Work-Related Immediate Inpatient Hospitalizations

Washington State, 2022

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ABBREVIATIONS

CHARS Comprehensive Hospital Abstract Reporting System

DOSH WA Dept. of Labor & Industries Division of Occupational Safety & Health

FTE Full Time Equivalent

L&I Washington State Department of Labor and Industries

NAICS North American Industry Classification System

OIICS Occupational Injury and Illness Classification System

OSHA Occupational Safety and Health Administration

SF Washington Industrial Insurance State Fund

Safety and Health Assessment and Research for Prevention **SHARP**

SI Self-Insured

WC Workers' Compensation

KEYWORDS

SHARP; work-related immediate inpatient hospitalizations; work-related hospitalization; work-related injury; occupational injury; workers' compensation

EXECUTIVE SUMMARY

The Safety and Health Assessment and Research for Prevention (SHARP) program uses the Washington State Work-Related Immediate Inpatient Hospitalization Surveillance System to monitor occupational injuries severe enough to require hospital admission within one day of the incident.

Through tracking and characterizing these serious injuries, we aim to identify and better understand the industries and workers most at risk, and to inform and evaluate prevention efforts.

In 2022, we identified 586 work-related immediate inpatient hospitalizations (hereinafter referred to as 'hospitalizations'), and a rate of 20.9 hospitalizations for every 100,000 Full-Time Equivalent (FTE) workers. The number and rate of hospitalizations were the lowest for all industries combined since tracking began in 2014.

2022 Key Findings:

Industry:

- Workers in the Construction industry sector continue to experience the highest number and rate
 of hospitalizations annually, accounting for nearly one-quarter of hospitalizations in 2022
 (24.1%). However, both the number and rate of construction hospitalizations were lower than in
 2021.
- Workers in the Agriculture, Forestry, Fishing and Hunting industry sector experienced the second highest rate of hospitalizations. Workers in the logging industry suffered 20% of the hospitalizations in this sector.
- **Falls:** Injuries from falls were the cause of nearly half of all hospitalizations. Falls from elevation were the most common injury event type (27.5%), followed by falls on the same level (19.0%).
- **Older workers:** Nearly 40% of hospitalizations were among workers age 55 or older. Older workers again experienced higher rates of hospitalized injuries than younger workers.
- **Preferred language:** Approximately 18% of hospitalized workers requested to receive workers' compensation claim information in Spanish.
- **Employer size:** Smaller employers experienced higher rates of worker hospitalization claims than larger employers.
- Workers' compensation claims: Approximately 83% of workers who filed claims were insured through the Washington State Department of Labor and Industries Industrial Insurance State Fund. Among State Fund claims:
 - Claim costs paid to date at one year after injury, including medical costs and wage replacement, totaled approximately \$44 million.
 - Over half of claims remained open after one year.

INTRODUCTION

A work-related immediate inpatient hospitalization is an occupational injury or illness that leads to inpatient hospital admission within one day of the incident or exposure. These events are often devastating for workers and their families, and are costly for employers. Work-related immediate inpatient hospitalizations are preventable.

The Safety and Health Assessment and Research for Prevention (SHARP) program at the Washington State Department of Labor and Industries (L&I) tracks these severe injuries through the Washington State Work-Related Immediate Inpatient Hospitalization Surveillance System.¹

By monitoring immediate inpatient hospitalizations over time, we aim to:

- Identify the industries and occupations with the highest counts and rates of hospitalized incidents.
- Better understand the workers and employers most at risk.
- Inform, develop, implement, and evaluate prevention efforts and interventions.

SHARP identifies cases by linking L&I workers' compensation claim information with records from the Washington State Department of Health's Comprehensive Hospital Abstract Reporting System (CHARS).² See Appendix A for further detail about methods.

This report details work-related immediate inpatient hospitalizations that occurred in Washington State in 2022.³

RFSULTS

In 2022, we identified 586 work-related immediate inpatient hospitalizations (hereinafter referred to as 'hospitalizations') among Washington workers' compensation claims. The overall rate of hospitalizations was 20.9 per 100,000 Full Time Equivalent (FTE) workers.^{4,5}

Both the number and rate of hospitalizations were lower in 2022 than in any year since we began tracking these injuries in 2014 (Figure 1).

