

APRIL 26-28, 2026

LEARNING | GROWING | ADVANCING | TOGETHER

2026

# AAOHN NATIONAL CONFERENCE



ORLANDO, FLORIDA

ROSEN SHINGLE CREEK

# Poster Session 1

Sunday April 26<sup>th</sup>  
4:30 P.M. - 5:30 P.M.

**2026**

# **AAOHN NATIONAL CONFERENCE**

## **Disclosures**

**Accreditation statement: The American Association of Occupational Health Nurses, Inc. (AAOHN) is accredited as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation.**

**Contact hours: 1.0**

**Successful completion: complete the evaluation form for this session.**

**Disclosures: None of the planners or presenters for this activity have a relevant financial relationship to disclose with ineligible companies.**



# Hair Nicotine/Cotinine Uptake Levels and Worker Well-Being Among Long-Haul Truck Drivers: A Pilot Cross-Sectional Study

Harris, C., PhD, Peng, L., PhD, Wilson, L., M.S., Okoli, C., PhD, Oh, J., PhD, Hammond, S., DNP, COHN-S, Blagburn, K., M.S., Barnes, S., PhD, Heaton, K., PhD, COHN-S  
The University of Alabama at Birmingham, School of Nursing

## BACKGROUND

### LONG-HAUL TRUCK DRIVERS (LHTDs) EXPERIENCE:

Physical & psychological stressors	Increased cigarette smoking prevalence	A 23% increased lung cancer risk
------------------------------------	--	----------------------------------

### GAPS

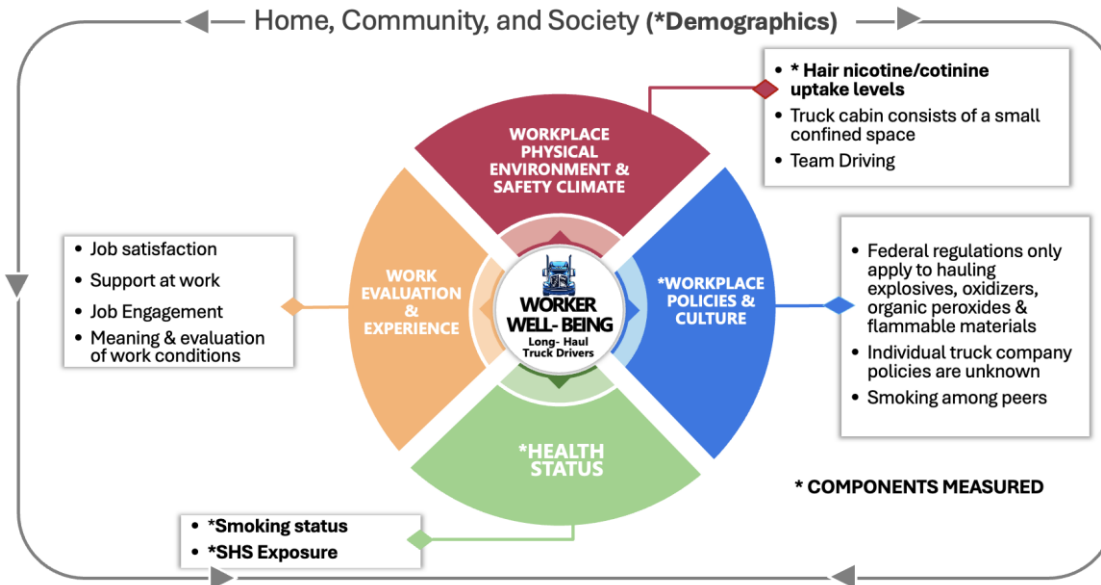
- Smoking bans are only set while hauling explosives, oxidizers, or flammable materials. **Concerning, given the confined nature of the truck cabin.**
- Limited biomarker-based research confirming tobacco exposure & worker well-being among LHTDs.

## STUDY PURPOSE

- To quantify levels of hair nicotine and cotinine uptake as a proxy measure for nicotine exposure among LHTDs.
- To explore the relationships between hair nicotine/cotinine uptake levels, demographics, and worker well-being among LHTDs.

## METHODS

<b>Study Design</b>	Cross-sectional	
<b>Recruitment</b>	Convenience Sample	<ul style="list-style-type: none"> <li>Word of mouth</li> <li>Flyer distribution</li> <li>Media engagements</li> </ul>
<b>Sample</b>	<b>Inclusion:</b> CDL-A LHTDs (~3 nights/week in truck) <b>Exclusion:</b> Hair treatments; smoking cessation/ nicotine treatment	
<b>Data Collection</b>	<ul style="list-style-type: none"> <li>April 2025 - August 2025</li> <li>Paper survey</li> <li>Live hair extraction</li> </ul>	



## DISCUSSION

The findings reinforce hair cotinine's validity as a proxy for nicotine exposure.

