

EXECUTIVE SUMMARY

December 2023

Safe Hours Save Lives!

Study on Safe Working Hours for Nurses

Dr. Heather Scott-Marshall

About the CFNU

The CFNU is Canada's largest nurses' organization, representing 250,000 frontline unionized nurses and nursing students in every sector of health care — from home care and long-term care to community and acute care — and advocating on key priorities to strengthen public health care across the country.

Land acknowledgement

From coast to coast, we acknowledge the ancestral and unceded territory of all the Inuit, Métis and First Nations Peoples that call this land home. The Canadian Federation of Nurses Unions is located on the traditional unceded territory of the Algonquin Anishnaabeg People. As settlers and visitors, we feel it's important to acknowledge the importance of these lands, which we each call home. We do this to reaffirm our commitment and responsibility to improve relationships between nations, to work towards healing the wounds of colonialism and to improve our own understanding of local Indigenous peoples and their cultures.

About the author

Dr. Heather Scott-Marshall is President and Scientific Director at Mission Research, a boutique research firm specializing in the application of advanced scientific methodologies. She has a PhD in Social and Behavioural Health Sciences from the University of Toronto, where she holds an academic appointment as Adjunct Professor.

Published by:

Canadian Federation of Nurses Unions 2841 Riverside Drive Ottawa, ON K1V 8X7 613-526-4661

www.nursesunions.ca

ISBN

Digital: 978-1-990840-09-8 Print: 978-1-990840-08-1

© 2023 Canadian Federation of Nurses Unions

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means without the permission of the publisher.

CFNU project team

Executive summary author:Arun ShrichandDesign and layout:Holly DrewProject support:Oxana Genina

CFNU advisory committee

Dewey Funk (UNA)
Justin Hiltz (NSNU)
Tarya Morel (BCNU)
Bridget Whipple (MNU)

Translation

Jocelyne Demers-Owoka, Ideal Translation

CFNU Member Organizations







pei nurses'















Message from Linda Silas, CFNU President

Nurses have been grappling with endemic burnout and work overload. They are being asked to work excessive overtime more than ever before. In 2022, nurses who worked overtime worked an average of 8.2 extra hours on top of their regular shifts per week — an increase of almost two full hours since 2000.

Nurses are enduring continuous shifts as long as 16-24 hours, with consequences that extend far beyond the workplace.

As a result, nurses are enduring continuous shifts as long as 16 to 24 hours, with consequences that extend far beyond the work-place. Over the course of the pandemic, the CFNU has surveyed nurses and found that up to 94% of nurses said they had been experiencing symptoms of burnout, with 45% experiencing severe burnout. Many have been pushed to the brink and been forced to make the painful decision to leave the workplace. Some have sought refuge in private agencies, straining our public health system further, while others have chosen to leave the profession entirely. Far too many nurses are understandably worried about the safety of their patients and their own well-being.

In response to these pressing issues, the Canadian Federation of Nurses Unions (CFNU) commissioned Dr. Heather Scott-Marshall, President and Scientific Director of Mission Research, to prepare a research report addressing the critical need for safe work hours for nurses. This report draws from existing evidence in the literature, jurisdictional approaches and invaluable insights from nurses and subject matter experts. I would like to extend my heartfelt appreciation to Dr. Scott-Marshall and the CFNU's advisory committee for this project: Dewey Funk (United Nurses of Alberta), Justin Hiltz (Nova Scotia Nurses' Union), Tarya Morel (British Columbia Nurses' Union), Bridget Whipple (Manitoba Nurses Union), and Arun Shrichand (CFNU).

I spoke recently to an experienced frontline nurse, who told me about the long hours she's being asked to work. She said that "around hour 20" she started to get confused. How can anyone be expected to function after over 20 straight hours on the job?

The findings confirm what many of us feared: excessive hours of continuous work have a profound impact on nurse fatigue. Research shows that fatigue is similar to the effects of alcohol intoxication, and it poses long-term health risks such as high blood pressure, heart disease and diabetes. Furthermore, it has been linked to work-related injuries in nurses, contributing to absenteeism that costs our health care system nearly a billion dollars annually.

Moreover, there is a growing body of evidence linking fatigue to safety incidents in health care. Canadian data demonstrates that the rate of hospital harm has increased from prepandemic rates, with one in 17 hospital stays involving at least one harmful event.

The imperative is clear: we owe it to our health care system to proactively address nurse fatigue. It's a question of safety and respect!