¹ Work-Related Immediate Inpatient Hospitalization Surveillance System: https://lni.wa.gov/safety-health/safety-research/ongoing-projects/immediate-inpatient-hospitalizations

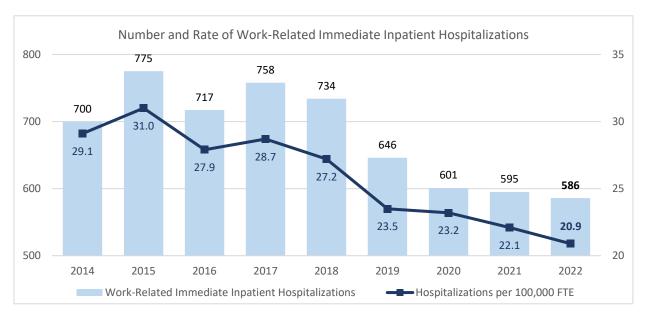
² Comprehensive Hospital Abstract Reporting System (CHARS): https://www.doh.wa.gov/DataandStatisticalReports/HealthcareinWashington/HospitalandPatientData/HospitalDischargeDataCHARS

³ Defined by year of hospital discharge.

⁴ One FTE = 2000 hours worked in a year

⁵ Hospitalization rates by year were calculated using payroll hours reported by employers to L&I.

Figure 1. Number and Rate of Work-Related Immediate Inpatient Hospitalizations, Washington State, 2014 through 2022.



Workers

Gender

In 2022, over 80% of hospitalized workers were men (Table 1). The hospitalization rate for men was 27.2 per 100,000 FTE, over four times the rate for women (6.4 per 100,000 FTE).

Among men, over one-quarter of worker hospitalizations occurred in the Construction industry sector (n=136), followed by the Agriculture, Forestry, Fishing and Hunting and Administrative and Support and Waste Management and Remediation Services sectors (n=44 each).

Among women, the three industry sectors with the highest numbers of hospitalizations were Health Care and Social Assistance (n=26), Retail Trade (n=16), and Educational Services (n=10).

Table 1. Work-Related Immediate Inpatient Hospitalizations by Gender, Washington State, 2022.

Gender	Hospitalizations	Percent	Rate per 100,000 Workers
Female	107	18.3%	6.4
Male	479	81.7%	27.2

⁶ Hospitalization rates by gender and age were calculated using Quarterly Workforce Indicators (QWI) data, from the Longitudinal Employer-Household Dynamics (LEHD) program at the United States Census Bureau. The QWI are a source of employment data with a methodology and reporting requirements that differ somewhat from WC employment data. https://lehd.ces.census.gov/

Age

In 2022, nearly 40% of hospitalizations were among workers age 55 or older (Table 2). Overall, older workers had higher rates of hospitalized injuries than younger workers. Workers age 65 and older experienced the highest rate with 32.7 hospitalizations per 100,000 workers.

Nearly six in ten hospitalized women (57.9%), and over a third of hospitalized men (35.6%) were age 55 or older (Table 3). The hospitalization rate for women age 55 or older was 16.1 hospitalizations per 100,000 FTE, and 43.2 hospitalizations per 100,000 FTE among men.

Table 2. Work-Related Immediate Inpatient Hospitalizations by Age Group, Washington State, 2022.

Age Group*	Hospitalizations	Percent	Rate per 100,000 Workers
19-24	35	6.0%	11.2
25-34	100	17.1%	12.8
35-44	115	19.6%	14.6
45-54	98	16.7%	14.2
55-64	156	26.6%	28.6
65 and older	77	13.1%	32.7

^{*} Age group 18 and under not shown due to small number of cases (<10).

Table 3. Work-Related Immediate Inpatient Hospitalizations by Age and Gender, Washington State, 2022.

Age	Women Hospitalizations (%)	Men Hospitalizations (%)
24 and under	S	32 (6.7%)
25-54	37 (34.6%)	276 (57.6%)
55 and over	62 (57.9%)	171 (35.7%)

S = Not shown due to small number of cases (<10).

Ethnicity and Language Preference

Nearly a quarter of hospitalized workers were identified as Hispanic in hospital discharge data (23.7%).