Elevated nicotine/cotinine uptake levels among both smokers and nonsmokers suggest that prolonged time in enclosed truck cabins may increase cumulative tobacco smoke exposure, underscoring the need for improved occupational safety policies and environmental controls.

Currently, no corresponding biological exposure limits exist for hair nicotine or cotinine, underscoring the urgent need for biomarker-informed research to further inform standard regulations.

Occupational health nurses are uniquely positioned to lead screening, tobacco cessation support and education, and policy advocacy efforts to reduce smoking-related health risks among LHTDs.

## ACKNOWLEDGEMENTS

Funding for this study was provided by the American Association of Occupational Health Nurses Foundation 2024 Medique Products New Investigator Research Grant



Contact me! →

**Cara D. Harris, PhD, RN**  
Postdoctoral Trainee  
UAB School of Nursing



## RESULTS

AIMS	FINDINGS
<b>1</b> Examine the relationships between hair nicotine/cotinine uptake, a proxy for nicotine exposure, and demographic characteristics.	<b>Smokers were younger than nonsmokers</b> (44.3 vs 51.8 years), with a large effect size (d = 0.98).
<b>STATISTICAL ANALYSIS : SPEARMAN CORRELATIONS</b>	
<b>2</b> Examine the differences in hair nicotine/cotinine uptake among LHTDs who self-identify as smokers and non-smokers.	<b>Smokers exhibited significantly higher cotinine levels than non-smokers</b> (d = - 1.3, p < .001).
<b>STATISTICAL ANALYSIS: WILCOXON RANK-SUM TEST</b>	
<b>3</b> Examine the associations between hair nicotine/cotinine uptake and NIOSH Worker well-being domains, workplace policies and culture (WPC), and health status (HS).	<b>Higher cotinine levels were positively correlated with WellBQ domains WPC (r = 0.38) and negatively correlated with HS (r = - 0.36).</b>
<b>STATISTICAL ANALYSIS: SPEARMAN CORRELATIONS</b>	

# Bending, Not Breaking: Revolutionizing Injury Prevention at Rady Children's Health

Jennifer Mortimer RN, PHN, MSN  
 Rady Children's Health San Diego  
 3030 Childrens Way, San Diego, CA 92123

**PRACTICE GAP**

- There is a lack of integrated, proactive injury prevention strategies within non-clinical hospital teams, with efforts traditionally focused on post-injury and reactive care.
- At Rady Children's Health San Diego, the Environmental Services (EVS) team has historically experienced the highest volume of workers' compensation claims, resulting in significant financial costs and staffing challenges.
- Evidence indicates that structured strengthening and stretching programs can reduce injury rates, particularly musculoskeletal injuries prevalent among EVS staff (Tersa-Miralles et al., 2022).

**IDENTIFY TOPIC ISSUES**

- Despite the high physical demands of Environmental Services (EVS) roles, proactive, wellness-based interventions have rarely been embedded into daily workflows.
- Educating healthcare professionals on the design, implementation, and outcomes of the EVS Strengthening Program provides practical tools to reduce workplace injuries, enhance staff well-being, and promote a culture of safety and engagement.

**TOPIC ISSUES**

- The Occupational Health Services Department launched the EVS Strengthening Program in April 2024, aiming for 50% employee participation by May 2025.
- This initiative centers on daily fitness sessions designed to reduce injury rates, enhance employee well-being, and promote a safer work environment.

**EVIDENCE-BASED PRACTICE USED**

- The program design of embedding micro-wellness sessions into workflow reflects occupational health literature supporting structured physical activity programs for injury prevention (Sundstrup et al., 2020).
- Quality Improvement PDSA cycles allowed real-time adaptation based on participation and injury data.