Federal, provincial and territorial governments must establish legislation and regulatory limits on consecutive work hours for nurses, mirroring the safeguards already in place for other safety-sensitive industries. Pilots, for example, have regulations in place stating their maximum duty period is 13 hours. A plane is rightly delayed in the event this threshold is breached. The safety of passengers matters. So should the safety of patients.

Employers need to devote resources to implementing formal programs of fatigue risk management. They must cultivate a work environment where nurses feel comfortable to identify fatigue-related incidents, errors or near misses. They should have provisions in place to support nursing staff such as duty-free rest breaks that feature a designated quiet area for napping, as well as safe third-party transportation options for nurses who are too fatigued to drive home after their shifts. I would do the same for you if you were at my house and had consumed an excessive amount of alcohol! This is my civic duty. Today nurses are pushing for fatigue to have a similar level of accountability, making nurse and patient safety a fundamental obligation.

As nurses' unions, we are deeply committed to pursuing the best practices outlined in this research report. As we negotiate collective agreement provisions, our aim is to promote high-quality practice environments that prioritize the well-being of nurses and patient safety.

Lastly, I ask nurses to always take steps to ensure adequate rest and sleep prior to starting your shift. If there is a fatigue-related risk that poses a threat to your own safety or that of your patient, I encourage you to voice your concerns. The provincial professional responsibility form is one occupational health and safety process that allows you to report these issues.

Together, let's recognize the profound challenges and work collaboratively towards a safer, more sustainable future for nurses, patients and our beloved public health care system.

In solidarity always,

Linda Silas CFNU President

Recommendations

Drawing from the comprehensive findings of each major research phase, the CFNU presents the following recommendations in relation to work hours scheduling and the reduction of fatigue-related risks.



1. Legislation/regulations

That federal, provincial and territorial governments prioritize and address issues of long hours of work in nursing by:

- Stopping the practice of mandating nurses to work overtime.
- Introducing legislation/regulations governing work hours, that set restrictions on each of: number of consecutive work hours (recommended maximum is 12 hours); number of successive work shifts (recommended maximum is four); minimum periods for recovery between shifts (recommended minimum is 11 consecutive hours of rest).
- Instituting legislated/regulatory requirements that include mandatory use of comprehensive fatigue management programs.



2. Occupational health and safety

That employers and unions prioritize and address issues of long hours of work in nursing by:

- Adopting international standards for managing risks related to fatigue, such as
 those provided by the ISO 45001 occupational health and safety management
 system. Employers should build on these standards and adopt fatigue mitigation
 provisions such as designated napping spaces, fresh food for nurses on extended
 or overnight shifts, and providing nurses' transportation home post-shift.
- Lessening workload when a nurse's shift surpasses 12 hours and during the window of circadian low (between roughly 2:00 am and 6:00 am).
- Monitoring individual factors affecting fatigue such as age, health status and personal circumstances.





3. Hours of work/scheduling

That employers and unions prioritize and address issues of long hours of work in nursing by:

- Looking to establish thresholds during the collective bargaining process that include a maximum shift duration of 12 hours, ensuring nurses work no more than 40 hours per week on average, requiring no more than three to four consecutive work shifts lasting 10-12 hours, especially night shifts. Beyond these thresholds, heightened monitoring of fatigue must be considered mandatory for employers.
- Ensuring that labour management policies include protocols for fatigue management.

Summary

The objective of this study was to undertake research that can be used to inform an evidence-based dialogue and action on safe work hours for nurses.

There were three major components to the research:

- A comprehensive review of the scientific literature on the health and human consequences of occupational fatigue and excessive work hours — a total of 52 studies were selected for inclusion in this review based on content, relevance and research;
- An environmental scan of cross-jurisdictional policies and practices with respect to work hours and scheduling, with a focus on safety-sensitive industries, including health care;
- In-depth interviews with key informants to garner first-hand accounts and expertise with respect to work hours safety in nursing and health care — a total of 18 interviews were undertaken with frontline nurses and allied stakeholders from professional associations, colleges, unions and academic institutions.

Other industries have safeguards

Currently, there are no federal or provincial regulations limiting how many hours a nurse can work in a day or week. But because fatigue is a well-known safety risk, other industries with critical safety concerns have established formal regulations for work hours. In health care, the work hours of medical residents are governed through negotiated agreements between the provincial residents' associations and employers.



