



Washington State Department of
Labor & Industries

Work-Related Immediate Inpatient Hospitalizations in Washington State

2020 Annual Report to the Legislature

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Table of Contents

Executive Summary	1
Introduction	3
Initial Progress	4
Work-Related Immediate Inpatient Hospitalization Surveillance System	4
Work-Related Immediate Inpatient Hospitalizations in Washington State, 2014-2018	4
Workers.....	5
Industry	5
Injuries	7
Employers	7
Claim Costs and Time Loss	7
Prevention Activities	7
Next Steps: Priorities for 2021 and Beyond	9
Surveillance System Development.....	9
Data Analysis	9
Prevention Priorities	10
Conclusion.....	11

Figures

Figure 1. Work-Related Immediate Inpatient Hospitalizations and Total Workforce, Washington State, 2014–2018.	4
Figure 2. Work-Related Immediate Inpatient Hospitalizations by Age Group and Gender, Washington State, 2014-2018.	5
Figure 3. Work-Related Immediate Inpatient Hospitalizations by NAICS Industry Sector, Washington State, 2014-2018.	6

Executive Summary

Work-related injuries and illnesses that lead to immediate inpatient hospitalization are severe, costly, and preventable. In 2019, the Washington State Legislature provided support¹ to the Safety and Health Assessment and Research for Prevention (SHARP)² program at the Department of Labor & Industries (L&I) for developing a system to research and track these serious injuries, characterize risks and hazards, and identify prevention priorities.

L&I must submit an initial report to the governor and appropriate legislative committees by August 30, 2020, and each year thereafter, detailing the project's progress. This is L&I's initial report. SHARP developed the work-related immediate inpatient hospitalization surveillance system³ to detect workplace injuries and illnesses that result in inpatient hospital admission within one day of the incident. Cases are identified by linking hospital discharge data from the Comprehensive Hospital Abstract Reporting System (CHARS)⁴ from the Washington State Department of Health with workers' compensation claim information from L&I. Workers' compensation claim data provides information including worker demographics, preferred language, industry, occupation, injury event, and state fund claim benefit costs and time away from work.

SHARP conducted a study over a five-year period from 2014 through 2018. Over that period, 3,684 Washington workers suffered a work-related injury that required immediate inpatient hospitalization. A technical report describing these injuries is available online.⁵

The construction industry had both the highest number of work-related immediate inpatient hospitalizations and the highest rate of worker hospitalization over the five-year study period. Falls from elevation were by far the most frequent cause of work-related immediate hospitalizations in construction. In response, SHARP's first two prevention training publications addressed fall hazards in construction.

L&I's priorities for the future include enhancing the work-related immediate inpatient hospitalization surveillance system to address hospitalizations not currently captured and evaluate required employer reporting of work-related hospitalizations. This will include in-depth analyses of high-risk working populations and specific injury event types. In the coming year, SHARP will continue to collect data beyond 2018 as they become available and develop prevention priorities, while maintaining focus on

¹ Engrossed Substitute House Bill 1109 (Chapter 415, 2019 Laws).

² <https://lni.wa.gov/safety-health/safety-research/about-sharp>

³ <https://lni.wa.gov/safety-health/safety-research/ongoing-projects/immediate-inpatient-hospitalizations>

⁴ Comprehensive Hospital Abstract Reporting System (CHARS):

<https://www.doh.wa.gov/DataandStatisticalReports/HealthcareinWashington/HospitalandPatientData/HospitalDischargeDataCHARS>

⁵ [https://lni.wa.gov/safety-health/safety-](https://lni.wa.gov/safety-health/safety-research/files/2020/96_07_2020_WorkRelatedImmediateInpatientHospitalizations_2014to2018.pdf)

[research/files/2020/96_07_2020_WorkRelatedImmediateInpatientHospitalizations_2014to2018.pdf](https://lni.wa.gov/safety-health/safety-research/files/2020/96_07_2020_WorkRelatedImmediateInpatientHospitalizations_2014to2018.pdf)

the causes of falls in construction and on fall protection equipment use, specifically among roofers and other exterior building construction contractors.

Introduction

Workplace injuries and illnesses that lead to immediate inpatient hospitalization are severe and costly. These injuries often require extended periods of time away from work, and can leave workers with lifelong disability. These injuries are preventable.

In 2019, the Washington State Legislature provided funding for the Department of Labor & Industries' (L&I) Safety and Health Assessment and Research for Prevention (SHARP) program to conduct research and initiate prevention programs to prevent work-related injuries that lead to immediate inpatient hospitalizations. SHARP was tasked with developing a system to identify work-related inpatient immediate hospitalizations in Washington State, to examine incidents in high-priority areas, and to characterize hazards and contributing factors that lead to these severe injuries.

