



CLEANERS' OCCUPATIONAL INJURY REDUCTION EMPHASIS (CORE)

*PREVIOUSLY KNOWN AS THE WASHINGTON STATE JANITORIAL
WORKLOAD STUDY*

PROGRESS REPORT TO THE LEGISLATURE

December 2025

SHARP Report #102-237-2025

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ACKNOWLEDGMENTS

Special thanks to all the workers, employers, and community partners who participated in this research, including Service Employee International Union Local Chapter 6 (SEIU6), Service Employee International Union Healthcare 1199NW (SEIU 1199NW), Spokane Alliance, Entre Hermanos, El Centro de la Raza, the University of Washington & the Harry Bridges Center for Labor Studies, and janitors across Washington state.

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EXECUTIVE SUMMARY

This is the sixth annual progress report to the Washington State Legislature regarding advances in the Washington State Janitorial Workload Study. Conducted by the Department of Labor & Industries' (L&I) Safety & Health Assessment & Research for Prevention (SHARP) program, the research study addresses high injury rates among janitors and will help quantify janitors' physical workload so it can be assigned to reduce work-related injury risk.

In late 2023, the study was renamed the Cleaners' Occupational Injury Reduction Emphasis (CORE) to reflect the goal of including all professional cleaners, such as commercial janitors, custodians, and more.

The primary goals of this research remain to develop a method to calculate janitorial workload based on a combination of the work assigned, tools, and environment; and to explore both causes and interventions to mitigate risks for workplace injuries and illness to janitorial workers.

Previous components of the study and detailed methods are provided in the [November 2024](#), [December 2023](#), [December 2022](#), [January 2022](#), and [June 2020](#) reports to the legislature. Per the budget proviso, annual progress reports are mandated until 2026 or until the tools that assess risk factors for injury are fully developed and deployed.

Analysis is ongoing, and brief progress reports on the status of the current study components are included in this report. These include:

1. **Injured janitor interviews and claims analysis:** SHARP regularly contacts injured cleaners who have filed a workers' compensation claim. Cleaners who agree to participate in these interviews provide valuable information on their injuries and work organization factors that can be: (1) analyzed to identify root causes of work-related injuries and illnesses; and (2) be used to provide educational materials to reduce work hazards and prevent worker injuries. Since the last report, however, the injured worker interview process transitioned to a new data collection method due to agency software changes. No interviews were conducted during this period, but interviews are slated to resume in November 2025, after final testing of the new system. Claims continue to be regularly downloaded and assessed; since the last report, 690 claims were received in the selected janitorial risk classes.
2. **Develop and test a workload calculator:** All data collected in this study are used to inform, refine, and expand the workload calculator tool (developed earlier in the study) that can help employers, workers, and their representatives determine safe workloads when creating worksite contracts and in-house cleaning schedules, or assigning appropriate staffing levels. Currently, a beta version of this tool is available as a free download to community partners for pilot testing. The current priorities for this project component are to complete the production of an online version hosted on the L&I website. A field validation study is in the planning stages and will be conducted to further refine the workload calculator. Research staff gave presentations on the calculator. The

online version of the calculator is expected to be finished in late 2025, with public release in early 2026.

3. **Laboratory evaluations:** A laboratory study on different cleaning tools and methods involving mop handles, obstacles, and user experience is underway. SHARP is conducting these evaluations to provide employers, janitors, and community partners with alternative solutions to reduce workload and physical demands.
4. **Franchising:** The economic landscape influences contract details, work organization, and worker health and safety. Franchised organizational arrangements have spread in this industry and may intensify pressures to reduce labor costs — leading to lower wages, higher turnover, and worker injury. Data on franchised janitorial firms were obtained, and is being analyzed to identify and confirm employment, wage, and injury patterns. A second tranche of data has been obtained to test whether the findings from the previous analysis are confirmed. This work is underway.
5. **Education and training documents:** The study regularly generates educational materials for janitors and employers to help identify hazards and distribute health and safety information. All documents are available in English, Spanish, Russian, Vietnamese, Bosnian, Chinese (Traditional), Amharic, Somali, and Tagalog. [Published educational and training documents are available on the study website](#). The quarterly newsletter and tip sheet are disseminated to approximately 4,000 subscribers.
6. **Custodians:** Custodians in K-12 public schools and universities were selected (in 2024) as the next cleaning environment to incorporate into our research. This year, additional contacts within the industry are being pursued to develop a better understanding of the unique tasks and subtasks associated with school cleaning. Custodians are facing unique challenges with ongoing widespread budget cuts.
7. **Isolated Janitors Focus Groups:** Janitors often work in isolated locations or environments where they are not often seen or heard by others. This makes it difficult for them to receive assistance when facing hazardous situations, or support or resources in case of emergencies. Given the combination of isolation and exposure to multiple workplace hazards, it is crucial to examine the organizational factors that could mitigate these risks. Isolated/lone workers are an emerging area of interest (in Washington state and nationally), but there is a lack of information on the topic. To explore these workers' needs and the intersection of psychosocial safety climate, workplace conditions, and occupational health outcomes, a new objective was adopted in 2025 to focus on the occupational health risks of isolated janitors. To this end, the study will conduct virtual focus groups (Fall 2025-Spring 2026) to collect firsthand insights from janitorial workers in Washington state. This activity will provide necessary information for action for the CORE project overall, as well as for research, and for community and government partners.
8. **Roundtables:** The study continually seeks feedback and input from our community and research partners. Roundtables are a new activity, where virtual meetings encourage feedback and gather information to identify needs and guide the project's direction.