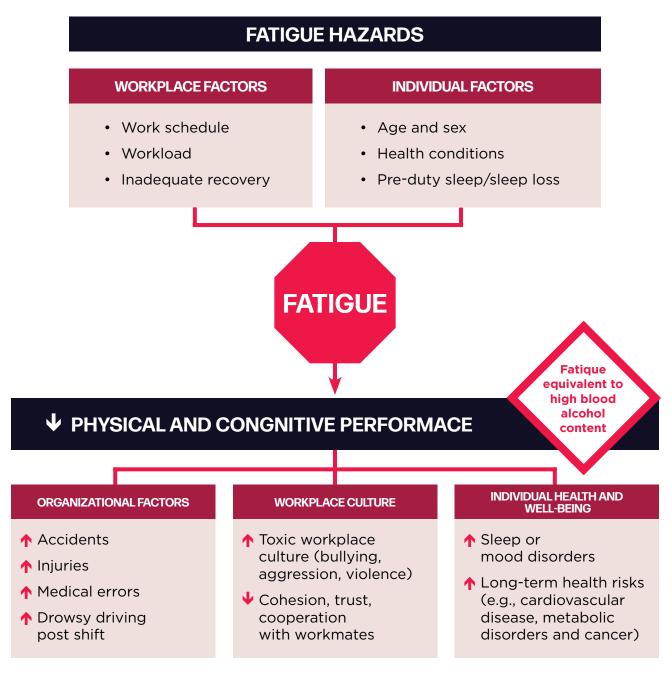
Project considerations

The findings of this study primarily relate to identifying safety limits on consecutive work hours due to the risks arising from occupational fatigue. However, it is important to note that the shortage of nurses within the public health care system stands at the core of the issue of consecutive work hours, which ultimately hinders the widespread adoption of safe scheduling practices. It is vital to stabilize our nursing workforce by investing in evidence-based solutions, including adopting safe staffing measures such as minimum nurse-to-patient ratios, engaging in national health workforce data and planning, boosting nursing program seats, supporting students with mentorship and paid preceptorships, increasing full-time permanent jobs and much more. We encourage readers to read the CFNU's report Sustaining Nursing in Canada on retention, return and recruitment solutions now and into the future.



Key findings from review and synthesis of the literature

Fatigue is recognized as a hazard at work due to its association with diminished cognitive and physical performance, which can be similar to the effects observed in individuals with high blood alcohol content. A substantial body of evidence across multiple work contexts, including health care, highlight the fatigue risks associated with long consecutive work hours, and key health and safety outcomes.



Adapted from: Coelho, C., Lakhiani, S., Morrison, D. (January 2020). *Stay Alert: Incorporate Fatigue into Risk Management.* American Institute of Chemical Engineers (AIChE).



4

Individual and organizational factors affect fatigue risk

- Individual factors can aggravate fatigue risk and should be monitored. Evidence suggests that workers that are women, older age, have select chronic diseases and other individual circumstances may have more difficulties with quality and duration of sleep.
- Organizational-level factors affecting fatigue risk include intensity of work (in addition to the level of mental and physical demands) and the structure of the work schedule. For instance, extended shifts, rotating/night shifts and inadequate break times for rest and recovery contribute to poor sleep quality and fatigue.



Risk of workplace safety incident (accidents or injuries, including medical errors)

- The risk of safety incident (including medical errors) increases exponentially following the eighth consecutive hour of work; by 12 hours the risk of safety incident doubles, and by 16 hours the risk can be three-fold.
- Risk of safety incident increases with each consecutive work shift, increasing by as much 50% by the fourth 12-hour shift.
- Night shifts, especially during the "window of circadian low" between 2:00 am and 6:00 am, pose a higher risk of safety incidents.
- Long work hours can lead to fatigue-related risks which may extend beyond the workplace, such as increasing the risk of drowsy driving accidents during the commute home.



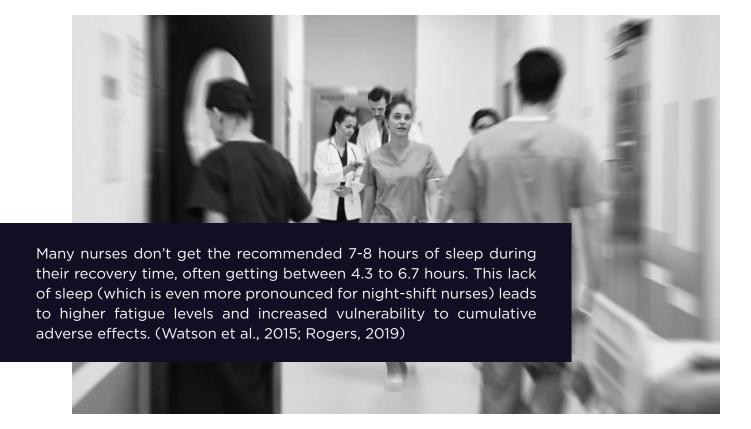
Impact on work culture and the risk of conflict among work peers