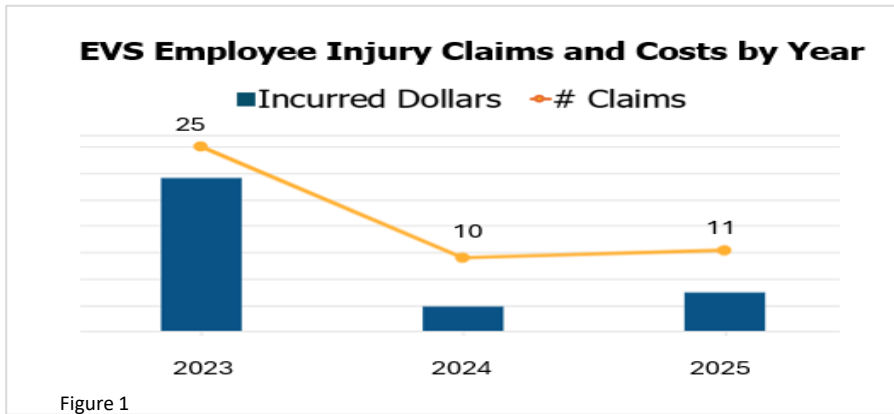


Figure 1

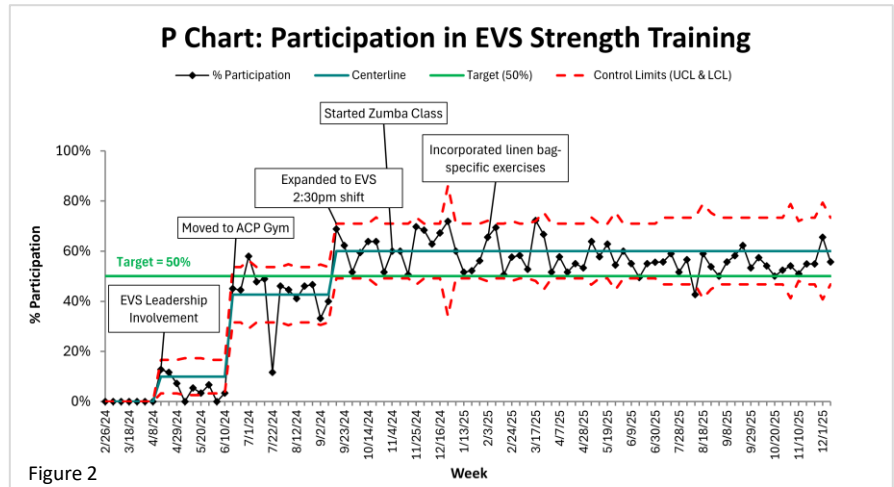


Figure 2

**IMPLICATIONS**

- Since September 2024, program participation increased to **60%**, demonstrating a sustained centerline shift. (Figure 2)
  - Injury-related claims decreased by **57%** (Figure 1)
  - Direct Workers' Compensation costs reduced by **83%** (Figure 1)
- Proactive safety systems should move beyond resilience-based approaches, with Occupational Health teams well positioned to lead preventive efforts.
- This approach enhances staff protection while strengthening organizational culture, engagement, and overall well-being.
- Strengthening interdisciplinary collaboration
  - Success requires coordination between occupational health, EVS leadership, wellness teams, and frontline staff.
  - Collaboration improves accountability, morale, and shared ownership of safety outcomes.

**APPLICATION TO CLINICAL PRACTICE**

- The EVS Strengthening Program significantly reduced injury rates and associated costs while improving overall workplace culture.
- The program enhanced team connectivity, staff engagement, and morale.
- Based on demonstrated success, the model is being expanded to other high-risk teams.
- This expansion supports the integration of wellness into daily routines and aligns with organizational safety objectives.

**REFERENCES**

Tersa-Miralles, C., Bravo, C., Bellon, F., Pastells-Peiró, R., Rubinat Arnaldo, E., & Rubí-Carnacea, F. (2022). Effectiveness of workplace exercise interventions in the treatment of musculoskeletal disorders in office workers: a systematic review. *BMJ open*, 12(1), e054288. <https://doi.org/10.1136/bmjopen-2021-054288>

Sundstrup, E., Seeberg, K. G. V., Bengtson, E., & Andersen, L. L. (2020). A Systematic Review of Workplace Interventions to Rehabilitate Musculoskeletal Disorders Among Employees with Physical Demanding Work. *Journal of occupational rehabilitation*, 30(4), 588–612. <https://doi.org/10.1007/s10926-020-09879-x>

Karatrantou, K., & Gerodimos, V. (2024). A Comprehensive Workplace Exercise Intervention to Reduce Musculoskeletal Pain and Improve Functional Capacity in Office Workers: A Randomized Controlled Study. *Healthcare*, 12(9), 915. <https://doi.org/10.3390/healthcare12090915>.

April Loeffler, MSN, RN, Beth Sievers APRN, CNS, MS, Jennifer Anderson, APRN, C.N.P., D.N.P.  
Division of Employee Occupational Health Services; Mayo Clinic, Rochester, Minnesota, USA

## PROBLEM

Occupational health routinely screens healthcare workers for Tuberculosis (TB) upon hire, after exposure, and during targeted surveillance initiatives to ensure healthcare worker and patient safety. Although TB exposure risk is low amongst United States healthcare workers, it remains a recognized occupational risk. Therefore, timely and accurate screening of healthcare workers is necessary to coordinate appropriate care and prevent the spread of disease.