INTRODUCTION

BACKGROUND AND LEGISLATIVE MANDATE

Janitorial work is considered labor-intensive with a demanding pace and high musculoskeletal and cardiovascular loads and is associated with significant chemical and biological exposures. Consequently — and when compared with other occupations — janitors have elevated rates of work-related injuries and illnesses, including Musculoskeletal Disorders (MSDs), occupational respiratory disease, and traumatic injuries. The main factors that may influence these exposures are: work procedures (tasks); the environment; and tools and methods used. Other factors include: organizational and psychosocial contexts such as working hours, staffing adequacy, contract duration and stability, safety culture and climate, turnover, and other market and firm characteristics, policies, and practices. Janitors and cleaners (excluding maids and housekeeping cleaners) are a growing employment sector in Washington and nationally. The study's research explores both causes and interventions to mitigate risks for workers.

In 2018, the Washington State Legislature provided L&I's SHARP program with funds to conduct research to address the high injury rates among the janitorial workforce. The research must:

- quantify the physical demands of common janitorial work tasks;
- assess janitorial workers' safety and health needs;
- identify potential risk factors associated with increased injury risk in this workforce; and
- measure workload based on body strain per specific janitorial work tasks.

L&I is directed to conduct interviews with janitors and their employers to:

- collect information on risk factors;
- identify the tools, technologies, and methodologies used to complete work;
- understand the industry's safety culture and climate;
- issue [an initial report to the legislature in June 2020](#); and
- determine usable support tools (the workload calculator) to reduce risk of injury.

NOTE: Public sector cleaning workers are generally called “custodians,” while those in the private sector are called “janitors” or “cleaners.” In this report, the term “janitors” is used throughout to refer to all kinds of cleaning workers.

STUDY OVERVIEW & COMPONENTS

This study involves a multidisciplinary team of occupational health and safety researchers and includes multiple phases and components. Data analysis from site visits and statewide surveys continues, and educational & training materials are continuously being developed. Full descriptions of earlier study activities and formative research are included in prior reports. Previously, efforts were centered only on commercial office building cleaners.

METHODOLOGY

To understand janitors' physical workload and their capacity to perform such work, the research team uses a variety of data collection methods including:

- worksite visits, where janitorial task observations enable the team to estimate biomechanical and physiological workloads;
- survey and interview data to learn about work organization, identify hazards and common injuries, assess psychosocial and safety climate perceptions, and collect more detailed data about the environmental and workplace characteristics in which the injury occurred; and
- laboratory studies to assess tools and methods.

TIMELINE

This work began in July 2018 and is expected to continue through 2026 or when the tools that assess risk factors for injury are fully developed and deployed. The team began by conducting focus groups to inform the work and conduct site visits, individual interviews, a statewide survey of injured workers, and an employer survey. The results of these activities informed the work of developing the workload calculator tool as well, which began in 2021. Previous iterations of this report include a more detailed timeline for the early project activities.

Currently, the study is gathering additional community partner feedback on the workload calculator tool and developing an online version hosted by the agency, which is expected to be released in the next period. Additional workload assessments, evaluations, laboratory studies, and school custodian work are underway or in the development stages. New activities in 2025 include the ongoing laboratory study of the ergonomic impact of mop styles; isolated worker focus groups to explore the additional hazards faced by janitors who work mostly alone; and roundtables to gather insight into the current state of janitorial work in Washington.

Figure 1. The CORE Study timeline (shaded area indicates completed work).

