of sleep has been shown to foster pro-inflammatory activity and immunodeficiency,<sup>25</sup> thus placing fatigued nurses at higher risk for infection. Longer work hours have also been associated with increased nursing errors and unsafe driving events.<sup>24, 26</sup>

About 40% of nurses experience short sleep duration (defined as less than seven hours in a 24-hour period), which causes excessive daytime sleepiness.<sup>27</sup> Among shift workers who work rotating shifts, sleep duration while on night shifts can be up to four hours less than when on day shifts.<sup>28</sup> In one study among hospital nurses working three successive 12-hour day or night shifts, Geiger-Brown and colleagues recorded sleep via wrist actigraphy and found that a majority slept less than six hours between shifts, with total sleep duration lower among the night shift workers.<sup>29</sup> Other studies among hospital RNs working multiple 12-hour shifts found that, with each successive 12-hour shift, work performance and attention to task (vigilance) decreased, potentially affecting patient safety.<sup>30, 31</sup> Moreover, many nurses who work nights and sleep during the day switch to sleeping at night when off duty, and this continuous switching further exacerbates fatigue and sleep deprivation.<sup>9, 30</sup>

At the same time, faced with conditions such as understaffing and the pressure from employers or managers to work extra hours, nurses find it increasingly difficult to protect their time off,<sup>32, 33</sup> which is vital for rest and recuperation. Low mood, increased fatigue, and worsened ability to focus can also affect nurses' ability to engage in nonwork activities and decrease overall quality of life.<sup>34</sup>

Lastly, it's worth noting that a significant proportion of the general population has undiagnosed sleep disorders (including insomnia and sleep apnea) such that, even with sufficient sleep duration, sleep quality is inadequate.<sup>35</sup> Such undiagnosed disorders among nurses will further impact sleep-wake cycles and worsen nurse fatigue.

**Drowsy driving** is a significant problem, especially for nurses working rotating or night shifts. One study conducted among 895 hospital RNs for four weeks found that 67% had at least one episode of drowsy driving, with 30 nurses reporting drowsy driving after *every* shift.<sup>36</sup> In the aforementioned

tioned Geiger-Brown study, nurses working night shifts showed greater sleepiness toward the end of shift than nurses working day shifts.<sup>29</sup> Driver impairment is characterized by reduced attentiveness, slowed reaction time, poor judgment, and periods of microsleep (involuntary sleep, lasting three to 30 seconds, of which one is unaware),<sup>9</sup> all of which increase the risk of off-road incidents, especially on curved or monotonous roads.<sup>37</sup> In a study of driving by night shift workers, near crash events were observed in 38% of postshift drives.<sup>38</sup> A 2017 report by the National Highway Traffic Safety Administration stated that drowsy driving causes more than 41,000 injuries and 800 fatalities a year; the report also noted “broad consensus . . . that this is an underestimate.”<sup>39</sup>

**Work-life balance challenges** are ubiquitous in our culture, and nurses aren’t exempt. Nurses must address personal and workplace issues, juggle conflicting responsibilities, and balance personal and workplace roles. The demands of the job, the challenges of shift work, and having dependents at home have each been found predictive of increased work-family conflict.<sup>40, 41</sup> For example, nurses who succumb to pressure to work on days off or when sick might then neglect their self-care and also their family and friends. Such work-family conflict further contributes to nurse fatigue and burnout, and makes

may be the most important solution. In this section, we provide sleep training options, including recommendations for how and when to sleep; workplace interventions such as strategic napping, technological aids, and drowsy driving countermeasures; and integrative health practices such as gratitude, journaling, yoga, guided imagery, and mindfulness or meditation.