In 2022, 17.9% of hospitalized workers requested to receive information about their workers' compensation claim in Spanish, and an additional 1.5% requested another language other than English.

Claims

Claim Liability

The majority of hospitalization claims were filed by workers insured through the Washington State Department of Labor and Industries Industrial Insurance State Fund (82.6%, n=484) (Table 4). Workers whose employers were self-insured accounted for 17.4% of hospitalization claims (n=102).

Table 4. Work-Related Immediate Inpatient Hospitalizations Claim Liability, Washington State, 2022.

Claim Liability	Hospitalizations	Percent
State Fund	484	82.6%
Self-Insured	102	17.4%

Claim Status

Accepted Washington State workers' compensation claims can be classified as either medical aid only or compensable. Compensable claims are those that are eligible for wage replacement for lost work time (after a three-day waiting period), or involve permanent or partial disability or death.

For 2022, 92.8% of hospitalization claims were classified as compensable (n=544) at the time of data extraction.

Claim Costs

Although L&I collects administrative data for Self Insured employer claims, information about injury, cost, and days of time loss is often limited or incomplete. For this reason, claim cost information is reported only for State Fund (SF) claims.

For State Fund hospitalizations with 2022 discharge dates, claim costs paid to date at one year after injury, including medical costs and wage replacement, totaled \$44,084,043. The average amount paid for a SF hospitalization claim at one year was \$91,461, and the median amount paid was \$50,635.

Over half of State Fund hospitalization claims remained open after one year (55.6%).

Injuries

In 2022, injury event and nature descriptions were available for State Fund claims only.⁷

Injury Event

Over one-quarter of State Fund hospitalization claims were due to falls from elevation (n=133, 27.5%) (Table 5). Approximately four in ten falls from elevation were from ladders (n=51). Falls from or through a roof were the next most common fall incident (n=20).

Falls on the same level were the second most frequent injury event type (n=92, 19.0%). Overall, falls of all types accounted for 46.5% of State Fund hospitalizations.

After falls, being struck by objects or equipment were the next most frequent cause of worker hospitalization (n=65, 13.4%). Over one-third of these injuries resulted from a worker being struck by a falling object (n=23).

⁷ For additional information on aggregated injury event type and injury nature type classification, see SHARP technical report 64-1-2013, *Prioritizing Industries for Occupational Injury and Illness Prevention and Research, Washington State Workers' Compensation Claims Data, 2002-2010*.

Table 5. Work-Related Immediate Inpatient Hospitalizations by Injury Event, Washington State Fund claims, 2022.

Injury Event	State Fund Hospitalizations	Percent of SF Hospitalizations
Fall from elevation	133	27.5%
Fall same level	92	19.0%
Struck by object or equipment	65	13.4%
Highway accident	49	10.1%
Caught in	35	7.2%
Overexertion, Repetitive Motion	23	4.8%
Transportation accident other than highway or pedestrian	17	3.5%
Pedestrian struck by vehicle or equipment	16	3.3%
Assault by person	15	3.1%
Other/Nonclassifiable/Missing code*	39	8.1%

^{*} Includes injury event types not reported due to small number of cases (<10): Bodily conditions (fainting); Exposure to caustic, noxious, allergic substance; Extreme temperature; Other contact with objects or equipment; Assault by animal; and Fires and explosions.

Nature of Injury

Fractures were the most common hospitalized injury classification among State Fund claims (n=228, 47.1%) (Table 6), followed by multiple traumatic injuries (n=101, 20.9%).

Table 6. Work-Related Immediate Inpatient Hospitalizations by Nature of Injury, Washington State Fund claims, 2022.

Nature of Injury	State Fund Hospitalizations	Percent of SF Hospitalizations
Fracture	228	47.1%
Multiple traumatic injuries	101	20.9%
Open wounds (other than amputations)	51	10.5%
Diseases, Disorders, Conditions	23	4.8%
Traumatic injuries to muscles, tendons, ligaments	20	4.1%
All other traumatic injuries	19	3.9%
Burns	11	2.3%
Intracranial injuries	10	2.1%
Other/Nonclassifiable/Missing code*	21	4.3%

^{*} Includes injury nature types not reported due to small number of cases (<10): Surface wounds and bruises, and Amputation.