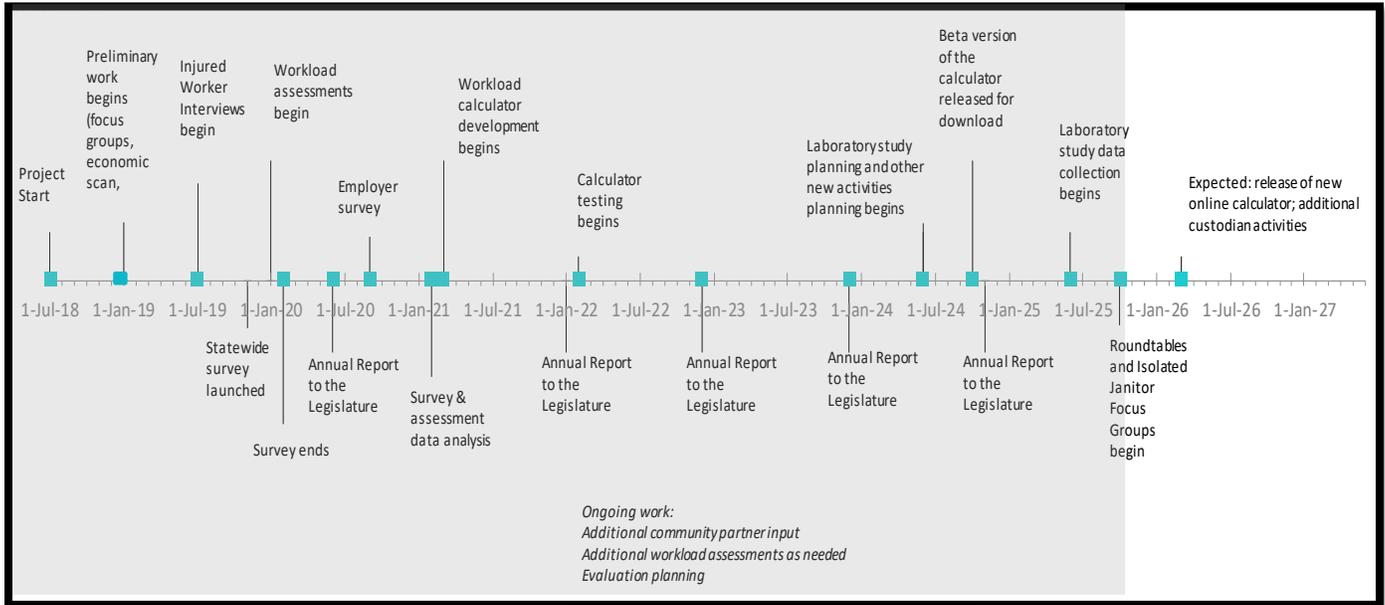


Image source: SHARP program

PROGRESS REPORTS OF RESEARCH STUDY COMPONENTS

Administrative work accomplished during this study period included design and planning of study activities and recruitment materials, and technology updates.

1. INJURED WORKER INTERVIEWS & CLAIMS ANALYSIS

INTRODUCTION

The Washington State Janitorial Workload Study's injured worker interview component identifies janitors who have filed and have open workers' compensation claims and interviews them about their injury and work experiences. These confidential interviews supplement information that is in the administrative workers' compensation data. For example, workers can provide more detail surrounding the circumstances of their injuries (safety climate, training, hazards present in their workplace) and what could have been done to prevent them. While injury description and claim information is used to inform prevention materials (by identifying a common hazard or exposure experience), personal identifiers are omitted to protect worker privacy. With worker consent, injury experiences can also be used to create injury narratives and hazard alerts for education and training.

In-depth interviews are also valuable for workers to describe their experiences in their own words. Many workers with occupational injuries find it helpful to talk about their experiences and are grateful to share their stories to help prevent future injuries. The detailed information janitors disclose about their injuries, work organization, tasks, hazards, and health can be used to help generate and inform prevention materials.

METHODS

Claims are extracted from Washington workers' compensation claim filings for the previous 30-60 days. The risk classes included in every extract are "6602-03 Janitorial Cleaning Services, NOC¹" and "6602-05 Janitors, NOC." This excludes subclasses devoted to contract window washing services (-02), residential janitorial workers (-04), pest control (-08), portable cleaning & washing (-10), and street/building decorating hanging of flags/bunting (-12). Due to the broad range of cleaning services, however, some proportion of the claims identified in these risk subclasses still do not meet study inclusion criteria. An average of 58 new claims per month are extracted from the workers' compensation system. Each month, the team reviews the claims and selects a percentage of those meeting study criteria for potential interviews. Claims are selected for interviews as staff capacity allows, and if the researchers believe there may be an opportunity to develop safety and health prevention materials based on the circumstances of the injury.

Interviewing injured workers is a time- and resource-intensive process. Once claims are reviewed and a portion selected for potential interview, the janitors and cleaners are contacted via letter informing them about the study, why they may be called, and their rights to refuse or consent to an interview. Following the initial mailing, a staff member contacts them by phone.

Currently, letters are sent in both English and Spanish, according to language preference if specified in the claim. Calls are conducted in English; a language interpretation line is available for workers who

¹ Not Otherwise Classified.

prefer another language. Language and availability may limit the number of janitors and cleaners who agree to be interviewed. (Many janitors and cleaners work the night shift and sleep during the day.)

SUMMARY OF RESEARCH ACTIVITY TO DATE

Due to agency changes in supported software, the injured worker interview data collection tool had to be fully redeveloped with new software. This work was completed in 2025, and the new data collection method is currently being tested. Injured worker interviews are expected to resume in late 2025. Claims data are also periodically analyzed to identify common injuries occurring in janitorial services and inform research efforts.

