2021 NCSBN Scientific Symposium - Fatigue Among Healthcare Workers: Do Solutions Exist? Video Transcript
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Event
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Presenter
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- [Moderator] Beverly Hittle is an assistant professor from the University of Cincinnati College of Nursing. Her extensive nursing background, working shift work in the acute care setting, inspired her research path of investigating the intersection of organizational and individual factors contributing to worker poor sleep. She has an MSN and PhD focused in occupational health nursing.

Supported by a training grant from the National Institute for Occupational Safety and Health, also known as NIOSH, in 2019, she was a scholar and residence at NCSBN. She is currently funded, through NIOSH, working with researchers in the Center for Work and Fatigue Research.

They're preparing to launch a project examining the effectiveness of the NIOSH online educational program on nurse sleep and well-being entitled, Training for Nurses on Shift Work and Long Work Hours.

- [Dr. Hittle] Hello, and thank you for the introduction. And thank you to everyone for joining this session. Before we start, I would like to provide the following disclaimer that the views expressed in this presentation are my views.

It does not necessarily reflect the views or position of my employer or the contracting work at the National Institute for Occupational Safety and Health. Today's presentation is based on some of the work I've been doing to provide recommendations on sleep, fatigue in shift work. We will review how to define fatigue in the context of shift work, the status of sleep and fatigue in healthcare, recommendations for managing fatigue among healthcare leadership and workers, barriers to fatigue management, how to overcome those barriers, and future research needs.

We have all seen the headlines. Those of you in attendance who were practicing at the bedside, you know firsthand the toll that COVID-19 has taken on nurses and other healthcare practitioners. For the

rest of us, we are hearing from friends and colleagues about how caring for COVID-19 patients has affected the healthcare workforce.

One thing is clear, nurses and other healthcare providers are exhausted physically and mentally. But what does it mean to be fatigued? We each may have our own perception, and certainly in the face of the coronavirus pandemic, fatigue among healthcare workers seems to be all-encompassing and compounded by emotions of grief and isolation.

Generally, in the sleep and fatigue, and occupational health world, when we talk about fatigue, many is the definition published by Dr. Steve Lerman and colleagues on behalf of the American College of Occupational Environmental Medicine Presidential Task Force. They defined fatigue as the body's response to sleep loss or to prolonged physical or mental exertion. Sleep loss, physical and mental fatigue, they collectively and they individually lead to decreased alertness and response time, contributing to injuries and errors.

In addition to poor cognitive functioning, sleep and the disruption to circadian rhythms caused by shift work can also contribute to poor health outcomes for workers. You can see in this slide some of the sequela of poor sleep and circadian rhythms disruption. Although some of these outcomes may not present for many years, mental health outcomes including emotional regulation are more immediate effects.

From a healthcare regulatory standpoint, it is important to mitigate the effects of healthcare fatigue which may contribute to adverse events involving patients. Yet the coronavirus pandemic has placed a tremendous strain on the healthcare workforce, exposing the importance of supporting worker health. With that, we need to also place increased importance on promoting workers' sleep and health to ensure that we have a workforce available to care for the public.

So how fatigued and tired is the nursing workforce? A recent study from nurse scientists at the University of Tennessee and the University of Madison Wisconsin compared nurses caring for COVID-19 patients versus those who were not. Nurses caring for COVID-19 patients reported more insomnia and fatigue, but the fact is both groups were reporting moderate to high acute and chronic fatigue.

On workdays, almost 83% of all the nurses reported sleeping below the recommended 7 hours of sleep. Similar sleep duration statistics have been noted in the literature about nurses prior to COVID-19. Although the situation has clearly worsened from a mental health standpoint, the case can be made that sleep and fatigue existed prior to the onset of the pandemic and will be a persistent issue to address in the post-COVID-19 era.

We know there are organizational factors that contribute to worker sleep and fatigue, workload, work timing, extended work hours, and culture. Workload, nursing is a very stressful profession and the physical and mental demands required of nurses can contribute to fatigue.