A work-related immediate inpatient hospitalization is defined as a workplace injury or illness that results in inpatient hospital admission within one day of the incident. In Washington, employers are required⁶ to report a worker's inpatient hospitalization within eight hours of the event; however, employer reporting is likely incomplete. Workers' compensation claim data from L&I's industrial insurance system captures hospitalization information for injured workers insured through the state fund, but not for self-insured claims.

In order to track and better understand these injuries, SHARP developed the work-related immediate inpatient hospitalization surveillance system. Hospital discharge data from the Comprehensive Hospital Abstract Reporting System (CHARS) is linked to Washington workers' compensation claim information to identify work-related injuries that resulted in immediate hospital admission.

Using information from the work-related immediate inpatient hospitalization surveillance system, SHARP developed a technical report describing work-related immediate hospitalizations in Washington from 2014 through 2018, established initial priorities for prevention and further research focus, and developed prevention training material for high-risk industries.

This is the initial annual report to the legislature detailing the project's progress.

⁶ Washington Administrative Code (WAC) 296-27-031, Reporting fatalities, inpatient hospitalizations, amputations, and losses of an eye as the result of work-related incidents.

Initial Progress

WORK-RELATED IMMEDIATE INPATIENT HOSPITALIZATION SURVEILLANCE SYSTEM

The work-related immediate inpatient hospitalization surveillance system links two data sources to identify cases: state fund and self-insured workers' compensation claims data from the Department of Labor & Industries (L&I), and the Washington Comprehensive Hospital Abstract Reporting System (CHARS) operated by the Department of Health. CHARS data are available annually.

Records are linked by name, birthdate, work-related injury date within one day of earliest hospital admission, sex, and worker zip code. CHARS data provide information about inpatient hospital admission. L&I workers' compensation claim data provides information including injured worker demographics, preferred language, industry and occupation, and occupational injury and illness classification codes for state fund and self-insured claims. Information about claim benefit costs and time away from work are available for state fund claims only.

WORK-RELATED IMMEDIATE INPATIENT HOSPITALIZATIONS IN WASHINGTON, 2014-2018

From 2014 through 2018, SHARP detected 3,684 work-related immediate inpatient hospitalizations of Washington workers, using the work-related immediate inpatient hospitalization surveillance system. This includes workers for state fund and self-insured employers.

Figure 1. Work-Related Immediate Inpatient Hospitalizations and Total Workforce, Washington State, 2014–2018.

YEAR	TOTAL HOSPITALIZATIONS	HOSPITALIZATIONS PER 100,000 FTE
2014	700	29.1
2015	775	30.9
2016	717	27.9
2017	758	28.7
2018	734	27.1

The annual number of hospitalizations, based on the year of hospital discharge, ranged from 700 in 2014 to a high of 775 in 2015 (Figure 1). The average number of hospitalizations per year was 736.8.

Over the five-year period, there was an average rate of 28.7 work-related immediate inpatient hospitalizations for every 100,000 Full Time Equivalent (FTE) employees.⁷ In 2018, the rate of hospitalizations fell to a low of 27.1 per 100,000 FTEs.

Workers

From 2014 through 2018, 2,957 men (80.3 percent) and 727 women (19.7 percent) required immediate hospitalization due to a work-related injury or illness.

Over 15 percent of immediately hospitalized workers indicated that to L&I that they preferred to receive information about their claim in a language other than English. Spanish language was preferred by 13.8 percent of hospitalized workers. Other preferred languages included Russian, Chinese, Korean, and Vietnamese.

Older workers had the highest hospitalization rates. Workers age 65 and over had the highest hospitalization rates, 40.8 per 100,000 FTEs. Workers age 55-64 had the second highest rates at 32.1 hospitalizations per 100,000 FTE (Figure 2).

Figure 2. Work-Related Immediate Inpatient Hospitalizations by Age Group and Gender, Washington State, 2014-2018.