From Sept. 1, 2024, through Sept. 30, 2025 (since the previous report), there were 690 claims received in the selected janitorial risk classes.

From July 1, 2019, when this component of the study began (regularly downloading and analyzing claims), through Sept. 30, 2025, there were 4,493 claims in the janitorial services industry (as defined by the above-mentioned risk classes). Of these claims:

- The majority were covered by the State Fund (88%); the remaining 12% were Self-Insured.
- Twenty-nine percent were compensable (progressing to wage-replacement, disability, or death), 55% were medical-only claims, and 14% were rejected. Less than 2 percent were in unknown, provisional or not yet accepted status at the time of the report (likely newer claims that had not yet been adjudicated).
- Janitors who filed claims during this period were mostly women (57%), and between 25 and 44 years old (45%) when they filed.
- While claim coding for injury characteristics is not complete for all years, of the 1,314 compensable claims during this period, the most common individual injury types were WMSDs (26%) and falls (26%).

NEXT STEPS

Janitors' experiences in their own words help identify issues and inform prevention and intervention efforts. The injured worker interview process will continue through 2026, with expected changes to the claim extract methodology and the interview questionnaire, and increasing the number of available interviewers starting in late 2025. Interviews are expected to resume in November 2025.

The claims extract process is also being revised to work with the new data collection system. Refining the claims extract will enable the team to spend less time reviewing claims that do not meet inclusion criteria and should therefore increase the completion rate. As the project expands into other cleaning environment types, the data extract will be refined further to capture custodians using claims' coding and keywords. Additional efforts are underway to increase the response rate by reducing the interview length, adding bilingual Spanish-speaking researchers, offering a small monetary incentive for participation, and updating the questionnaire to include more relevant questions regarding hazards and training that can be used to create effective educational and outreach materials. Additional methods to gather data around janitors' workplace hazards and experiences are also being explored, such as web-based surveys and focus groups. Results will continue to be analyzed on a rolling basis as interviews are completed. Injury descriptions and comments from janitors will be used to identify common hazards and issues faced by janitors in Washington, and to generate prevention materials and suggest interventions.

2. WORKLOAD CALCULATOR DEVELOPMENT

The workload calculator was developed earlier in the study and released in preliminary (beta) version. In 2024, it became freely [available for download](#) for research, business, and community partners in Washington and nationally, along with a [user guide](#). The methods and development behind this calculator are detailed in previous progress reports. The calculator is currently intended to assess janitorial work performed in large commercial office buildings and may not be applicable to janitorial work in other settings at this time. The cleaning tasks and tools included in the calculator are limited to those observed during its development stage. The calculator will be refined and expanded to include additional cleaning environments, tasks, and tools as the study continues.

Figure 2. Preliminary mock-up of the online workload calculator.

Image source: Internal L&I data

The current phase of calculator development is transitioning the tool from an MS Excel spreadsheet into a web-based program hosted by L&I. The online version of the calculator is being developed to include the capacity to expand it with additional field observations and task and tool combinations. The calculator is expected to be finished in late 2025 and released to the public in early 2026.

NEXT STEPS

During the next study period, the online version is expected to be available for usability testing and public release. The user guide is being updated to reflect the new version, and the expected 2026 online version should have user guidance integrated on-screen.

There are several anticipated expansions of the calculator over the next several years:

1. Additional workload assessments may be completed and incorporated into the tool as the calculator is evaluated, and additional observations of workers, tools, and tasks occur.
2. As businesses and other community and research partners use the tool, their feedback and requests will be addressed and used to refine the calculator. In 2025, a number of businesses contacted the study team with specific questions regarding using the calculator in their environment/context. The calculator may not be suitable for all work contexts, but a possible expansion for further research is being explored with community partners.
3. As the project expands (see Custodians section) to additional cleaning environments, additional locations, tasks, and tools will be incorporated.

3. LABORATORY EVALUATIONS

Mopping is a common cleaning task for which cleaners have reported discomfort. Ergonomic cleaning equipment is available on the market; however, studies on the effectiveness of such equipment in reducing physical demand and workload are limited. Therefore, SHARP researchers designed a study to look at mopping tasks that cleaners encounter. The aim of this activity is to investigate the effects of different mop handles, obstacles, and user experience on muscle activation, energy expenditure, and comfort for shoulder and lower back during mopping tasks. The study's findings will be important in determining mopping equipment associated with reduced postural load on cleaners.

Figure 3. Types of mops used in the study.