**Sleep training.** Nurses rarely receive sleep education while in school. In recognition of this and the problem of nurse fatigue, NIOSH has developed a free, evidence-based online program for direct care nurses and nurse managers: *NIOSH Training for Nurses on Shift Work and Long Work Hours* ([www.cdc.gov/niosh/docs/2015-115/default.html](http://www.cdc.gov/niosh/docs/2015-115/default.html)). Content includes fatigue countermeasures (such as napping) and interventions to improve alertness (such as the optimal use of caffeine). Organizational strategies, such as safer work scheduling practices and environmental supports, are also covered. Another useful free guide, *Su Sueño/Su Vida* (<https://dash.harvard.edu/handle/1/34961939>), offers 12 tips for promoting healthy sleep, including creating a better sleep environment and using behavioral approaches like progressive muscle relaxation. (*Editor’s note:* This guide is written in English with some Spanish phrases; the title translates to “Your Sleep/Your Life.”)

## An atmosphere of competition for overtime and extra shifts can be detrimental to nurses’ well-being.

recovery harder.<sup>22, 41</sup> During the current pandemic, many nurses are working even harder under extremely difficult conditions.<sup>1, 42</sup> For those who are parents, childcare options may be limited. And for any nurse, the effects of burnout and physical and emotional exhaustion can extend from the workplace to the home.<sup>43</sup> Nurses working night or rotating shifts may be especially challenged in this regard. As noted earlier, nurses working night shifts have reported worse physical and mental health, less satisfaction with social roles, poorer memory and focus, and greater emotional distress than nurses working day shifts.<sup>34</sup> Clearly, additional support for nurses with regard to work-life balance is vital.<sup>44</sup>

### SOLUTIONS FOR NURSE FATIGUE

Several evidence-based actions can be taken to improve nurse fatigue, although there are implementation challenges. Obtaining adequate sleep

**Workplace napping.** Strategic naps are highly effective fatigue countermeasures and can be feasibly implemented in nursing workplace settings.<sup>45</sup> Naps can also significantly improve nurses’ ability to manage fatigue, reduce daytime sleepiness, and prevent errors.<sup>45-47</sup> In one study among hospital nurses by Scott and colleagues, “completely relieved” work breaks and provisions for 20-minute onsite naps were part of a fatigue countermeasures program that significantly improved alertness.<sup>46</sup> In another study, Geiger-Brown and colleagues worked with nurse leaders at two hospitals to develop and implement an onsite napping protocol.<sup>45</sup> In that study, nurses who tried napping fell asleep about half the time for an average of 31 minutes, and reported feeling “alert and refreshed” afterward more often than not. Several nurses also reported fewer problems with drowsy driving.

In a Japanese study, nurses worked 16-hour shifts that incorporated built-in two-hour naps.<sup>48</sup> The researchers concluded that while naps helped ease the burden of very long shifts, shorter naps were probably better to avoid sleep inertia (grogginess). In a Brazilian study, a hospital allowed nurses working 12-hour night shifts to nap up to three hours, as long as there was adequate coverage.<sup>49</sup> The participants, whose naps averaged about two hours, reported significantly greater alertness at end of shift; perceived sleepiness was lower whether naps occurred earlier or later in the shift. Lastly, in a systematic review of 13 nap studies, Ruggiero and Redeker concluded that night shift napping “consistently improved sleepiness and sleep-related performance deficits.”<sup>50</sup> They also found that short night shift naps did not affect daytime sleep and that most participants remained sleep deprived. Sleep inertia was present in some nurses upon waking but was usually brief. The authors recommended further trials to examine naps in relation to performance and safety outcomes.

sleep schedule on days off (that is, continuing to sleep during the day) is advisable. For more actions, see Table 1.<sup>9</sup>

**Drowsy-driving countermeasures.** The only permanent solution to the problem of drowsy driving is for drivers to get enough sleep. That said, some short-term countermeasures can reduce the dangers for nurses and others on the road. Given that nurses who feel sleepy during their shift are at higher risk for drowsy driving afterward,<sup>36</sup> such nurses should either have alternative means of transport or be given a place to nap before driving themselves home, ideally with workplace support. Some health care organizations offer shift workers ride-sharing or other car services. This not only protects the workers but also helps reduce an organization’s potential liability for adverse events caused by drowsy driving. Such options can also address nurses’ concerns about getting home safely.