Occupational health at Mayo Clinic is comprised of various locations including Phoenix, AZ, Jacksonville, FL, Rochester, MN, Mayo Clinic Health System-Minnesota, and Mayo Clinic Health System-Wisconsin.

Occupational Health Nurses (OHN) utilized practice guidelines to assess employees and request TB test orders from the providers. Provider availability varied across locations which made this process inefficient, difficult to sustain, and did not allow nurse autonomy.

It is standard practice at Mayo Clinic in the inpatient and ambulatory setting to use nurse-initiated protocols. However, they are under-utilized in the occupational health setting.

## PICO

In occupational health, does the implementation of nurse-initiated protocols for ordering Interferon-Gamma Release Assay (IGRA) to screen for TB, compared to traditional practice guideline-based nurse assessments, improve the assessment of healthcare workers and ordering of IGRAs to screen for TB?

## SEARCH FOR THE EVIDENCE

The PICO question was used to search for articles from the Medline database from 2019- 2025 published in English. Keywords and synonyms included employee health, protocols, standardization of care. 117 abstracts were reviewed for relevance and 10 were fully reviewed. Three articles were found to be the most relevant.

## CRITICAL APPRAISAL OF THE EVIDENCE

- No occupational health specific literature was available.
- By ensuring strict adherence to established treatment measures, protocols contribute to the standardization of care, minimize variability, and enhance the reliability of patient management.
- The literature demonstrated that use of nurse-initiated protocols significantly improved clinical practice:
  - Fostered a structured and systematic approach which is pivotal in achieving optimal patient outcomes.
  - Empowered nursing staff to take a proactive role in patient health.
  - Ensured timely interventions and accurate implementation of evidence-based practices, thereby reducing the incidence of errors and improving patient safety.

## CLINICAL PRACTICE IMPLICATIONS

### Implementation of Nurse-Initiated Protocols for Ordering IGRAs

- A protocol and supporting procedure were created for employee IGRA requests.
- RN and APRN site representatives were invited to collaborate and ensure the protocols and procedures were aligned with each state's requirements.
- Educational materials were developed and sent to OHNs prior to implementation.
- Pre and Post implementation surveys were sent out to obtain feedback from OHNs on the practice change.

### Survey Results

- More nurses responded to the post survey (15 pre, 25 post).
- Post protocol implementation survey results showed improved perceptions of process standardization, process clarity, and best-practice alignment.
- Identified widespread confidence and satisfaction among nurses regarding the protocols and process.

### Limitations

- OHN staffing changes
- Small sample size
- Limited IT resources to build protocols into the employee health record
- Delays with implementation of additional TB testing protocols

FIGURE 1

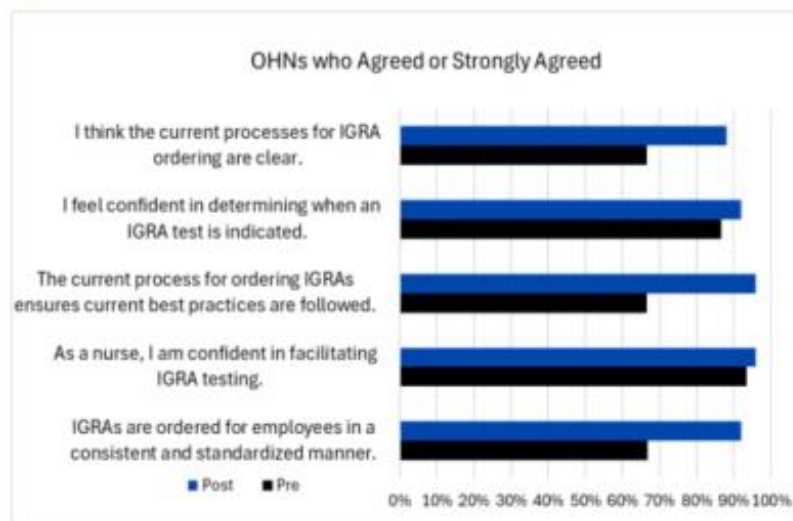


FIGURE 2



## TRANSLATION TO PRACTICE

- Nurse-initiated protocols:
  - Improved standardization
  - Created clarity and prompt care
  - Promoted best-practice alignment
  - Enhanced autonomy and safety while allowing nurses to practice to their full scope.

## REFERENCES

Audet, T., Picard-Turcot, M.-A., Robindaine, J., Carrier, N., & Dagenais, P. (2024). Improving Gout Care in a Canadian Academic Medical Center Through a Multidisciplinary, Nurse-Led Protocol [Review of Improving Gout Care in a Canadian Academic Medical Center Through a Multidisciplinary, Nurse-Led Protocol]. *The Journal of Rheumatology*, 52, 285–289.