Image source: [Concept Manufacturing](#)

For this study, 24 voluntary participants with no diagnosed MSDs are being recruited. The participants will perform mopping under three different conditions (open floor, furniture obstacles, and low-clearance furniture obstacles) and with three different mops (curved handle, flat mop, and fringe mops). These three laboratory layouts represent common conditions that cleaners encounter, such as in schools or health care facilities. Participants will mop 500 square feet for each scenario, for 15 minutes (with different types of mops). The dependent variable measurements include: (1) muscle activity; (2) hand grip forces; (4)

heart rate; (5) footsteps; (6) perceived exertion; and (7) answers to questionnaires to gauge each participant's experience with the mops.

After completing the consent form, participants have electromyographic (EMG) sensors placed on their shoulders, low back, and forearms. After a 10-minute resting period to establish baseline heart rate and baseline EMG, the subjects perform maximal voluntary contractions for the necessary calibration process. The images below show the locations where the sensors are placed on the muscles.

Figure 4. Electromyographic (EMG) sensor placements (represented by black dots).

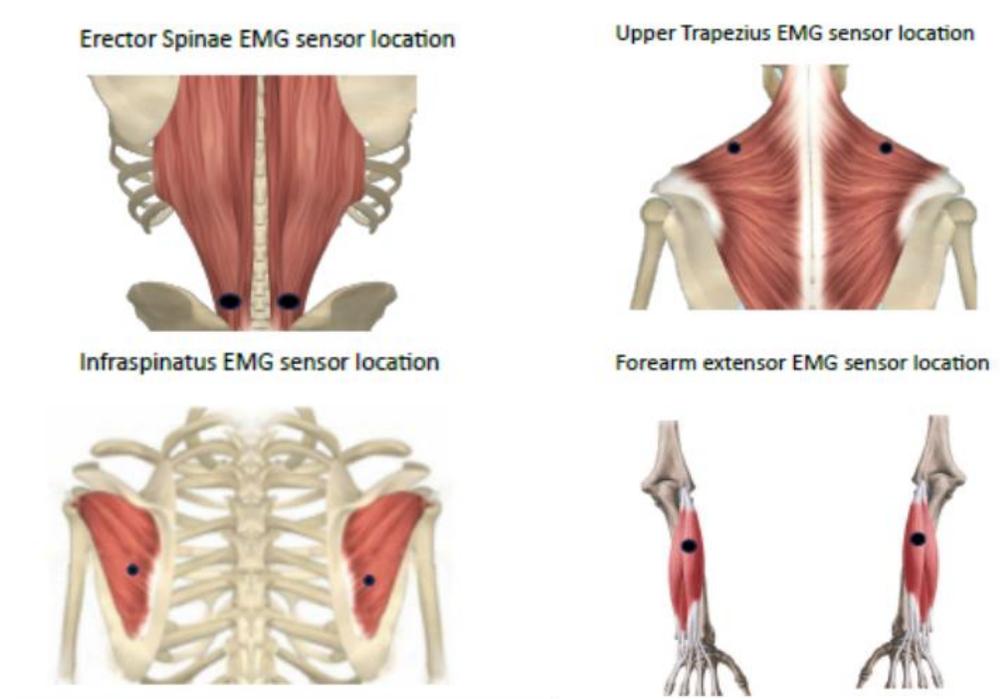


Image sources: [Erector Spinae muscle](#); [Infraspinatus muscle](#), [Forearm muscle](#), [Trapezius muscle](#). Edited by the SHARP program to add sensor representation.

For the laboratory's layout, obstacles were designed using carts and tables to create an area that replicates real-world conditions, including tight spaces and awkward areas to clean underneath. Eleven objects, including eight tables and three carts were used to create obstacles. Each table was raised on four wooden blocks that were fitted underneath, so that all the obstacles had a clearance of five inches from the ground. The obstacles were placed around the perimeter of the laboratory space, with some intentionally tight areas between obstacles.

Figure 5. Laboratory floor plan layout showing obstacles (grey rectangles).

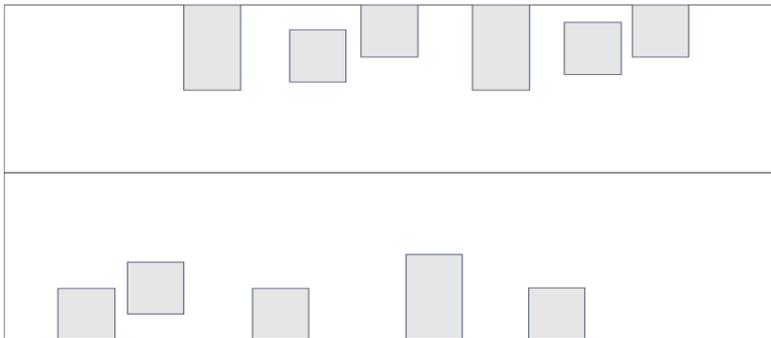


Image source: SHARP program

Subjects were instructed to start mopping at one end of the approximately 250-square-foot lab area containing the obstacles. Once they reach the end of it, they replace the mop head and then mop it again (for a total of 500 sq. ft., continuously for 15 minutes).