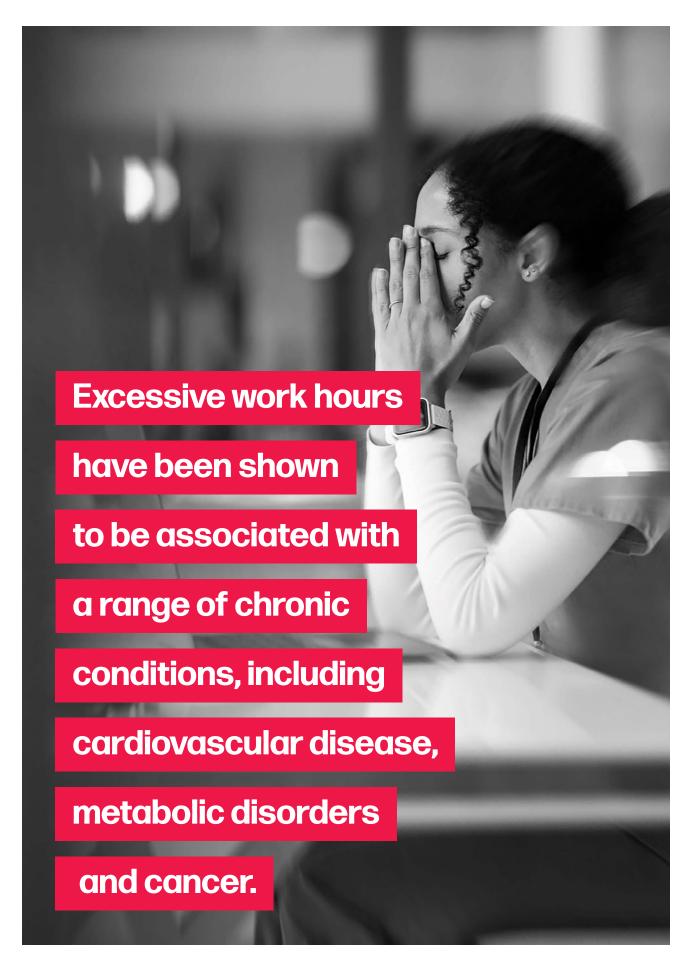
- Studies of workplace conflict among health care workers have found long work hours can be linked to lateral violence and bullying among work peers.
- Excessive work hours tend to increase stress and fatigue, which can lead to an increased propensity for conflict.
- Excessive work hours have also been shown to harm essential teamwork qualities (e.g., treating coworkers with empathy and respect, demonstrating willingness to collaborate on tasks, etc.). This can represent a potential breakdown of productive working relations that can give rise to interpersonal workplace conflict.

₩)

Risks to individual health and well-being

- Long work hours for nurses can lead to sleep deficits, increasing the risk of drowsiness, involuntary napping and medical errors. Persistent sleep disorders also contribute to chronic insomnia.
- A growing body of evidence has linked long work hours with the onset of mood disorders, including anxiety and depression.
- In the longer term, excessive work hours have been shown to be associated with a range of chronic conditions, including cardiovascular disease, metabolic disorders and cancer.





I've been nursing for 42 years and seen the number of nurses go up and down, and we have seen times when there was a little bit less staff available to us, but I have never seen it to the level of now... We are dealing at the moment with a 60% vacancy rate in our facility, so it's enormously high."

RN, emergency and acute care

I remember when I was nursing, I stayed up for 96 hours in a row... and I knew that I wasn't providing care, I wasn't giving medication; I was providing narcotics and could have made a mistake drawing insulin. It could mean the death of a patient."