DeMarco, J. (2025). SPIN-IT and Quit It: A Nurse-Driven Protocol to Improve Inpatient Interventions for Tobacco Use Disorder [Review of SPIN-IT and Quit It: A Nurse-Driven Protocol to Improve Inpatient Interventions for Tobacco Use Disorder]. *Journal of the American Psychiatric Nurses Association*, 31(2), 131–137.

Vieira, T., Sakamoto, V., Casais de Moraes, L., Blatt, C., & Caregnato, R. (2020). Validation methods of nursing protocols: an integrative review [Review of Validation methods of nursing protocols: an integrative review]. *Rev Bras Enferm*, 73(5), 1–9.

# Carpet Installers' Voices on Their Occupational Health and Safety Issues

## PROBLEM

- Musculoskeletal disorders related to repetitive knee work are a known occupational health issue among carpet installers.
- The knee kicker device to stretch the carpet and pull it closer to the wall can cause musculoskeletal disorders.
- Carpet installers (CIs) spend 75% of their time on all fours, using a knee kicker to stretch and position carpets. The tool requires the suprapatellar area of the knee to repeatedly strike the kicker with a force three to five times their body weight, up to 120-140 times per hour.
- Research prompted redesigns of the knee kicker bumper and development of new carpet stretching tools (e.g., power stretcher, mini stretcher). These tools are less reliant on knees and more on arm and body force.

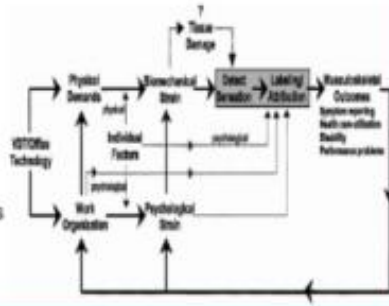


## RESEARCH QUESTION AND AIM

- **Research Question:** What are the experiences of carpet installers, including how they experience and address injuries when these occur?
- **Aim:** To explore self-reported injuries that may occur during a typical wall-to-wall carpet installation and how the carpet installer manages such incidents.

## SEARCH FOR THE EVIDENCE

- **Design:** Cross-sectional Interpretive phenomenological qualitative study design
- **Theoretical Framework:** Ecological Model of Musculoskeletal Disorders in Office Workers
- **Concept:** Valued Life Activity Disability
- **Setting:** San Francisco Bay Area
- **Sample:** Purposive, snowballing (N=21)
- **Data collection**  
-Interviews (CIs, N=11; key informants, N=10)  
-Observations of work tasks
- **Data analysis:** Hermeneutic thematic analysis



Sandra Jo Domeracki, PhD, RN, FNP-BC, COHN-S, FAAOHN;  
Heather Leutwyler, RN, PhD, NP, FAAN;  
OiSaeng Hong, RN, PhD, FAAN, FAAOHN  
University of California, San Francisco, School of Nursing

Funding: AAOHN 2025 Medique New Investigator Grant, NIOSH T42 OH008429, COEH Llewelyn Student Project Award, UCSF School of Nursing Century Club Award and program grant

### Key Themes

- Self-Reported Injury Types
- Mechanisms of Injury
- Access to Healthcare
- Workplace Support
- Resulting Outcomes

"They [company] didn't have me insured...because I was brand new...so they asked me to tell the hospital I did it at home...so my Medicare covered it - insurance fraud..."  
CI 5, retired 65+ year old, working as floor shop salesperson

"It's all about workmen comp. There was some company that we worked for, if you had too many injuries on the job, they wouldn't take your bids. You couldn't bid on their jobs. Sometimes, some of the guys would get hurt, and they wouldn't report it."  
CI 8, retired 56-65 years old

"...my son played a lot of Little League...I could never throw a ball to him if I threw a ball...my back was terrible...my wife and I used to go on nice, long walks, I can't walk very far."  
CI 9, disabled 56-56 year old, works as an instructor

"They know what they're doing is breaking the law but they know that there's a lot of money involved. So they still go do it. A floor coverer [CI], they know there's gonna be a lot of pain, a lot of issues, but a lot of good money, so they go after it. But they choose to work hard for it..."  
Key Informant 9, Director of Mental Health and Substance Use for Union

## CRITICAL APPRAISAL OF THE EVIDENCE

- Knee injuries most common for filing a workers' compensation claim
- Psychosocial underlay of injuries, including communication challenges, role responsibilities, interpersonal relationships, and work-related pressures
- Few CIs seek medical care for work-related injuries or file workers' compensation claims, often with regret years later.
- CIs frequently dissuaded from filing workers' compensation claims
- Psychosocial impact of work-related injuries CIs consider inevitable, including substance use/overuse and suicide, toxic work environment,
- Quality of life/Valued life activities compromised
- Both CIs and key informants with valuable recommendations for injury prevention and safer work practices.
- This research underscores the ongoing need for injury prevention measures and work practice support to decrease physical and psychosocial risk factors for carpet installers.