There were a total of seven mopping scenarios.

- For the first scenario, participants mopped underneath the obstacles with a flat or curved mop.
- The second scenario was again mopping underneath the obstacles, but with another type of mop. For example, a flat mop could be used in the first scenario, and a curved mop in the second.
- The next three scenarios' layouts had the obstacles in the same place, but participants were asked to mop only around the obstacles, not underneath. These three scenarios included all three mop handles (flat, curved, and fringe mops).
- The final two scenarios included a clear open space, with all 11 obstacles removed. The mops used in the last two scenarios were curved and flat mops.

The layouts were the same for all participants, but the mop handles used were randomized to ensure good data.

The study's mopping and rest periods take approximately three hours. After each scenario, there is a force grip measurement and a five-minute break. After each layout (underneath obstacles, around obstacles, and no obstacles), the subjects answer a brief series of questions based on their experiences. (See Table 1.)

Table 1: Scenario Tool Questions.

1. For this layout, which tool system was your favorite one and why?	Choice of tool	Open ended comments on why	Targeted comments (wrist, arm, low back)
2. For this layout, which tool system was your least favorite one and why?	Choice of tool	Open ended comments on why	Targeted comments (wrist, arm, low back)

While recruiting for the lab study, potential participants were contacted in various ways, including:

- visiting local hotels;

- contacting local cleaning companies;
- posting recruitment flyers in local group chats and neighborhood groups;
- sharing recruitment flyers with local labor organizations and speaking at property service union meetings;
- distributing recruitment flyers at commercial office buildings, such as the Labor & Industries Spokane office; and
- reaching out to local college campuses to recruit cleaners & college students.

When recruiting nonprofessional cleaners, a variety of anthropometrics, specifically gender, weight, height, and age were included. This enables the study team to have a similar population to compare the professional cleaners' data to the nonprofessional cleaners' data. The recruitment for all nonprofessional cleaners has been completed, and the study team is in the process of recruiting additional professional cleaners.

Data analysis for nonprofessional cleaners is underway, following recruitment completion. Table 2 shows the preliminary population data of the current participants. As of November 2025, there has not been any male professional cleaners that have participated in the study; professional cleaner recruitment is ongoing. (This data will change as additional cleaners are enrolled.)

Table 2. Preliminary demographic data for currently enrolled mop study participants.

	Female Cleaners		Female Non-Cleaners		Male Non-Cleaners	
<i>Participants (n)</i>	6		7		5	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
<i>Age (years)</i>	30.8	9.3	45.1	6.9	36.0	20.0
<i>Height (cm)</i>	161.7	8.1	164.2	7.5	178.9	7.4
<i>Weight (kg)</i>	75.4	11.8	74.9	20.4	74.6	9.1

4. FRANCHISING

The economic landscape influences contract details, work organization, and worker health and safety. Franchised organizational arrangements have spread in this industry and may intensify pressures to reduce labor costs — leading to lower wages, higher turnover, and worker injury. Data on franchised janitorial firms was obtained, and is being analyzed to identify and confirm employment, wage, and injury patterns. In earlier phases of this research, franchised janitorial firms in Washington were compared to traditionally organized firms on such measures as wage rates and workers' compensation claims rates. Workers employed by franchised firms had lower wage rates, lower total earnings, and higher turnover. They also had higher workers' compensation claims rates for injuries leading to more than three lost workdays. Analysis of these claims is ongoing, and a second data extract (covering the years 2022-2023) is being analyzed to test whether the findings from the earlier analysis are confirmed. Results from this work are expected to be published in 2026.

5. EDUCATION AND TRAINING DOCUMENTS

Early in this formative work, the study team identified the need for culturally and linguistically appropriate safety and health training resources for janitors due to the diversity of the janitorial workforce. The SHARP research staff created and will continue to develop resources for janitors in multiple languages (English, Spanish, Russian, Vietnamese, Bosnian, Chinese [Traditional], Amharic, Somali, and Tagalog). Publications include regular communication about the project and information on safety topics (informed by workload assessments, injured worker interviews, and research and community partner input). Past issues included topics such as common chemicals that cause irritation; effective safety leadership and communication; hazard communication pictographs; and tips for preventing injuries from needlesticks.

All published educational and training documents [are available on the study website](#)..

In addition to education and training documents, SHARP staff continue to publish new analyses of existing study data to further expand knowledge in the field. A list of study publications is included in Outputs and Outcomes below.

6. CUSTODIANS

Community partners in the educational sector have requested access to the workload calculator and have shared their data and experiences. School districts, colleges, and universities all face resource constraints and workload challenges. Community partners (multiple school districts and colleges/universities across the state) are facing budget cuts resulting in recent reduction of workers (full-time equivalent/FTEs), with no reduction in existing workload. The workload calculator may be a valuable tool for these workers and employers.