Symptoms of drowsy driving include not only obvious clues such as repeated yawning or blinking and difficulty keeping eyes open, but also dif-

## Strategic naps are highly effective fatigue countermeasures and can be feasibly implemented.

**How and when to sleep.** Research exploring the impact of shift work on sleep can help inform interventions in this area.<sup>30,31</sup> In general, one’s level of sleepiness depends in part on time of day, level of current sleep deprivation, and how long one has been awake. The duration of time awake matters because performance drops after 16 consecutive hours awake, and this drop is worse in those who are already sleep deprived.<sup>9</sup> Once one is sleep deprived, it becomes very difficult to self-evaluate any declines in one’s performance.<sup>9</sup> Thus, an important goal is to avoid being awake for more than 16 consecutive hours, including time at home preparing for work, time at work, and commuting both ways.

To prepare for work, especially for rotating and night shifts, it’s important to get adequate sleep (seven or more hours) for two to three days beforehand.<sup>9</sup> Practicing good sleep hygiene might include using blackout curtains to keep daylight out, turning off screens and notifications, using a white noise machine or earplugs to block sound, and having adequate childcare in place. On the day that a night shift begins, taking a one-and-a-half to three-hour nap before work can help the nurse to begin the shift feeling more alert and less sleep deprived. For those on “permanent” nights, maintaining the same

difficulty remembering the last few miles, missing exits or traffic signals, and lane drifting or tailgating.<sup>9</sup> Paying attention to drowsiness symptoms and responding effectively is critical. If one does become sleepy while driving home, it’s imperative to pull off the road to a safer location as soon as possible. NIOSH recommends consuming caffeine (if tolerated) and taking a 20-minute nap in the car (if it’s safe to do so) while waiting for the caffeine to take effect.<sup>9</sup> It’s also important to know which common recommendations actually *don’t* work. These include opening a window, talking on the phone, and playing the radio, all of which have been found to be ineffective for maintaining driver alertness.<sup>51</sup> Lastly, remember that it’s difficult to assess one’s own fitness for driving after a long workday, and others—coworkers or nurse managers—may need to intervene.

**Integrative health practices** can be carried out by nurses at home or, with organizational support, at work. According to Dossey, work-life balance and optimal health result from “a discovery process” in which one faces life’s challenges, learns to navigate change and manage stress, and develops resilience.<sup>52</sup> There is evidence that integrative practices such as gratitude, journaling, yoga, guided

**Table 1.** Suggestions for Addressing Causes and Effects of Nurse Fatigue<sup>9</sup>

Suggested Action	Individuals <sup>a</sup>	Organizations
Learn about the importance of rest and sleep in preventing nurse fatigue.	X	X
Develop a work–life balance credo and culture that prioritizes nurses’ self-care.	X	X
Establish workplace policies that support nurses in getting adequate rest and sleep.		X
Get 7 or more hours of sleep every night. Adequate sleep is essential, not optional or selfish. For night shifts: Nurses: Schedule a nap earlier that day if you’ve been awake more than 12 hours. Managers: Create schedules to support this.	X	
Dialogue about practices that reduce fatigue in the workplace. Areas to discuss: onsite napping spaces, more frequent breaks, healthier food sources/options for those on nights.	X	X
Schedule and take 2-to-5-minute breaks every 2 hours for hydration and bathroom use. Schedule and take meal breaks.	X	
Ensure nurses have adequate break time to maintain their personal health while working.		X
Resist accepting or assigning “extra” shifts. Managers: Refuse to allow extra shifts if the nurse is exhausted or if extra shifts are negatively affecting well-being.	X	
Nurses and managers: Discuss shift length options such as 4-, 8-, or 10-hour shifts. With organizational leadership: Discuss limiting the number of successive 12-hour night shifts to 3.	X	X
Use integrative health techniques (such as gratitude, journaling, yoga, guided imagery, mindfulness, meditation) to relax and wind down after work.	X	
Offer training in specific integrative health techniques (such as guided imagery, mindfulness, meditation) that promote relaxation and sleep. Create schedules that allow nurses to access such training.		X
Do not drive if excessively sleepy. Inability to maintain alertness while driving home is potentially life-threatening.	X	
Consider offering employees drowsy driving countermeasures, such as ride-sharing.		X

<sup>a</sup> Nurses, nurse managers, or both.

imagery, and mindfulness or meditation can enhance alertness, foster greater well-being, and improve sleep quality.