Think of the number of patients a nurse can care for within a shift, think of the acuity of the patients, the number of steps the nurse must take between rooms and supplies on the unit, the multiple tasks required of nurses within a shift. Oftentimes, the workload is so high, nurses are not able to take breaks. As

nurses, we know these factors contribute to fatigue and there is evidence to support nurses' personal knowledge and lived experience.

Work timing, likewise work timing, this refers to like, the time that someone would be at work, so such as like night shift, evening shift, early mornings, rotating shifts. These are all the work hours that can contribute to disruption to our natural circadian rhythms in our sleep and also cause fatigue. But of course, we require nurses to provide care in 24-hour facilities. So this is kind of something we can't avoid.

Extended work hours, these are the shift lengths, shifts extending beyond 10 hours and weekly overtime, including voluntary and mandatory overtime. Finally, culture. Organizational safety and professional culture, they have all embraced the three factors, the other three factors in many ways.

There's a [inaudible] that we have seen with little sleep and long work hours in the healthcare industry. In my research, advanced nurse practitioners have told me how the medical profession's culture surrounding work hours has influenced their own actions and beliefs related to sleep, where they feel they are compelled to come to work regardless of illness and fatigue. We see a culture in healthcare where napping while at work, even if it's on a break, is still considered a fireable offense.

Individually, these work factors can cause fatigue, but we also need to think about, like, how they intersect for experiencing, like, multiple factors at once can create like a compounding effect. Folkard and Lombardi, in a very seminal paper, developed a risk index model to predict the risk of adverse event when working shift work.

This model was based on kind of weekly work hours and shift components like, shift length, breaks, timing. And the researchers found substantial increase in risks for injuries and errors with each, like, subsequent night shift so that by the third night shift in a row, the risk was 17% higher and by the fourth night shif t in a row, it was 36% higher.

And similarly, the risks increased exponentially with longer shifts. So overlaying these factors resulted in even higher risks, and there's evidence to support this in nursing. So in shift working nurses, Dr. Geiger-Brown, she had published work demonstrating how every adverse work condition that shift working nurses experienced, such as overtime, shift length, you know, shift timing, when they increased the odds... when they overlay, they increase the odds of nurses reporting sleep problems.

So where does this leave us? How should we proceed? Are there any solutions? The path recommended by experts in the field as well as healthcare accrediting professional organizations such as the American Nurses Association and the Joint Commission is to institute fatigue risk management systems. But what does that even mean? Fatigue risk management is a multilayered approach to preventing and/or reducing fatigue in the workplace.

It is building layers of defense against fatigue. So it should be incorporated into a safety management system where sleep and fatigue becomes an important part of the organizational culture. This type of system is used in other industries. You can see it on the airline industry.

It is designed to be a collaborative safety effort among employers and employees using the tenets of the just culture philosophy which we are aware of in the healthcare industry. I now want to take a minute to look specifically at the responsibilities of each of these groups. So to mitigate fatigue, general recommendations for an organization would include to provide time for rest, educate and train, and then to monitor for fatigue.

So with providing time for rest, workers should have a minimum of 11 hours off in between shifts. They need time off to recover from multiple shifts in a row, they need sufficient breaks while at work. Heavy workloads may require short breaks every two to three hours while they're working and these strategies can really help to address the workload and extended work hours as well as mitigate some of the effects of work timing.

Educate and train, the education and training should provide workers with information on the risks associated with insufficient sleep and fatigue, as well as any evidence-based strategies to employ while working shift work. It is really important to train healthcare workers on these topics as they often do not receive this type of education with their schooling.

Education and training can also help dispel some of the cultural issues surrounding sleep and fatigue in the healthcare industry. Monitoring for fatigue includes detecting where sleep and fatigue may contribute to health and safety issues. In the 2017 study, less than 10% of nurse leaders reported that their organization had a system in place for monitoring fatigue among nurses.

With an estimated $411 billion lost annually in the U.S.economy due to poor sleep at the workplace, monitoring for fatigue would seem to be a major cost-saving initiative to the healthcare industry. Monitoring also supports the culture change by telling workers that this is a priority for the organization. And now for the employees, general recommendations include to use time off for rest, arrive fit for duty, and engage in education and training.