## CLINICAL PRACTICE IMPLICATIONS

- Availability and education on first aid kits at the job site
- Workers' compensation claim filing process, eligibility requirements, and benefits education
- Listen to one's body, avoid pushing themselves, seek appropriate care immediately
- Enhance pre-task planning process for each job
- Comprehensive care that addresses physical, mental, and advocacy needs
- Address substance use and alternative modalities for treating work-related pain
- Explore new technology, such as exoskeletons and artificial intelligence, for increasing safety measures and injury prevention



## TRANSLATION TO PRACTICE

### Policy Implications:

- Policy implementation and evaluation for personal protective equipment and regulatory requirements
- Health care access inconsistencies
- Workplace violence prevention training for supervisory staff
- Substance use, suicide risk reduction and alternatives for managing physical and psychosocial stressors

### Research Implications:

- Explore health care providers' approaches to evaluating musculoskeletal disorders, causation, patient education for injured construction workers
- Mixed methods or qualitative studies exploring substance use and suicidal ideation among carpet installers
- Exploration of work-related illnesses and exposures among carpet installers



## REFERENCES

- References available upon request

# A prospective analysis of associations between sleep behaviors and reported quality of care in public sector healthcare workers

## PROBLEM

- Previous research has shown the effect of healthcare workers' (HCWs) sleep on their safety and health outcomes.
- The association between HCWs' sleep and the quality of care (QOC) outcomes has not been well studied.

## PURPOSE

We extended prior cross-sectional analysis to examine the longitudinal associations between sleep (quality and quantity) and QOC reported by HCWs.

## METHODS

- **Study Design & Sample:** 428 healthcare workers in 5 public sector facilities, northeastern U.S., answered both 2018 and 2021 surveys
- **Measurements:**
  - Dependent variables (3):** Worker-assessed quality of care (QOC) in the last shift and on the unit, each dichotomized as poor/fair vs. good/excellent; overall QOC change in the past year, dichotomized as worse vs. same/improved (**2021 follow-up survey**)
  - Sleep characteristics (3):** Short duration ( $\leq 6$  hr/day, yes/no); sleep disturbances (yes/no); sleep in two or more episodes (yes/no). **Sleep-risk index** = sum of sleep characteristics (0-3) (**2018 baseline survey**)
  - Other covariates (9):** Age, gender, race, education, direct care job, shift work, weekly work hours, overtime, and mandatory overtime.
- **Data Analyses:** Bivariate (cross-tabulations), multivariate (Poisson regression with robust variance estimate, all covariates included).

## FUNDING SUPPORT

The Center for the Promotion of Health in the New England Workplace is supported by Grant Number 5 U19 OH012299 from the U.S. National Institute for Occupational Safety and Health. This content is solely the responsibility of the authors and does not necessarily represent the official views of NIOSH.

Yuan Zhang<sup>1</sup>, PhD, RN, FAAOHN, FAAN; Alicia Kurowski<sup>2</sup>, ScD; Suzanne Nobrega<sup>2</sup>, PhD; Mazen El Ghaziri<sup>1</sup>, PhD, MPH; Rebecca Gore<sup>2</sup>, PhD; Laura Punnett<sup>2</sup>, ScD; <sup>1</sup>Solomont School of Nursing & <sup>2</sup>Dept. of Biomedical Engineering, University of Massachusetts Lowell, Lowell, MA 01854.