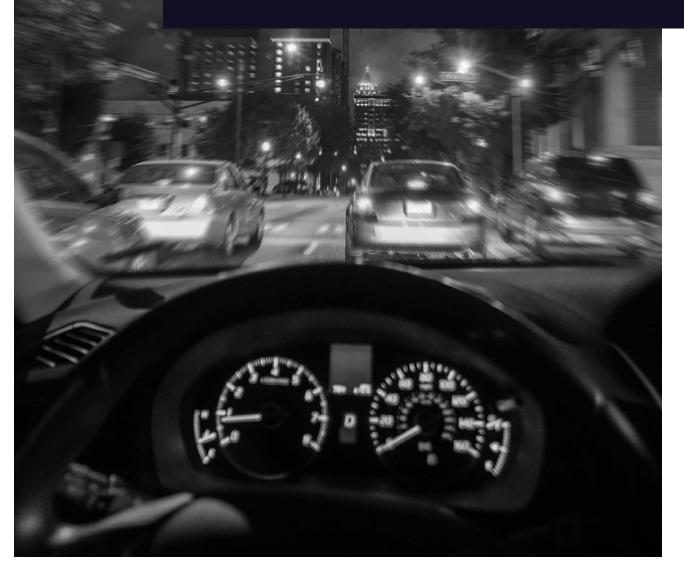
Union leader

Key findings of key informants' interviews

Key themes emerging from interviews with key informants were aligned with findings from the scientific literature, including the following.

- Health care's structural problems, including funding issues and inadequate planning for demographic shifts and retirements, have led to severe staffing shortages. This situation has worsened due to the COVID-19 pandemic, and a consequence has been longer work hours.
- Long work hours result in nurse fatigue impacting patient safety. This has been backed by recent data from the Canadian Institute for Health Information (CIHI), which found hospital inpatient units have seen a rise in the rate of unintentional harm to patients for the third year in a row.
- Long work hours result in nurse fatigue impacting their personal health. Informants noted these risks extended beyond the workplace, highlighting "drowsy driving" after shifts as a significant concern.
- In most cases (contingent upon practice area/work context), 12 hours should be considered the safe maximum shift length. Extending shifts beyond 12 hours is seen as a period of high risk when nurses are too tired to do their work.

You're working with all these meds, and yet you can't even drive yourself home... That post-shift period of drowsy driving, the increase of risk of accident is something like tenfold; I mean it's absolutely crazy, especially if you have been working nights and you don't even know if your car is moving toward the middle of the road... Some of us turn up the radio and roll down the windows, but I still always tell myself it's the grace of God sometimes, because you're physically so compromised."



In eight-hour settings, they're doing double... and it's too much... When I've worked 12-hour shifts, I'm definitely like 'okay, my body is tired, I'd really like to go home.' Extending that to 16-hour shifts, there is really no energy left in you... It's heavy work."

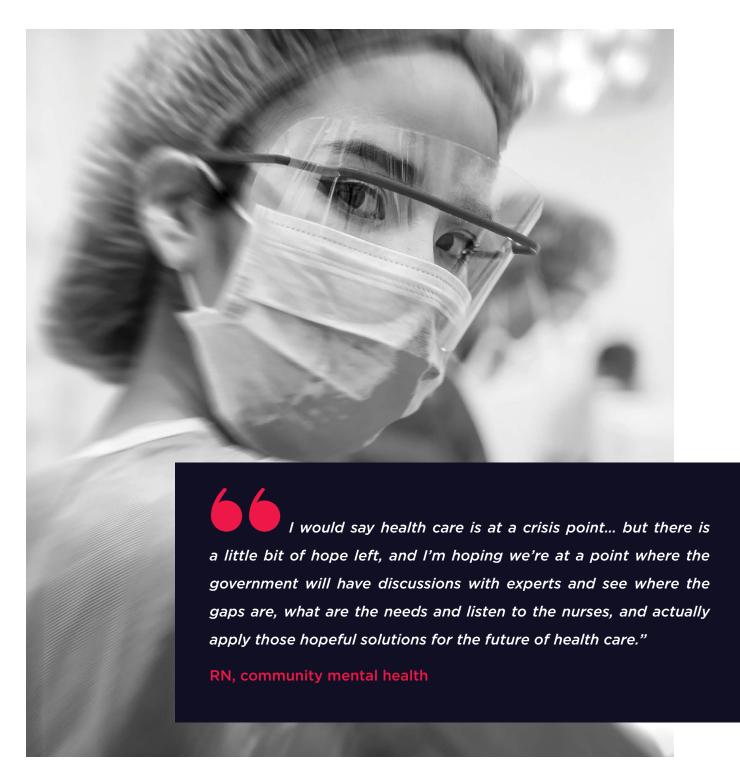
RN, long-term care

They have those [hours] limits for public safety, like because truckers that are tired are going to be killing people on the road... I think 100% [the same limits should be implemented in health care]; I have a brother who is a pilot, and he tells me that all the time how the same thing should be done for nurses. It should be mandated somehow... It's to protect the public."