When workers have time off from work, they really should take the time to sleep, particularly when in between shifts. Again, there's a professional culture within nursing of self-sacrificing which is very noble, but we need to instill some self-care in the professional norms. Rest and rejuvenation is needed to provide care.

Arriving fit for duty, we all know employers cannot tell workers how to spend their time away from the job, but they can expect workers to show up and be ready to work. Sleep and fatigue should become a part of the fitness for duty conversation. So when someone is awake for 17 hours or more, they begin to exhibit cognitive deficits similar to alcohol intoxication.

So if this is the case, we all should be expecting sleep and rest to be a part of the fitness for duty. And engaging in training and education, this includes attending training programs as well as employing the learned strategies. So of course, there always barriers and situations, and I want to discuss a few of these. The first being that no one size fits all.

There are general recommendations, but how organizations tackle these will vary. Different organizations have different needs. Consider the variations that we see in staffing and the staff resources

at an urban facility versus a rural facility among different hospital sizes, patient populations. I even think about the differences that exist within one organization between different units.

So these variations can make it impossible to prescribe one way to institute fatigue risk management throughout the country. Individual differences exist among workers. So there are biological differences that are noted among individuals that are related to sleep. I like to use the example of sleep preferences.

We all know those people who like to wake up really early or those people who like to sleep in and stay up really late. Those are preferred sleep times that can have a genetic origin to them. So we can imagine how workers that have those different sleep preferences that can intersect with their work time and maybe cause some disruption to their sleep.

Social factors can also influence sleep for individuals, factors including gender norms, racial and ethnic discrimination. Limited staffing resources, as we are seeing with the coronavirus pandemic, we cannot control who shows up at the hospital. When patients need us, they need us. And these patient numbers and workforce numbers can really ebb and flow. This can make managing the workload challenging, but it can also be for the reason for controlling the other factors that contribute to fatigue.

There's a lot of heterogeneity in the research. There are multiple placements to institute change and this is reflected in the literature. In addition, study outcomes are measured in a variety of ways. So regardless though overall, the reviews of literature indicate interventions do improve worker sleep and fatigue levels.

Fatigue is not always easy to measure. There are multiple ways to measure sleep and fatigue. Some are self-reported surveys, but one needs to know what type of measure is desired. So are you wanting to measure sleepiness right now, are you wanting to measure at the end of a shift, are you wanting to measure fatigue in between shifts?

So it can be really difficult to find a tool for measurement. Some devices do exist on the market to help monitor for fatigue, but they may not be feasible in nursing. The data sources for contributing factors, there are multiple sources for tracking things like shift length, staffing and patient acuity, and other factors that contribute to fatigue, but these data sources are often not in one central data collection tool, making it a challenge to assess the status of the unit and/or individual nurses.

The lack of consideration of sleep and adverse event root cause analyses. So oftentimes in healthcare, worker sleepiness and fatigue are not always a consideration in root cause analyses. My conversations with healthcare providers, management and risk management indicate that the time of an adverse event is often noted, but further investigation into, like, a worker schedule leading up to the event.

So were they working on their third or fourth night shift, whether worker's having sleep issues, and whether they have fatigue at the time of the event is not investigated. So understandably this may cause a worker to feel culpable, they may not want to admit to fatigue which is why culture change is so vital, but it also prevents us from really seeing where there's difficulties in the system such as, like, the scheduling issues.

Addressing barriers. So with that heterogeneity and practice settings and research, this is where I really see nursing can shine. I see that nursing leadership, shared leadership systems within the hospitals, hospital-based DMPs, they can all come together with our scientists to develop evidence-based programs that can really make a difference.

There are plenty of resources and recommendations, but each unit in an organization will have to find what would work for them. Individual differences, educating workers on the risks and some of the ways we can differ can be helpful. It can allow workers to make informed decisions regarding their work and their health. Anecdotally, I can tell you, when I speak to students and workers about sleep, they know they're tired, they think it's just part of the job.

But they are often really surprised by how sleep contributes to health. And it really... Hearing about that really encourages them to kind of think about ways that they can improve their sleep. In addition, I think that having a buddy system in place can be really helpful so that nurses can help support each other and be accountable for each other.