Age Group	All Workers			Men			Women		
	Number	%	Rate per 100,000 FTE	Number	%	Rate per 100,000 FTE	Number	%	Rate per 100,000 FTE
18 & under	38	1.0	14.2	32	1.1	26.0	6	0.8	4.2
19-24	332	9.0	21.7	301	10.2	40.0	31	4.3	4.0
25-34	723	19.6	20.3	644	21.8	34.4	79	10.9	4.7
35-44	671	18.2	19.3	582	19.7	31.6	89	12.2	5.5
45-54	735	20.0	22.4	592	20.0	35.1	143	19.7	9.0
55-64	832	22.6	32.1	599	20.3	46.2	233	32.0	18.0
65 & over	353	9.6	40.8	207	7.0	46.4	146	20.1	34.8
Total	3684	100.0		2957	100.0	36.9	727	100.0	9.6

Industry

The Construction industry sector (NAICS 23)⁸ had the highest number of work-related immediate inpatient hospitalizations with 926 — almost one-quarter of all hospitalizations⁹ — and the highest rate of hospitalizations (117.1 per 100,000 FTEs). There was an average of 185 construction industry

⁷ One FTE = 2000 hours worked in a year.

⁸ Industries were designated using the North American Industry Classification System (NAICS) code assigned to the employer account. <https://www.census.gov/eos/www/naics/>

⁹ Total hospitalizations exclude 21 claims that were not assigned to an employer account.

hospitalizations per year. Falls from elevation were the most frequent injury type leading to immediate hospitalization in the Construction industry, accounting for nearly half of all claims.

The Manufacturing industry sector (NAICS 31-33) saw the second highest number of immediate inpatient hospitalizations over the five-year period, with 383. The average annual number of hospitalizations was 77, and the rate of hospitalizations was 29.4 per 100,000 FTEs. Over one third of manufacturing industry workers were age 55 or older (35.5 percent). The leading cause of immediate hospitalizations in manufacturing was injuries due to workers being caught in, compressed, or crushed by equipment, objects, or other materials on the job.

There were 335 hospitalizations in the Agriculture, Forestry, Fishing, and Hunting industry sector (NAICS 11) -- the third highest number of immediately hospitalized workers. The average annual number of hospitalizations was 67, and the rate of hospitalizations was 70.6 per 100,000 FTEs. Over half of hospitalized workers in the sector preferred to receive claim information in a language other than English (50.4 percent); 49.3 percent of hospitalized workers preferred Spanish.

Figure 3. Work-Related Immediate Inpatient Hospitalizations by NAICS Industry Sector, Washington State, 2014-2018.

NAICS Sector Code and Description	Total Hospitalizations	Average Annual Hospitalizations	Rate per 100,000 FTE
23: Construction	926	185	117.1
31-33: Manufacturing	383	77	29.4
11: Agriculture, Forestry, Fishing, and Hunting	335	67	70.6
56: Administrative and Support and Waste Management and Remediation Services	283	57	39.3
44-45: Retail Trade	273	55	17.4
48-49: Transportation and Warehousing	226	45	57.2
42: Wholesale Trade	212	42	33.5
51-55: Information; Finance and Insurance; Real Estate and Rental and Leasing; Professional, Scientific, and Technical Services; Management of Companies and Enterprises	185	37	8.8
62: Health Care and Social Assistance	171	34	9.5
92: Public Administration	164	33	24.8
72: Accommodation and Food Services	153	31	17.0
61: Educational Services	146	29	18.5
81: Other Services (except Public Administration)	122	24	25.8
71: Arts, Entertainment, and Recreation	50	10	40.7
22: Utilities	24	5	36.5
21: Mining, Quarrying, Oil and Gas Extraction	10	2	65.5

Injuries

Falls from elevation were the leading cause of immediate inpatient hospitalizations, accounting for over a quarter of injuries (25.5 percent). Falls from ladders were the most common type of fall from elevation, followed by falls from or through roofs. The average fall-from-elevation state fund claim cost was \$137,000.

Falls on the same level were the cause of another 16.2 percent of immediate hospitalizations.

Injuries that resulted when a worker was struck by an object or equipment were the second most frequent cause of immediate inpatient hospitalizations (16.6 percent of hospitalizations).

Another eight percent of hospitalizations were due to workers being caught in, compressed, or crushed by equipment, objects, or other materials on the job.

Together, these four types of injury events caused 66.2 percent of all work-related immediate inpatient hospitalizations from 2014 through 2018.

Employers

Smaller employers had higher rates of work-related immediate inpatient hospitalizations. Employers with ten or fewer FTEs had an immediate inpatient hospitalization rate of 56.8 per 100,000 FTEs, which was almost four times the rate of employers with 1000 or more FTEs.

Claim costs and time loss

Total claim costs paid for state fund work-related immediate inpatient hospitalization claims (including medical costs and time loss payments) were approximately \$334,918,000. The average claim cost was \$110,000.