RN, community mental health

- Strategies for actively monitoring fatigue in nurses should be considered best practice. Informants supported implementation of formal programs of Fatigue Risk Management (FRM), adapting those used in other safety-sensitive professions.
- Nurses should have the right to decline additional work hours if they are excessively fatigued and believe that they may jeopardize their own well-being or the safety of their patients. Some informants pointed to protections that already exist within collective agreements in some provinces, as well as occupational health and safety policies that give the right to refuse work. However, many agreed that additional regulations, similar to those for safety-critical industries, would further safeguard nurse well-being and public/patient safety.
- Mitigating fatigue in nurses requires employers to recognize their obligation to provide key worksite provisions. These provisions include duty-free rest breaks with access to a designated quiet space for napping, fresh nutritious food (particularly for nurses who lack access to cafeteria services during overnight shifts), and transportation options for nurses too fatigued to drive after their shift.

In closing, participants were asked to give their view on where health care in Canada is headed, and whether they felt *hopeful*. All, including nurses, indicated that there was still *hope*, and that despite the current state of *exhaustion* in health care workers, they trusted that both government and the relevant *experts* will come together to make improvements. One veteran nurse summarized the overall sentiment of participants as follows:



Conclusion

This study aims to establish evidence-based benchmarks defining safe work hours in nursing. With occupational fatigue in mind, this study examined three outcomes: the risk of safety incidents, the risk of workplace conflicts and lateral violence among colleagues, and the risks posed to overall health and well-being.

A comprehensive analysis of scientific literature has uncovered discernible limits on the number of work hours that can be safely undertaken. Notably, existing federal regulations governing safety-critical industries, including motor vehicle operations/trucking, rail, nuclear and aviation, have already integrated these findings.

In addition to this literature review, in-depth interviews with frontline nurses and allied stakeholders provided valuable insights into the real-world consequences of excessive working hours. The perspectives shared by these individuals align with the thresholds identified in the scientific literature.

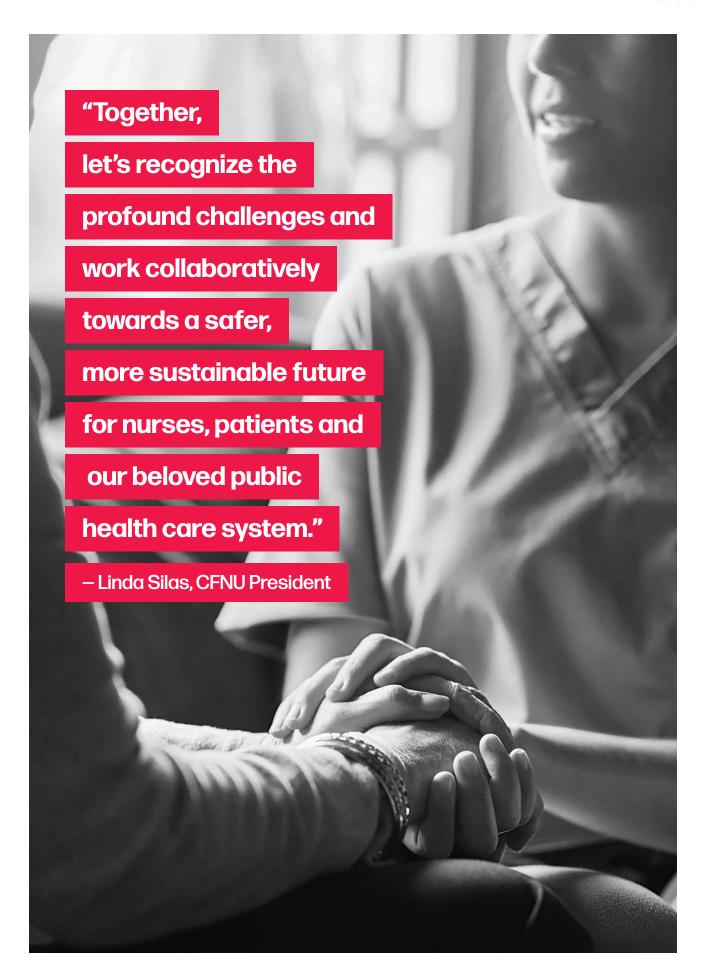
Recognizing the status quo is unacceptable, the CFNU is committed to advocating for tangible changes on the front lines, leveraging the insights derived from this study. Our initiatives will encompass, but not be limited to, the following areas.