Limited staffing resources. I cannot pretend to be an expert on this. I know that this has been an issue in healthcare for many years and certainly, there are experts on this topic that can speak better of this than I can. But I will point you to NCSBN had a recent policy brief that they published that was related to academic practice partnerships during the time of COVID-19.

In addition to that, I would also say that dedicated education units are an opportunity that can foster relationships with nursing students in an effort to hire them after graduation as nurses on the unit that they've been working with during their schooling. Fatigue is not always easy to measure. There are self-report surveys such as the Epworth Sleepiness Scale as well as short cognitive tests.

Again it is best to carefully review what is being measured to determine the best measurement tool to suit your needs. Data sources for contributing fatigue, this disjointed system. There are predictive model products on the market which attempt to bring some of the multiple data sources together.

There's also some current research looking at how the brain systems that exist together and measure those to predict fatigue with the nurses on the unit without having to buy a specific product. But I think this will be a part of fatigue risk management we really want to watch. Sleep and fatigue, that lacking of reporting in adverse events. So the systems need to be inclusive of organizations and workers where there is a joint effort to change the culture surrounding sleep and fatigue.

So future research. Although poor sleep and fatigue has been a known issue for many years, the research is really burgeoning and we feel it's really bright for future opportunities in research. The culture change, we know from other industries that the culture change helps to promote sleep and fatigue mitigation.

But the most effective methods for changing this culture in healthcare is unclear. So how can medicine, nursing, and other healthcare practitioners come together with hospital leadership to change this culture? They are some of the questions that still need to be investigated. As mentioned, predictive models in fatigue detection, and counter strategies are both active fields of research and things to watch.

Education, NIOSH does have an education program targeting nurses on their website. It is free to use and we have a study that we're ready to launch with the hopes of recruiting nurses in the fall of 2021. Our study purpose is to evaluate the effectiveness of the training on sleep and well-being. That being said, this is one of the only free education tools available on the market.

There may be training and education programs within organizations, but research is really lacking on the best method for providing this type of training. Individual differences, specifically we need to better understand how the social and environmental influence on individual's sleep, how this all intersects with shift work and health, and the effectiveness of a full risk management program.

There is enough evidence for recommendations for fatigue risk management, but we need to better understand how these recommendations can be incorporated into various practice settings. So with that, I would like to say thank you again for attending. A special thank you to Mary Anne, Nancy, and others at NCSBN for inviting me to speak today.

Certainly, if anyone has questions after the conference, please feel free to contact me. Thank you. Thanks for joining me today. I'm so excited to be here.

I mean, to be one of three researchers to be talking about sleep and fatigue, that tells me that there's such a great interest, tells me that it's moving the research forward. Certainly, the topics that Dr. Witkoski-Stimpfel and Dr. Farag spoke to really did address some of the barriers I discussed and some of the places we need more research.

So such an exciting day and I can also see from the Q&A that there's great interest in this. So thank you all for joining us. While we're waiting, I just want to say that if anybody has any kind of questions, any comments, you just want to talk about sleep, happy to do that. Just email me and I would love to talk to you, beverly.hittle@uc.edu.

And while we're waiting, I also want to acknowledge... I saw Dr. Trinkoff is on the call, who really, you'll probably see her name in some of our... in the other three...myself and the other two presentations as somebody who has been doing this type of research for a while and really has paved the way for us.

So thanks for being here, very exciting to see you here too. So let me see if there's any questions. So I also saw earlier that Dr. Trinkoff had put something in here about the NIOSH. She put the link for the NIOSH training.

So please encourage individuals that you know working in the hospital setting to take the training. I have found that students that I've spoken to, particularly new grads, like, they just...there's a lot of this information that seems really new to them. Although sleep is something that is becoming more prevalent, sleep knowledge is becoming more prevalent within society, with people wearing their trackers and stuff, I still think that there's a room for this, for workers to be educated on because it's not always intuitive to know how to sleep when you're working night shift.

We can read about sleep education for the general population, but when working shift work, it might take some specialized, you know, specific ways to kind of adjust your sleep. Well, thank you everybody for attending. Feel free to contact me if you have any questions. Have a good day.