Among state fund immediate hospitalization claims, the median number of time-loss days paid for was 87 days. Sixty percent of hospitalized workers were still receiving time-loss benefits after 30 days. Over one-quarter of claims had more than 365 days of time loss paid (26 percent).

PREVENTION ACTIVITIES

One of SHARP's program priorities is reaching employers and workers with information from the Work-Related Immediate Inpatient Hospitalization Surveillance System that can be used to prevent injuries on the job. During the first year, SHARP developed templates for prevention publications that can be used for on-site safety training and toolbox talks. The publications incorporate information from real-life incidents that resulted in the immediate hospitalization of a worker, and

include recommendations and requirements for prevention. The content was developed by a Certified Safety Professional¹⁰ and reviewed by technical and subject matter experts within L&I.

Within the construction industry, roofing workers are at high risk of injury.¹¹ In 2020, risk class 0507, Roof Work— Construction and Repair, has the highest workers' compensation premium rate within the building and construction trades in L&I's industrial insurance system.¹² For this reason, SHARP's first two prevention publications focused on falls from ladders and roofing falls.¹³

These prevention resources are posted on L&I's website at <https://lni.wa.gov/safety-health/safety-research/ongoing-projects/immediate-inpatient-hospitalizations#prevention-resources>. SHARP continues to develop a communication and outreach plan to address targeted dissemination through direct mail to employers in applicable risk classes, email distribution, L&I social media accounts, trade associations, and in-person outreach through established industry and safety events.

¹⁰ <https://www.bcsp.org/CSP>

¹¹ *Prioritizing Industries for Occupational Injury and Illness Prevention and Research, Washington State Workers' Compensation Claims Data, 2002-2010*. SHARP technical report 64-1-2013. https://lni.wa.gov/safety-health/safety-research/files/2013/bd_3f.pdf

¹² <https://apps.leg.wa.gov/WAC/default.aspx?cite=296-17-895>

¹³ <https://lni.wa.gov/safety-health/safety-research/ongoing-projects/immediate-inpatient-hospitalizations#prevention-resources>

Next Steps: Priorities for 2021 and Beyond

L&I's priorities for the coming years include continuing to develop the surveillance system to ensure that all appropriate case data is captured, conducting data analysis to better inform prevention messages, and continuing to monitor common causes of hospitalized injuries.

SURVEILLANCE SYSTEM DEVELOPMENT

Evaluate and characterize unique immediate inpatient hospitalization cases in the Washington State Fund. To determine whether the current surveillance system is sufficient or requires modification to improve case capture, SHARP will estimate the number of cases missed by the work-related immediate inpatient hospitalization surveillance system, determine why those state fund cases were missed, and analyze whether the missed hospitalizations differ in pattern or type from those captured by the system. This evaluation will enable SHARP to determine if future reports will routinely include case data uniquely identified from the workers' compensation state fund.

Evaluate employer reporting of immediate inpatient hospitalization cases. Using 2018 data, SHARP will access employer reports of immediate inpatient hospitalizations to the Division of Occupational Safety and Health (DOSH) and compare those reports to CHARS data and L&I data. From this comparison, SHARP will develop recommendations for DOSH to consider on improving employer reporting of immediate inpatient hospitalizations.

DATA ANALYSIS

Use DOH CHARS race and ethnicity data to estimate immediate inpatient hospitalization rates by race and ethnicity. These data will improve understanding of racial and ethnic disparities in occupational health, which is essential in delivering targeted prevention messages.

Analyze specific working groups. Temporary workers, firefighters, janitors, and agricultural workers have been the subject of recent legislative interest. SHARP will seek to do in-depth analyses of these working groups to add to the existing data regarding risk of work-related injury.

Analyze "caught-in" injuries. Determining which events lead to caught-in injuries in manufacturing -- specifically, identifying the machinery or equipment in which the worker was caught in, under, or between -- will aid in developing prevention strategies.

PREVENTION PRIORITIES

Review falls from elevation in construction. Reviewing claim records for common causes of falls and identifying fall restraint system use, specifically for roofers and other exterior building construction contractors, will aid in creating or modifying existing prevention materials for distribution to specific contractors, along with partnering with specific trade associations to distribute the safety messages.

Summarize data. Surveillance system data can be used to develop short, one-page data summaries for working populations of high interest in Washington, which can help increase awareness and aid in prevention.

Conclusion

The work-related immediate inpatient hospitalization surveillance system provides valuable information that L&I can continue to use to improve workplace safety. This unique tracking system enables L&I to identify high-risk industries and occupations, detect vulnerable worker populations, monitor trends over time, and develop priorities for focused prevention efforts, resulting in safer work environments and fewer worker injuries.