- Enacting new legislation and regulations around safe hours of continuous work;
- Shaping the language in collective agreements regarding employer's obligation to ensure work hours safety;
- Pushing for effective interventions for fatigue management;
- Providing supports to nurses for escalating concerns around safe hours of work in a timely manner;
- Ensuring nurses do not lose their license as a result of leaving the workplace due to unsafe hours of work.

The implementation of deliberate, thoughtful and effective measures to improve working conditions for nurses can go a long way toward building morale, improving patient safety and quality of care, and fortifying Canada's health care system for the long term.



Visit our website nursesunions.ca for more information.



Bibliography*

Abe, T., Mollicone, D., Basner, M., Dinges, D. F. (2014). Sleepiness and safety: Where biology needs technology. *Sleep and Biological Rhythms*, 12(2), 74-84. doi:10.1111/sbr.12067

Afonso, P., Fonseca, M., Pires, J. F. (2017). Impact of working hours on sleep and mental health. *Occup Med* (Lond), 67(5), 377-382. doi:10.1093/occmed/kgx054

Åkerstedt, T., Fredlund, P., Gillberg, M., Jansson, B. (2002). Work load and work hours in relation to disturbed sleep and fatigue in a large representative sample. *Journal of Psychosomatic Research*, 53(1), 585-588. doi:https://doi.org/10.1016/S0022-3999(02)00447-6

Baldwin, D., Daugherty, S., Tsai, R. S., M (2003). A national survey of residents' self-reported work hours: Thinking beyond specialty. *Academic Medicine* 78(11), 1154-1163.

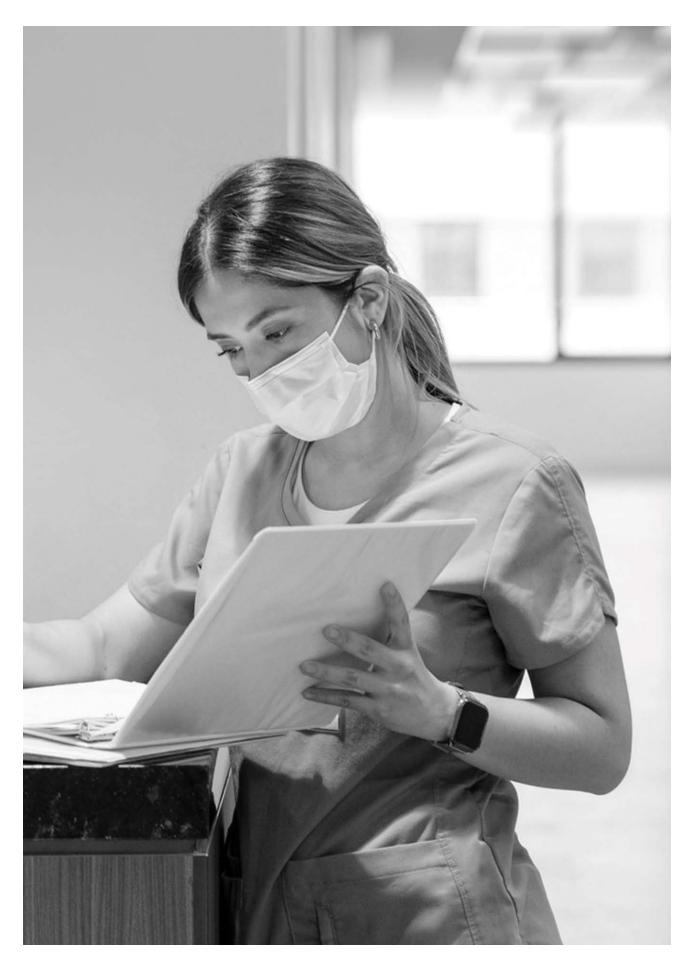
Canadian Institute for Health Information. (2023). Hospital staffing and hospital harm trends throughout the pandemic. https://www.cihi.ca/en/hospital-staffing-and-hospital-harm-trends-throughout-the-pandemic

Caruso, C. (2014). Negative impacts of shiftwork and long work hours. *Rehabilitation Nursing*, 39(1), 16-25. doi:10.1002/rnj.107

Folkard, S., Lombardi, D. (2006). Modeling the impact of the components of long work hours on injuries and "accidents." 49(11), 953-963.

