

COVID-19 Surveillance in Washington Workers' Compensation Data: March 2020 to June 2021

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Background

The Safety and Health Assessment & Research for Prevention (SHARP) Program Occupational Respiratory Disease Surveillance Program is actively collecting and disseminating data on COVID-19 exposure and illness among Washington workers. This surveillance system uses Washington State workers' compensation system and was launched in March 2020. Monthly reports on COVID-19 cases by industry are published on the SHARP website ([1](#)). In this report, we summarize our findings from March 2020 to June 2021, expand upon our previously published reports, and evaluate underreporting through comparison with statistics from the Department of Health.

Methods

The methods used in this surveillance system were previously published in August 2020 ([2](#)). In summary, our data source is the Washington State workers' compensation (WC) system, administered by the Department of Labor and Industries (L&I).

In Washington State, all nonfederal employers must obtain WC insurance through the State Fund insurance program. About 72% of all employees and 99.7% of employers are covered through the State Fund. Exemptions to the mandatory coverage include insurance through an alternative WC program (e.g. Federal Employees' Compensation Act, Longshore and Harbor Workers' Compensation Act), self-employment, a small number of statutory exemptions for specific occupations or employment arrangements, or employers who meet the requirements to self-insure. L&I provides

oversight of self-insured employers. Data from both the State Fund insurance program and the Self-Insurance program are entered into L&I's Industrial Insurance Data Warehouse.

Our surveillance system includes claims from both insurance programs. WC claimants covered by Washington's industrial insurance laws and working out of state at the time of their COVID-19 exposure are also included in our surveillance.

Every week, we query L&I's Industrial Insurance Data Warehouse for potential COVID-19 claims. Our case-capture criteria include keywords, medical diagnoses codes (ICD-10-CM), Occupational Injury and Illness Classification System (OIICS) codes, and administrative orders. Administrative orders are issued in the claim adjudication process in accordance with current insurance policies, including policies unique to COVID-19 claims.

Data collection began on March 1st 2020 and for the purposes of this report, ended August 17th 2021. Potential cases are reviewed by SHARP staff six weeks after they are established at L&I. The claims included in this report were established between February 1st 2020 and June 30th 2021.

Claim documents (medical records, claim initiation forms, correspondence with L&I) are reviewed by program staff to determine if the case meets this surveillance system's case definition: Suspected or confirmed occupational exposure to COVID-19, with or without COVID-19 infection. Claims that meet this definition are considered cases. If there is clear information that contradicts any part of the case definition, it is not a case. If there is insufficient information, the case is undetermined. We do not use workers' compensation claim acceptance or rejection in our case definition.

In May 2021, the Washington's Health Emergency Labor Standards Act (HELSEA) extended presumptive coverage for COVID-19 to frontline workers, such as farmworkers and certain manufacturing, retail, service, education, and transit workers (3). Before HELSEA was enacted, a governor's proclamation mandated that occupations at high risk for contracting COVID-19, such as healthcare workers and first responders, be eligible for wage replacement during quarantine and medical benefits, provided certain criteria were met. Workers not covered by the governor's proclamation or HELSEA would qualify for benefits under the usual workers' compensation claim determinations for an occupational disease. In our surveillance system, cases from any occupation can be included if there is sufficient evidence of a known positive contact at work or probable exposure. Determining if there is sufficient evidence can be a subjective process.

We systematically record details from the claim documents on laboratory testing, exposures, quarantine, out-of-state travel, and hospitalization. Claimant and employer characteristics come from L&I's Industrial Insurance Data Warehouse. The business' industry is coded by L&I using the 2007 North American Industry Classification Coding System (NAICS) and the claimants' occupation is coded using the 2002 Standard Occupational Classification (SOC).

To gather additional information on laboratory testing, we link the workers' compensation claims with a dataset of positive laboratory tests from the Washington State Department of Health (DOH) Washington Disease Reporting System, through a data sharing agreement. The linkage is based on the

worker’s name, date of birth, and address. This dataset is also used to compile case counts by industry. While our surveillance definition of a positive laboratory test includes PCR, rapid testing, and antibody testing, the DOH dataset only contains PCR tests. This secondary data source fills in test information missing from the claim file. Other statewide COVID-19 statistics used in this report come from DOH’s publicly available Data Dashboard (accessed 8/17/2021, [4](#)). Wherever possible in this report, we will use publically available data.