Industry

In 2022, workers in the Construction industry sector (NAICS 23) again experienced the highest annual hospitalizations number and rate, with 141 claims and a rate of 74.3 hospitalizations per 100,000 FTE (Table 7).8

Both the number and rate of hospitalizations in Construction were lower than in 2021 (Figure 2).

Table 7. Work-Related Immediate Inpatient Hospitalizations by NAICS Industry Sector, Washington State, 2022.

NAICS Sector Description (NAICS Code)*	Hospitalizations†	Percent	Rate per 100,000 FTE
Construction (23)	141	24.1%	74.3
Manufacturing (31-33)	49	8.4%	21.5
Administrative and Support and Waste Management and Remediation Services (56)	49	8.4%	22.7
Agriculture, Forestry, Fishing and Hunting (11)	48	8.2%	54.1
Retail Trade (44-45)	47	8.0%	16.9
Transportation and Warehousing (48-49)	43	7.3%	47.7
Health Care and Social Assistance (62)	38	6.5%	9.6
Public Administration (92)	32	5.5%	22.0
Accommodation and Food Services (72)	28	4.8%	16.7
Wholesale Trade (42)	28	4.8%	21.7
Educational Services (61)	19	3.2%	11.7
Other Services (except Public Administration) (81)	14	2.4%	14.8
Arts, Entertainment, and Recreation (71)	10	1.7%	39.9
Real Estate and Rental and Leasing (53)	10	1.7%	15.3
Professional, Scientific, and Technical Services (54)	10	1.7%	4.3

^{*} The Mining, Quarrying, and Oil and Gas Extraction (21); Utilities (22); Information (51); Finance and Insurance (52); and Management of Companies and Enterprises (55) sectors had fewer than ten hospitalizations and are not included in the table.

Construction industry workers accounted for approximately one-quarter of hospitalizations (24.1%), with nearly as many hospitalizations as the three industry sectors with the next highest hospitalization numbers combined.

Within the Construction sector, over half of all hospitalizations occurred in the following six detailed industries (n=81, 57.4%):

- Painting and Wall Covering Contractors, NAICS 238320 (n=16, 11.3%)
- Roofing Contractors, NAICS 238160 (n=15, 10.6%)
- Residential Remodelers, NAICS 236118 (n=15, 10.6%)
- New Single-Family Housing Construction (except Operative Builders), NAICS 236115 (n=15, 10.6%)
- Plumbing, Heating, and Air-Conditioning Contractors, NAICS 238220 (n=10, 7.1%)
- Site Preparation Contractors, NAICS 238910 (n=10, 7.1%)

[†] Four claims did not have an assigned industry sector.

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

Half of hospitalizations in the Construction sector were due to falls from elevation (n=71, 50.4%). Being struck by an object or equipment was the second most frequent construction injury event type (n=25, 17.7%).

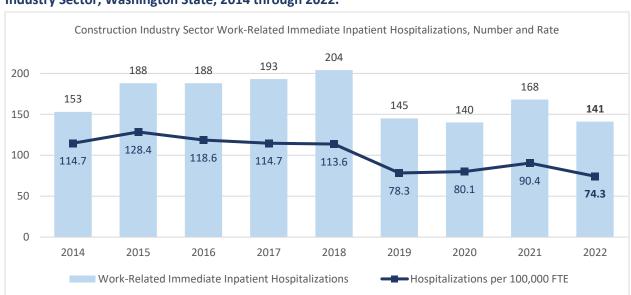


Figure 2. Number and Rate of Work-Related Immediate Inpatient Hospitalizations in the Construction Industry Sector, Washington State, 2014 through 2022.

Both the Manufacturing sector and the Administrative and Support and Waste Management and Remediation Services sector experienced 49 worker hospitalizations each, followed by the Agriculture, Forestry, Fishing and Hunting sector with 48 hospitalizations.

- Within the Manufacturing sector, there were no detailed industries with more than ten worker
 hospitalizations, however, the two industry subsectors that experienced the highest number of
 hospitalized injuries were Transportation Equipment Manufacturing, NAICS 336 (n=11) and Food
 Manufacturing, NAICS 311 (n=10).
- In the Administrative and Support and Waste Management and Remediation Services sector, the Landscaping Services industry (NAICS 561730) had the highest number of hospitalizations, with twelve.
- In the Agriculture, Forestry, Fishing and Hunting sector, there were ten hospitalizations in the Logging industry (NAICS 113310). The hospitalization rate for logging was 227.4 hospitalizations per 100,000 FTE, five times the rate of the Agriculture, Forestry, Fishing and Hunting sector excluding logging (45.1 hospitalizations per 100,000 FTE).