7. ISOLATED JANITORS FOCUS GROUPS

In 2025, the CORE project expanded with an additional objective focused on the occupational health risk of janitors in their experience as isolated workers. This objective explores the intersection of psychosocial safety climate, workplace conditions, and occupational health outcomes among janitors (janitors, custodians, and other commercial cleaning workers) in Washington. Specifically, this part of the study will:

- 1) explore lone janitorial workers' perceptions of Psychosocial Safety Climate (PSC), psychosocial working conditions, occupational stress, and workplace injuries; and,
- 2) identify potential prevention strategies and intervention opportunities to enhance lone janitors' safety and well-being.

To achieve these aims, the study team will employ a qualitative, deductive approach using focus groups to collect firsthand insights from janitorial workers regarding their experiences with workplace stressors, safety concerns, and support systems. These focus groups will meet virtually for wider access, and in English and Spanish, separately for men and women. A purposive sampling method will be used to ensure diversity across different work settings, including commercial buildings, hospitals, and schools; as well as demographic characteristics such as gender, ethnicity, and age. Recruitment is underway, and isolated janitor focus groups began in November 2025. Three focus groups were conducted in November 2025, and additional sessions are scheduled to continue through early 2026.

Janitors, like many lone workers, operate in isolated locations or environments where they are seldom seen or heard by others, making it difficult for them to receive assistance in hazardous situations. Many

janitors are immigrants and people of color, a workforce that is disproportionately affected by unsafe working conditions, economic insecurity, and limited access to workplace protections. Structural racism and economic inequities contribute to their increased exposure to hazardous work environments, with inadequate safeguards, leaving them vulnerable to workplace accidents, violence, and long-term occupational health risks. In addition, janitors who work without direct supervision or the presence of colleagues confront physical and psychosocial hazards, such as workplace accidents, violence, and health emergencies. The isolation of working alone as a janitor may exacerbate these risks, as it often limits access to immediate support and resources in case of emergencies. Given the combination of isolation and exposure to multiple workplace hazards, it is crucial to examine organizational factors that can mitigate these risks. This objective supports existing study goals because isolated/lone workers are an emerging area of interest as many janitors and cleaners work alone. Additionally, recent bills in the Washington State Legislature recognize the risks and needs of these workers ([2SHB 1524](#), passed in 2025), yet there is a dearth of information on the topic. This objective is timely and will provide necessary information for action both for the project overall as well as for other research, community, and government partners.

8. ROUNDTABLES

Much of the foundational data collected during the study was conducted during its early years (2019-early 2020). Cleaning needs and work environments were drastically affected by the onset of the COVID-19 pandemic; and while many workplaces have begun returning to “normal” operations, there are new hybrid schedules, new technology, and new conditions to contend with in commercial cleaning, as well as rapidly evolving economic conditions. To ensure that our research remains timely and relevant, the study team must seek continuous feedback from community and research partners: janitors, cleaners, custodians, janitorial and cleaning business owners and management/supervisors, and community and labor groups that represent these workers/entities.

In 2025, the CORE program initiated holding “roundtables” — virtual meetings conducted in English and Spanish for workers and employers in the janitorial and cleaning industry — to address the current gaps in knowledge, focusing on how the industry has changed since 2020. These will be 60–90-minute open discussions with a set of loose questions and probes to help guide the flow of discussion. Roundtable recruitment is primarily done through a newsletter and community partnerships. As of Dec. 1, 2025, no roundtable sessions have been held due to challenging recruitment and participant no-shows. Registration is currently open for sessions in January 2026. Additional recruitment and scheduling will continue through early 2026.

In the future, additional roundtables will be held periodically (on different themes) to help inform the nature and goals of our research, and as a mechanism to help identify emerging issues in the commercial cleaning industry.

OUTPUTS AND OUTCOMES

Following is a list of educational materials, publications, and other products that are a result of this project and funding.

EDUCATION AND OUTREACH MATERIALS

- The workload calculator is available for free download on our website.
- Quarterly newsletters and tip sheets are sent to a mailing list of approximately 4,000 subscribers in eight languages. Community feedback has been positive, with some tip sheets being distributed widely by community partners and through agency outreach events.
 - o Newsletters include project updates, news, and announcements, as well as a section focusing on hazards and the results of data analysis. Tip sheets are typically shorter documents that focus on low-text, highly visual displays of information.
 - The Winter (January-March) 2025 [newsletter](#) and [tip sheet](#) focused on mopping safety, which accompanied the announcement of our laboratory mop study.
 - The Spring (April-June) 2025 [newsletter](#) and [tip sheet](#) focused on work stress (to coincide with May being Mental Health Awareness month) and included data from the 2019-2020 survey and links to resources for managing work stress for janitors.
 - The Summer (July-September) 2025 [newsletter](#) and [tip sheet](#) focused on janitorial cart safety and includes an analysis of workers' compensation claims involving carts and tips on cart loading and wheel maintenance.
 - o In August 2025, the Winter 2025 tip sheet on mopping safety was picked up by [Safety+Health magazine](#) and shared with its 91,000+ subscribers.