Results

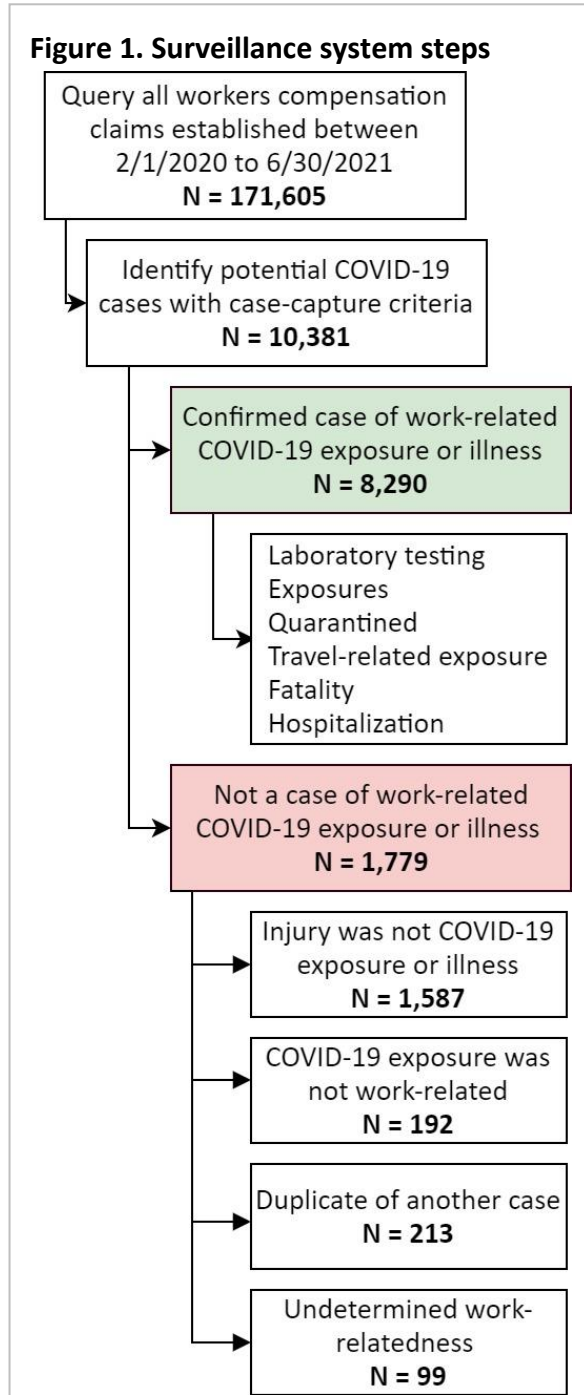
Case capture and case review

We captured 10,381 potential COVID-19 cases with established dates between February 1st, 2020 and June 30th, 2021 (Figure 1). State-fund claims made up 66% of captured cases; the remainder were Self-Insured (data not shown). The majority of captured cases had administrative orders related to COVID-19 (76%, Table 1). We captured an additional 2,509 cases using a combination of keywords, ICD-10 codes, and OIICS codes (Table 1).

Overall, 80% of potential cases met our case definition for work-related COVID-19 exposure or illness (Figure 1). The earliest case had a claim established date of February 26th, 2020. Washington State’s first documented case of COVID-19 was reported on January 15th, 2020 ([4](#)).

The remaining 20% of potential cases did not meet our case definition. The majority were dismissed because the injury wasn’t an COVID-19 exposure or illness (N = 1,587, Figure 1). These often occur when keywords are used to describe the context for a traumatic injury or when workers are tested for COVID-19 before medical procedures. Cases captured using administrative orders were the most likely to be COVID-19 exposure or illness, as expected since these claims have already undergone administrative review for COVID-19. Potential cases captured solely through OIICS codes or ICD-10 codes are the most likely to be unrelated injuries. Refinement of these case-capture criteria may be warranted.

Comparatively few potential cases did not meet the case definition because we determined the COVID-19 exposure was not work-related (N=192) or the work-relatedness could not be determined (N=99, Figure 1).