## RESULTS

Figure 1. Baseline Sleep Disturbances and Follow-up Deteriorated QOC

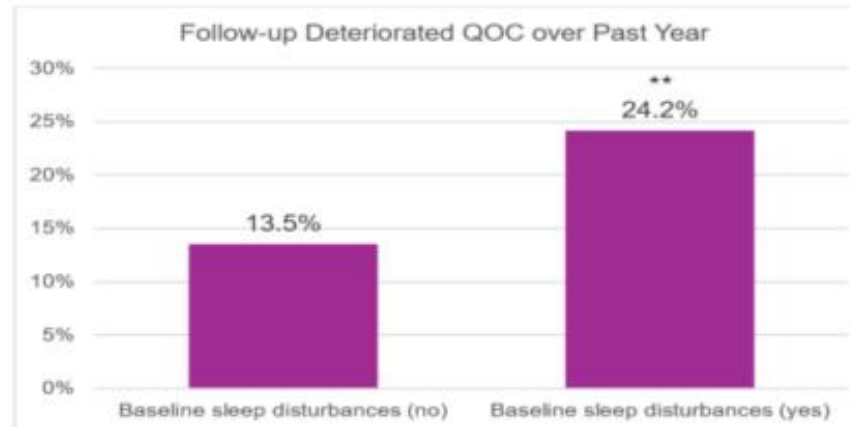
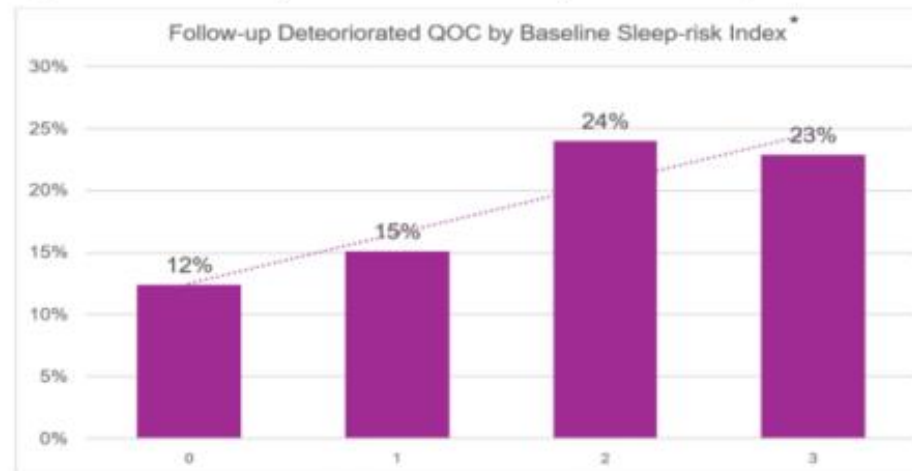


Figure 2. Baseline Sleep-risk Index and Follow-up Deteriorated QOC



## RESULTS

Table. Multivariable Poisson Regressions for Prospective Associations Between Baseline Sleep-risk Index and Follow-up Poor QOC

	Poor QOC on unit (n=241)		Poor QOC in last shift (n=236)		Deteriorated QOC over past year (n=326)	
	PR	95% CI	PR	95% CI	PR	95% CI
<b>Sleep-risk index</b>						
0	1		1		1	
1	0.86	0.31-2.41	0.94	0.34-2.60	1.37	0.70-2.69
2	0.78	0.26-2.35	1.20	0.43-3.37	<b>2.33*</b>	<b>1.23-4.45</b>
3	1.61	0.59-4.43	1.04	0.33-3.31	<b>2.96**</b>	<b>1.36-6.47</b>
<b>Age</b>						
<40 years	1		1		1	
$\geq 40$ years	<b>0.31**</b>	<b>0.13-0.73</b>	0.42 <sup>a</sup>	0.18-1.01	0.68 <sup>a</sup>	0.43-1.08
<b>Education</b>						
$\geq$ college	1		1		1	
$\leq$ high school	1.02	0.39-2.70	0.94	0.37-2.41	<b>0.50*</b>	<b>0.26-0.97</b>

Note. \*\*p<0.01; \*p<0.05; <sup>a</sup>p<0.1. QOC = quality of care; PR = prevalence ratio; CI = confidence intervals. All models were also adjusted for gender, race, direct care job, shift work, and overtime, which were not associated with either QOC outcomes.

- **Sociodemographics:** Mean age 47 yrs, 66% female, 68% White, 27% high school or lower education, 54% direct care job, 77% day shift, 24% >40 hrs weekly, 32% overtime, 12% mandatory overtime.
- **Sleep behavior distribution:** Short sleep duration (56%), sleep disturbances (32%), sleep at  $\geq 2$  episodes (19%).
- **Sleep-risk index distribution:** 34% (0), 34% (1), 24% (2), 8% (3).
- **Poor QOC distribution:** On unit (10%), in last shift (11%), deteriorated (17%).
- **Multivariable findings:** Sleep-risk index  $\geq 2$ : higher prevalence of deteriorated QOC. High school or lower education: better QOC over past year..

## TRANSLATION TO PRACTICE

- HCW sleep behaviors at baseline predicted deterioration of QOC reported three years later at follow-up.
- Evidence-based workplace interventions to improve HCW sleep would likely have additional benefits to the quality of patient care and patient safety.