For example, writing down one to three things daily for which one is grateful has been shown to reduce emotional exhaustion, improve work–life balance, and promote resilience.<sup>53–55</sup> In a recent Japanese study, conducted among night shift nurses over a four-week period, restorative yoga was found to significantly reduce their physical and psychological stress scores.<sup>56</sup> And in a qualitative study

of night shift nursing staff, two- to five-minute guided mindfulness meditations were conducted onsite three times weekly for eight months.<sup>57</sup> Reported benefits included improved attitudes, focus, and teamwork; greater compassion toward patients; and better relationships with others, including their own families. The use of guided imagery has been found effective for reducing fatigue and sleep disturbances in cancer patients,<sup>58</sup> as well as for enhancing self-efficacy and sleep behaviors in corporate business employees.<sup>59</sup>

**Table 2.** Resources for Information on Sleep and Nurse Fatigue

Organization	Resource	Website Link
American Academy of Nursing	Reducing Fatigue Associated with Sleep Deficiency and Work Hours in Nurses (Position statement)	<a href="http://www.nursingoutlook.org/article/S0029-6554(17)30600-0/fulltext">www.nursingoutlook.org/article/S0029-6554(17)30600-0/fulltext</a>
American Nurses Association	Addressing Nurse Fatigue to Promote Safety and Health (Position statement)	<a href="http://www.nursingworld.org/practice-policy/nursing-excellence/official-position-statements/id/addressing-nurse-fatigue-to-promote-safety-and-health">www.nursingworld.org/practice-policy/nursing-excellence/official-position-statements/id/addressing-nurse-fatigue-to-promote-safety-and-health</a>
National Institute for Occupational Safety and Health (NIOSH)	<i>NIOSH Training for Nurses on Shift Work and Long Work Hours</i>	<a href="http://www.cdc.gov/niosh/docs/2015-115/default.html">www.cdc.gov/niosh/docs/2015-115/default.html</a>
U. S. Department of Labor, Occupational Safety and Health Administration	Long Work Hours, Extended or Irregular Shifts, and Worker Fatigue	<a href="http://www.osha.gov/worker-fatigue">www.osha.gov/worker-fatigue</a>
Centers for Disease Control and Prevention	Sleep and Sleep Disorders: Basics About Sleep	<a href="http://www.cdc.gov/sleep/about_sleep/index.html">www.cdc.gov/sleep/about_sleep/index.html</a>
Sleep Foundation	Provides links to various topics, such as healthy sleep tips, sleep hygiene, sleep disorders (including “shift work disorder”), and COVID-19 and sleep	<a href="http://www.sleepfoundation.org">www.sleepfoundation.org</a>

**Technological solutions.** In the workplace, there are real-time, systems-level technologies that can help to prevent errors and injury. These include safety mechanisms such as smart infusion pumps that can identify drug contraindications, detect dosing and programming errors, and prevent the administration of wrong dosages, among other functions. Needleless injection systems avoid the risk of needlestick injury<sup>60</sup> by delivering drugs using other means (such as lasers). Such technologies provide essential safety backups, which are especially important in light of nurse fatigue and exhaustion. Whenever possible, workplaces should use them.

Technologies aimed at counteracting drowsy driving have also been developed. Many vehicle manufacturers now provide driver alert systems. These might track driver-based indicators such as eye movement and head position and vehicle-based indicators such as lane drifting.<sup>61,62</sup> Sensors may then trigger an auditory, visual, or tactile alert to the driver. While these technologies can't compensate for sleep deprivation, they might help to reduce fatigue-related driver errors. Further research is needed.