RESEARCH AND COMMUNITY PARTNERS

- Researchers meet with interested academics, industry leaders, and community members to discuss their needs and receive feedback on study activities and products. In 2025, this included:
 - o school districts, colleges, and universities (in both Washington and California);
 - o businesses (including cleaning companies, cleaning consulting firms, and cleaning equipment and insole manufacturers); and
 - o local labor organizations (Washington and nationally).
- Dr. Stephen Bao, lead ergonomist on the CORE project, serves on the Janitors Workload Advisory Committee for the State of California.
- Researchers have shared their progress through publications in academic journals, and through presentations to business and community partners, professional associations, and industry and trade association conferences, including:
 - o "SHARP Research 2024 Review." PNW Ergo Roundtable (January 2025). *Audience: ~30 ergonomists from around the Pacific Northwest region.*
 - o "Washington State Janitors' Workload Calculator." SEIU-6, Seattle, Washington (May 2025). *Audience: ~10 property service union members.*
 - o "Washington State Janitors' Workload Calculator." California Janitors Workload Advisory Committee, Oakland, California (June 2025). *Audience: ~40 advisory committee members.*
 - o "Challenges in Developing a Janitors' Workload Calculator." Aspire (annual meeting of the Human Factors and Ergonomics Society [HFES]), Chicago, Illinois (October 2025). *Audience: ~20 ergonomists (US/global).*

- “Brainstorming Solutions to the Challenges of Interpreting the Results of Ergonomics Exposure Assessment.” ASPIRE (annual HFES meeting), Chicago (October 2025).
Audience: ~8 ergonomists (US/global).

PUBLICATIONS

Anderson NJ, Smith CK, Foley MP. Work-related injury burden, workers' compensation claim filing, and barriers: Results from a statewide survey of janitors. *Am J Ind Med.* 2022 Mar;65(3):173-195. doi: 10.1002/ajim.23319. Epub 2021 Dec 13. PMID: 34897753; PMCID: PMC9300089.

Lee W, Yragui NL, Anderson NJ, Howard N, Lin JH, Bao S. The job demand-control-support model and work-related musculoskeletal complaints in daytime and nighttime janitors: The mediating effect of burnout. *Appl Ergon.* 2022 Nov;105:103836. doi: 10.1016/j.apergo.2022.103836. Epub 2022 Jun 28. PMID: 35777183.

Lee W, Lin JH, Howard N, Bao S. Methods for measuring physical workload among commercial cleaners: A scoping review. *International Journal of Industrial Ergonomics.* 2022 (90). doi: 10.1016/j.ergon.2022.103319.

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Lin JH, Bao S, Howard N, Lee W. Compendium of physical ergonomics exposures to hand, shoulder, and low back during routine janitorial activities. *Int J Ind. Ergon.* 2024 (99) 103544. <https://doi.org/10.1016/j.ergon.2023.103544>.

ADDITIONAL MANUSCRIPTS IN PROGRESS

First Author: Ninica Howard. Janitorial Cleaning Tasks and Physical Demands in Various Building Types: Results from the Washington State Janitorial Workload Survey. *Submitted, in process.*

NEXT STEPS

Tasked specifically by the Washington State Legislature, the SHARP program has developed a multitiered systems approach to understanding the workload and workplace physical and mental exposures that may put janitors at risk of a work-related injury. SHARP is analyzing collected data, developing and refining the janitorial workload calculator tool, continuing injured worker interviews, and creating multimodal educational information for janitors and employers.

Overall, the goal to develop, test, and release a workload calculator to keep janitorial workers safe and create a harmonized tool for janitorial companies to bid for contracts is partially complete. A preliminary tool released for testing and feedback and more user-friendly online version is ready for release in early 2026. The forthcoming online version of the workload calculator for business and community partners will enable: expansion of the calculator into additional cleaning environments (such as custodians); new task, tool, and location data; and the capacity to adapt to industry changes.

The workload calculator addresses only physical exposures and does not address other important safety and health issues raised by janitors, such as safety culture and supervisor and employee training.

Future work will focus on holistically addressing the industry's needs, including:

- addressing school custodians' needs;
- expanding, refining, and evaluating the workload calculator;
- resuming injured worker interviews with new and adaptive methods;
- conducting additional field and laboratory testing and assessments as necessary;
- addressing the needs of isolated janitors and evaluating the impact of a new law providing additional protections for isolated workers (2SHB 1524 effective Jan 1, 2026);
- continuing to solicit community partner input from both janitorial employers and janitors/cleaners; and
- creating training and safety programs and other education and training materials in multiple languages that could significantly reduce injuries within the janitorial industry.

Results from the CORE project can provide insight and tools for business and community organizations to keep Washington safe and working.