# Optimizing Worker Health: Pre-Work Stretching to Prevent Injuries



Cynthia Groves, MSN, APRN, FNP-C   Stacy Irish, MSN, APRN, FNP-C   Cloe Kinnett, MSN, APRN, FNP-C  
Laurie Anne Ferguson, DNP, APRN, ANP-BC, FNP-C, CPNP   Sharron Forest, DNP, APRN, NNP-BC

## Background

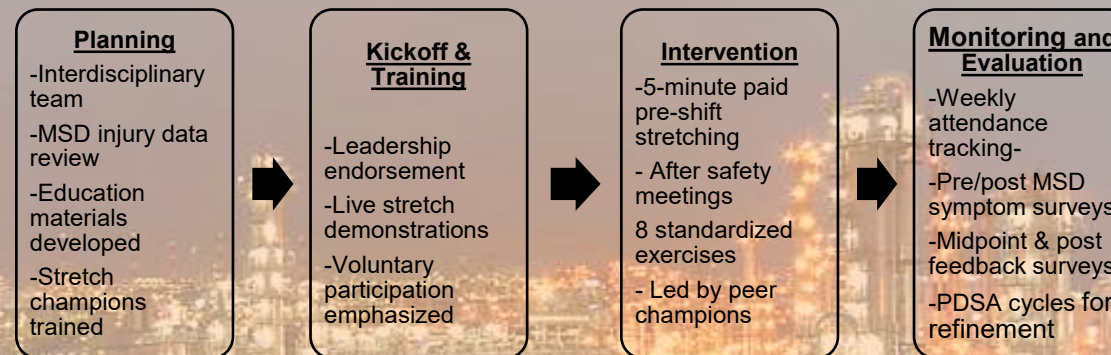
- Musculoskeletal disorders (MSDs) in the oil and gas industry account for 34% of U.S. workplace injuries, costing an estimated \$55B annually
- Oil and gas process technicians are at high risk due to repetitive, physically demanding tasks
- OSHA recommends pre-task warmups, as flexibility is lowest early in the workday
- Structured pre-work stretching programs reduce MSD risk, improve flexibility, and reinforce safety
- A Gulf Coast oil and gas facility reports rising MSD injuries among process technicians, with no formal pre-work stretching program in place

## Project Aim

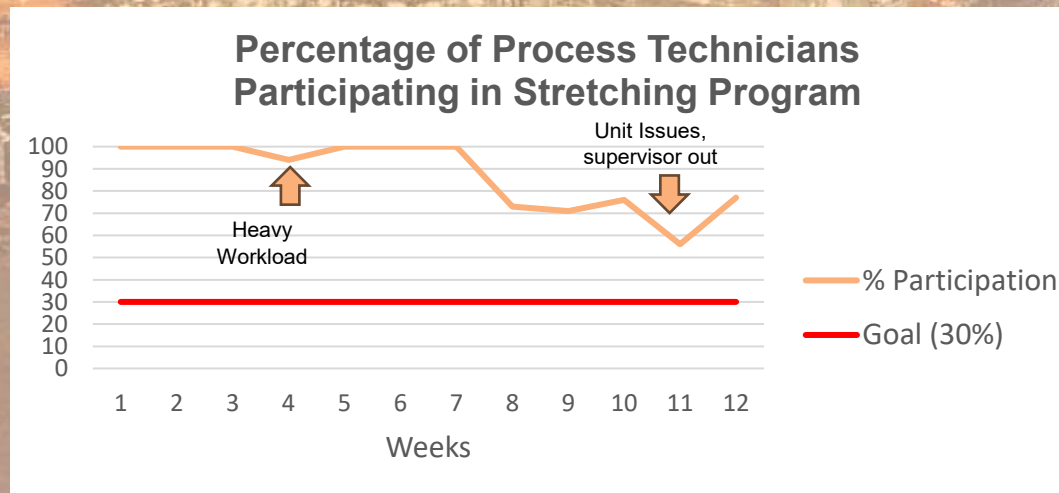
PTs will participate in a 5-min pre-work stretching program at least 30% of the time

References available upon request

## Methods



## Results



## Conclusions

- Weekly participation ranged from 56%-100%, demonstrating feasibility across shifts
- Early engagement was strong, temporary declines reflected operational demands and vacations
- Supervisor support positively influenced participation in later weeks
- The program was safe, well-tolerated, and did not disrupt workflow
- High completion fidelity: all 8 stretches consistently completed in ~ 5 minutes

## Future Plans

- Expand the program to additional departments
- Diversify stretching exercises to address varied job demands
- Add refresher education and micro-learning tools
- Establish a formal policy integrating pre-work stretching into the safety program
- Continue monitoring MSD trends to evaluate long-term impact