For more on fatigue countermeasures, see Table 2.

### **BARRIERS TO REDUCING NURSE FATIGUE**

With all the above options for addressing nurse fatigue, it's important to consider potential barriers to their implementation, especially at the systems or organizational level.

**Nursing and workplace culture barriers.** Nursing culture plays a role in fostering nurse fatigue. In the popular view, nurses are often seen as ready to self-sacrifice in order to help others.<sup>63</sup> Nursing by definition is heavily focused on caring for others—and nursing culture tends to pressure nurses to ignore their own needs. Steege and Rainbow have described how idealizing self-sacrifice has created a “Supernurse” culture.<sup>10</sup> Nurses who express emotional concerns or acknowledge being overloaded might be told to buck up and be strong, which ignores their distress. They get the message that nurses should neither need nor expect any support. Such a culture inhibits the implementation of fatigue solutions and the prioritization of safety in health care.<sup>10</sup> The current trend toward labeling nurses “heroes” can further obscure their humanity and cause managers to overlook critical staff needs. In short, the idealization of self-sacrifice has no place in a nursing culture that values nurses' health as well as patient safety.

An organization's management and peer cultures also influence nurse fatigue.<sup>10</sup> For example, an atmosphere of competition for overtime and extra shifts can be detrimental to nurses' well-being, making the work schedule into a contest that rewards those who downplay self-care.<sup>10</sup> Yet nurses in workplaces that provide strong wellness support have reported significantly better physical and mental health than nurses in less supportive workplaces.<sup>64</sup>

Nurses in better health are also less likely to make preventable medical errors.<sup>64</sup>

Despite their benefits, workplace naps are still considered inappropriate by many health care organizations. Human resources department policies that prohibit sleeping on the job can be used as grounds for dismissal, causing nurses to worry about job security.<sup>47</sup> In the aforementioned study by Scott and colleagues, when nurses were given the option to take 20-minute strategic naps, they were reluctant to do so, and implementation was sporadic.<sup>47</sup> Furthermore, though nurse managers reported that napping was helpful and fostered a healthier work environment, there was little high-level organizational support for workplace naps after the study.<sup>46</sup> In the study by Geiger-Brown and colleagues, although a napping protocol received initial approval from nurse executives, only one of the six units approached implemented the protocol successfully.<sup>45</sup> Nurse manager support was deemed crucial to that success. After the study, nurses on that unit voluntarily continued to use napping. The hospital implemented the napping protocol facility-wide, supported by revision of the human resources policy to permit napping.<sup>65</sup> When a workplace thereby recognizes the value of a napping program, and makes changes to ensure that nurses can actually take naps and breaks, all stakeholders benefit.

Even with adequate support, adherence to policies and guidelines pertaining to fatigue management can be difficult to achieve. For example, there is evidence that many health care professionals don't adhere to sleep duration recommendations. In a recent study of osteopathic residents on ED rotation, only 35% reported getting at least

tional support.<sup>70</sup> When a workplace adopts policies and guidelines that promote employee health and patient safety, and when employees are adequately supported in following them, adherence will likely result.

**Scheduling barriers.** A preference for 12-hour shifts among nurses who prefer a compressed workweek (such as three consecutive days on, then four days off) is another barrier to fatigue management.<sup>4</sup> In workplaces that use self-scheduling, some nurses have scheduled even more consecutive workdays in order to create longer periods of time off. And there is evidence that some nurses use scheduled time off for other shift work or jobs, further adding to their fatigue.<sup>4</sup> Stronger scheduling policies and mechanisms are needed to avert such practices.