⁹ Five claims from self-insured Construction employers were not coded for injury event type.

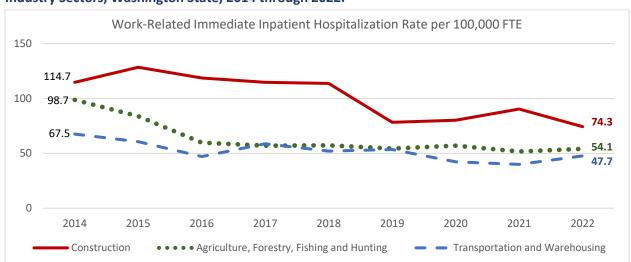


Figure 3. Rate of Work-Related Immediate Inpatient Hospitalizations per 100,000 FTE in High-Risk Industry Sectors, Washington State, 2014 through 2022.

After Construction, the Agriculture, Forestry, Fishing, and Hunting sector experienced the second highest hospitalizations rate (54.1 hospitalizations per 100,000 FTE), followed by Transportation and Warehousing (47.7 hospitalizations per 100,000 FTE).

While the rate of hospitalized injuries in the Construction industry fell in 2022, it increased slightly in both the Agriculture, Forestry, Fishing, and Hunting and Transportation and Warehousing sectors. Overall, however, the hospitalization rates for all three of these high-risk industries are lower than when tracking began in 2014 (Figure 3).

Employers

Employer Size

Small employers continue to experience higher rates of hospitalization than larger employers (Table 8). Employers with ten or fewer FTE had the highest hospitalization rate of 42.1 hospitalizations per 100,000 FTE, and accounted for over one-quarter of worker hospitalizations (27.1%).

Table 8. Work-Related Immediate Inpatient Hospitalizations by Employer Size, Washington State, 2022.

Employer Size (FTE)	Hospitalizations	Percent	Rate per 100,000 FTE
<=10 FTE	159	27.1%	42.1
11-49 FTE	123	21.0%	26.3
50-249 FTE	116	19.8%	21.0
250 - 999 FTE	81	13.8%	18.9
1000+ FTE	107	18.3%	11.0

DISCUSSION

In 2022, the number of work-related immediate inpatient hospitalizations in Washington State decreased compared to the previous year, and the hospitalization rate was the lowest since our tracking program began in 2014. The data, however, continue to illustrate a similar picture of the workers most at risk for occupational injuries severe enough to require immediate hospitalization. These injuries are preventable.

In 2022, incident event information was available for State Fund claims. Among these, falls from elevation continued to be the leading cause of work-related immediate inpatient hospitalizations, occurring across industry sectors. Over one-third of hospitalized falls from elevation were from ladders, with ladder falls occurring in more than a dozen industry sectors. Falls on the same level were the second most frequent injury type. Fall prevention should be a focus of safety and training programs for workers across industries, not only in those historically considered high-risk.

The Construction industry sector continues to experience the highest number and rate of workplace injuries severe enough to require immediate hospitalization. While making up only around 7% of Washington's labor force, construction workers accounted for nearly a quarter of hospitalizations. Falls from elevation—commonly from ladders, roofs, and scaffolding—were the cause of half of all construction hospitalizations. The tools and knowledge to prevent these incidents exists, and intervention efforts to keep construction workers safe from fall hazards should be strengthened.

The Agriculture, Forestry, Fishing, and Hunting sector experienced the second highest hospitalization rate. One in four hospitalized injuries in the sector were suffered by logging industry workers. Logging is a historically dangerous profession in Washington State, and remains so to this day.

Older workers continued to have higher hospitalization rates than younger workers. Overall, workers age 55 or older accounted for approximately four out of every ten hospitalizations, and among women, the number was nearly 60%.