Härmä, M. (2006). Workhours in relation to work stress, recovery and health. *Scand J Work Environ Health*, 32(6), 502-514. doi:10.5271/sjweh.1055

Lee, M. L., Howard, M. E., Horrey, W. J., Liang, Y., Anderson, C., Shreeve, M. S., ... Czeisler, C. A. (2016). High risk of near-crash driving events following night-shift work. *Proc Natl Acad Sci U S A*, 113(1), 176-181. doi:10.1073/pnas.1510383112



Lo, W.-Y., Chiou, S.-T., Huang, N., Chien, L.-Y. (2016). Long work hours and chronic insomnia are associated with needlestick and sharps injuries among hospital nurses in Taiwan: A national survey. International Journal of Nursing Studies, 64, 130-136. doi:https:// doi.org/10.1016/j.ijnurstu.2016.10.007

Rogers, A., Hwang, W., Scott, L., Aiken, L., Dinges, D. (2004). The working hours of hospital staff nurses and patient safety. Health Affairs, 23(4), 202-212. doi:10.1377/hlthaff.23.4.202

Rosta, J., Gerber, A. (2007). Excessive working hours and health complaints among hospital physicians: a study based on a national sample of hospital physicians in Germany. Ger Med Sci, 5, Doc09.

Rogers, A. (2019). Nurses' work schedules, quality of care, and the health of the nurse workforce remain significant issues. Washington State Nurses Association. Washington, DC.

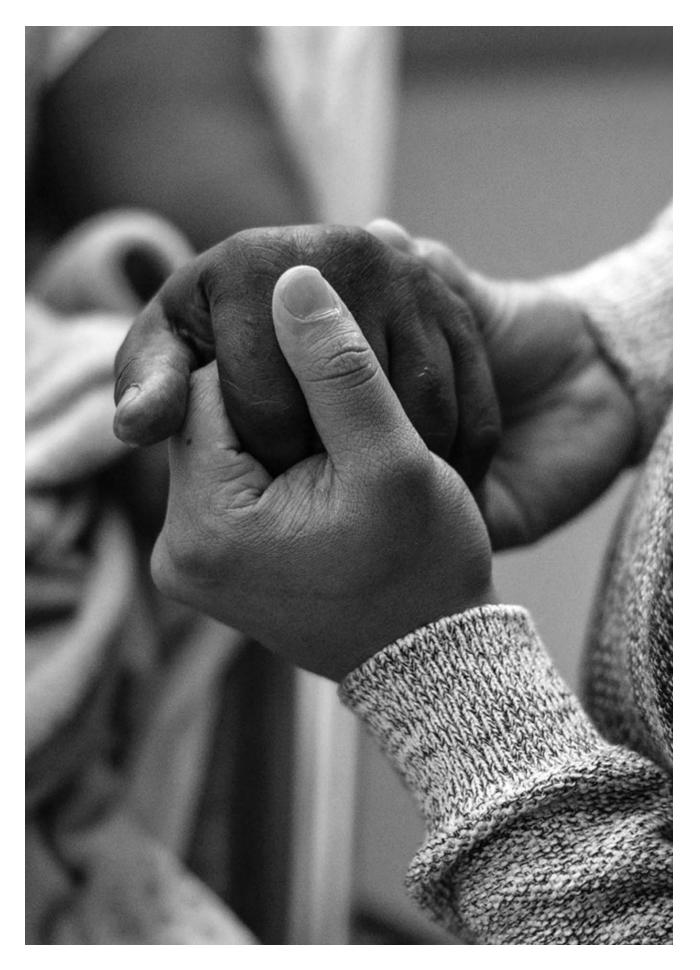
Scott, L. D., Hwang, W. T., Rogers, A. E., Nysse, T., Dean, G. E., Dinges, D. F. (2007). The relationship between nurse work schedules, sleep duration, and drowsy driving. Sleep, 30(12), 1801-1807. doi:10.1093/ sleep/30.12.1801

Scott, L. D., Rogers, A. E., Hwang, W. T., Zhang, Y. (2006). Effects of critical care nurses' work hours on vigilance and patients' safety. Am J Crit Care, 15(1), 30-37.

Thompson, B. (2019). Does work-induced fatigue accumulate across three compressed 12 hour shifts in hospital nurses and aides? PLoS One, 14(2), e0211715.

Watson, N. F., Badr, M. S., Belenky, G., Bliwise, D. L., Buxton, O. M., Buysse, D., . . . Tasali, E. (2015). Recommended Amount of Sleep for a Healthy Adult: A Joint Consensus Statement of the American Academy of Sleep Medicine and Sleep Research Society. Sleep, 38(6), 843-844. doi:10.5665/sleep.4716

*Please refer to the full report for a full list of citations used in this study.





EXECUTIVE SUMMARY Safe Hours Save Lives!

December 2023

www.nursesunions.ca