Despite evidence that longer shifts contribute not only to higher error rates but also to nurse fatigue, job dissatisfaction, and burnout, many hospital leaders believe 12-hour shifts are essential for nurse recruitment and retention.<sup>71</sup> Nurse managers also tend to prefer the relative simplicity of scheduling two 12-hour shifts instead of more eight- or four-hour shifts. But nurses who prefer shorter workdays will leave jobs if 12-hour shifts are the only option, and many others will retire early due to exhaustion. Staff nurses' reported preference for 12-hour shifts may be misleading. As Dempsey states, eliminating 12-hour shifts "would require a fundamental culture change that many hospitals and nurses are not yet prepared to make."<sup>71</sup> It's therefore crucial that we increase awareness of the negative consequences of long shifts—including their impact on patient safety—and implement and maintain fatigue management programs.

## Efforts of individual nurses to minimize exhaustion will only be as effective as organizational policies and workplace culture allow.

eight hours of sleep per night, despite being subject to duty hour limits set back in 2003.<sup>66</sup> Of course, multiple factors can affect adherence, and organizational influences are often beyond the employee's control. Though not specific to fatigue management, studies examining health care worker adherence to professional and organizational policies and guidelines are relevant here. Other factors affecting such adherence include the level and accuracy of employee knowledge about a guideline's underlying rationale,<sup>67</sup> the use of reminders,<sup>68</sup> the extant patient safety culture,<sup>69</sup> and the level of organiza-

**Staffing barriers** are among the most difficult to address. Staffing constraints in nursing began decades ago, when hospitals began reducing the size of their workforces as part of downsizing.<sup>72</sup> Since then, "lean" nurse staffing practices have become common. Even before the current pandemic, inadequate staffing left many nurses exhausted and organizations vulnerable to increased demand in times of crisis. The COVID-19 pandemic exacerbated the situation. Short-staffed facilities have found it extremely difficult to accommodate nurses' needs regarding self-quarantine as well as fatigue manage-

ment.<sup>73</sup> Even when good workplace policies and support exist, without enough staff to meet essential patient needs, nurse fatigue cannot be properly addressed.

Without adequate staffing, nurses can't take essential meal and shift breaks or strategic naps, and lack the time needed to ensure safe practices. The costs associated with ad hoc staffing can exceed those of permanent hires; and replacing and onboarding nurses is extremely expensive.<sup>74</sup> Moreover, ad hoc staffing practices can lower nurse morale and raise attrition. Organizational leaders should revisit, with nurse input, the costs and benefits seen with improved staffing. With proper investment in adequate staffing, nurse fatigue can be reduced and patient safety as well as nurse well-being can be optimized.<sup>75</sup>

## CONCLUSIONS

Addressing nurse fatigue is a shared responsibility of nurses and organizations.<sup>75,76</sup> In the interest of nurse and patient safety, efforts must be undertaken to promote a healthier work culture. These should include ensuring sufficient staffing, supporting real work breaks and time off, normalizing rest rather than idealizing exhaustion, and institutionalizing fatigue management support.

Fatigue management and prevention programs can include sleep training, strategic napping, drowsy driving countermeasures, integrative health practices, and applied technologies. They can also help to reduce nurse turnover, ad hoc staffing costs, and patient care errors. Despite the best efforts of some organizations to reduce nursing job demands, some jobs as currently designed may be unsustainable, meaning they cannot be executed without causing extreme fatigue and other adverse consequences.<sup>75,77</sup> Such positions will require extensive redesign. Though it's tempting to reject this idea as too expensive, ultimately such an investment would likely create a more stable and resilient workforce. One facility saved an estimated \$1.8 million in turnover costs through a program offering nurses peer support after adverse events.<sup>78</sup>

Further research is needed to identify best practices and additional strategies for addressing nurse fatigue, and to explore reimaged and redesigned ways of working. Given the ongoing pandemic, it's more important than ever to protect and support nurses' well-being. While individual nurses can and should take all possible actions to minimize exhaustion, their efforts will only be as effective as organizational policies and workplace culture allow. For everyone's benefit, it's imperative that health care institutions take steps to remove structural barriers to nurses' health and fully support fatigue management and prevention strategies.<sup>75</sup> ▼

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