Workers for smaller employers continue to have higher hospitalization rates than those of larger employers. Workers of employers with ten or fewer FTE accounted for over one-quarter of hospitalizations, and suffered hospitalized injuries at a rate nearly four times higher than those at the largest employers suffer. Targeted prevention efforts to small employers in high-risk industries should be a priority.

Over half of State Fund hospitalization claims with 2022 discharge dates were still open after one year. Combined wage replacement and medical costs at one year from the incident date totaled more than \$44 million.

The Washington Work-Related Immediate Inpatient Hospitalization Surveillance System continues to provide valuable and timely information that employers, policymakers, and occupational safety professionals can use to prevent traumatic work-related injuries.

APPENDIX A: METHODS

A work-related immediate inpatient hospitalization is a work-related injury or illness that leads to an inpatient hospital admission on the day of injury event or exposure or the day following the injury event or exposure, in a Washington State acute care hospital. The work-related immediate inpatient hospitalization surveillance system links two data sources to identify cases meeting the case definition above: Washington State Department of Labor and Industries (L&I) accepted state fund and self-insured workers' compensation claims data, and the Washington Comprehensive Hospital Abstract Reporting System (CHARS). Washington State workers' compensation claims data have been described in detail elsewhere. 10,11 The CHARS data system is operated by the Washington State Department of Health.

To identify cases, discharges for inpatient hospitalizations in Washington State hospitals for calendar year 2022 were obtained. We extracted all accepted workers compensation claims with injury dates from one day before the earliest admission date in the hospitalization data through the most recent admission date. Records were linked across datasets based on name (last, first name or initial, middle), birthdate, workers' compensation injury date within one day of hospital admission date, sex, and worker's residence zip code; the dataset was limited to one discharge per claim (earliest admission). Unlinked records were excluded. Expected bill payer is not a data element necessary for linkage or for identification of a work-related injury event.

Limitations of our tracking system are due to the inclusion and exclusion criteria associated with the data sources. CHARS data includes inpatient hospitalizations in Washington State acute care hospitals. CHARS does not include hospitalization data from out-of-state facilities, Veterans' Affairs, or military hospitals. The CHARS data include only individuals 14 years or older.

Workers' compensation data are known to have specific limitations related to incomplete capture of claims eligible for benefits and statutory exclusions from coverage (RCW 51.12.020). Specific exclusions, which significantly limit the completeness of these data, include self-employed workers unless they choose elective coverage, non-mandatory coverage for company owners, and workers covered by alternative workers' compensation insurance (e.g. federal workers compensation programs or reciprocal state agreements for employees).

In addition, the surveillance system is dependent on the injury date as recorded in the workers' compensation administrative data to evaluate the timing of the injury relative to the hospitalization. Because the date of injury is adjudicated to reflect the last injurious exposure, some cases that appear to involve immediate hospitalizations instead involve injuries or illnesses that arise from exposures that occur over time.

In the descriptive analyses, CHARS data provides information specific to year of admission and the designation that the person was hospitalized as an inpatient, as well as hospital reporting of patient ethnicity. All additional data elements were obtained through the Washington State Department of

¹⁰ Wuellner SE, Bonauto DK. Injury classification agreement in linked Bureau of Labor Statistics and workers' compensation data. Am J Ind Med. 2014 Oct; 57(10):1100-1109.

¹¹ Bonauto DK, Silverstein BA, Adams DA, Foley M. Prioritizing industries for occupational injury and illness prevention and research, Washington state workers' compensation claims, 1999-2003. J Occ Env Med 2006; 48(8):840-851.

Labor and Industries workers' compensation claims data, including, worker demographics, preferred language for claim communications, industry and occupation of employment, occupational injury and illness classification codes (OIICS v1.01)¹² and, for state fund workers' compensation claims only, claim benefit costs, and time loss duration.

For this report, work-related immediate inpatient hospitalization rates were calculated using two sources of employment data. Hospitalizations rates by year and employer characteristics were calculated using payroll hours reported by employers to L&I converted to full-time equivalent (FTE). Employers do not report worker demographic information with payroll hours. Hospitalization rates by worker age and gender were calculated using U.S. Census Bureau Quarterly Workforce Indicators Data.

¹² Occupational Injury and Illness Classification System, v1.01, U.S. Department of Labor, Bureau of Labor Statistics: https://wwwn.cdc.gov/Wisards/oiics/default.aspx