We identified 213 potential cases that were duplicates of other COVID-19 cases in the dataset (Figure 1). Duplicates often occur when the worker files with the incorrect insurance program and must submit a second claim with the correct one. This does not include instances where a worker was repeatedly exposed to or contracted COVID-19; each instance can be a unique confirmed case. Our dataset contains 241 workers with more than one COVID-19 case. Of these, 18 workers may have contracted COVID-19 more than once, i.e. had positive COVID-19 tests at least 45 days apart. These cases will be examined in-depth in future work on long-term, post-COVID conditions.

Table 1. Performance of case-capture criteria

Case-Capture Criteria	Potential Cases	# Cases (% of Potential)	# Not a Case (% of Potential)
<i>Administrative orders</i>	7,867	7,666 (97%)	201 (3%)
<i>Claim information</i>	2,509	622 (25%)	1,887 (75%)
Keywords, ICD-10 codes, and OIICS	609	380 (62%)	229 (38%)
Keywords and ICD-10 codes	67	16 (24%)	51 (76%)
Keywords and OIICS	165	82 (50%)	83 (50%)
ICD-10 codes and OIICS	28	6 (21%)	22 (79%)
Keywords only	745	124 (17%)	621 (83%)
ICD-10 codes only	200	4 (2%)	196 (98%)
OIICS injury codes only	695	10 (1%)	685 (99%)
<i>Manually Added</i>	5	2 (40%)	3 (60%)
Total Captured	10,381	8,290 (80%)	2,091 (20%)

Claim adjudication

Our case definition includes both accepted and rejected workers' compensation claims. Rejected claims remain valuable sources of information on exposures and illness. The attribution of work-relatedness in our surveillance system differs from what is required by industrial insurance laws.

The results of our case review agreed with agency decision making most of the time. Among our cases, 87% were accepted by L&I, 10% were rejected, and 3% do not have a final claim status (includes claims that have been provisionally accepted or are pending, Table 2). Of the cases that were rejected, 74% were cited as not meeting the governor's proclamation for COVID-19 benefits or not meeting the HELSA presumption law. Among Wholesale Trade, Construction, and Manufacturing, over half of the cases were rejected for this reason.

Table 2. Claim status by result of case review

Result of case review	Accepted (% Total)	Rejected (% Total)	No final claim decision (% Total)
Case	7,201 (87%)	829 (10%)	260 (3%)
Not a Case	31 (16%)	144 (75%)	17 (9%)
Undetermined	30 (30%)	44 (44%)	25 (26%)

Characteristics of exposure and illness

During case review, we record information on the worker's exposure, illness, and treatment from the claim file. Among cases, 62% had at least one positive test (includes PCR, rapid, and antibody tests), 78% had an exposure to a person known to be positive for COVID-19, and 94% were quarantined for any length of time (Table 3). We identified 41 cases of COVID-19 exposure or illness related to out-of-state travel (Table 3). These cases include flight attendants, travelling nurses, and tour guides.

The majority of workers were tested for COVID-19 a single time per exposure, though some workers received up to five tests. If tested multiple times, the case is classified by the most definitive test. For example, a positive case could be a worker who tested positive one week then negative the next week. In total, including the multiple tests, we recorded 5,163 positive tests and 2,118 negative tests. This data helps build an information-rich timeline of when and how workers were treated after their exposure. These timelines will be explored in future analyses.

There are 103 cases for whom the exposure status is undetermined, shown in Table 3. These were healthcare workers and first-responders who filed Self-Insured claims for COVID-19 exposure that were accepted but sparse in information. We determined that there was sufficient risk of exposure among these workers that they met the case definition.

We observed 238 instances where the worker was not tested despite a known or suspected COVID-19 (Table 3). There were 577 instances where it remains unknown if the worker was ever tested (7% of cases, Table 3). We continue to monitor these cases for any new testing information until the claim is closed.

Through linkage with our secondary data source, the Department of Health's list of positive laboratory tests, we identified an additional 167 cases. Without the data linkage, these cases would have been recorded in our system as having unknown test results.

As broad measures of disease severity, we gathered data on hospitalizations and fatalities. There were 132 hospitalizations among cases, defined as admittance to a hospital for in-patient treatment for any length of time (Table 3). This is likely a undercount; we do not have medical information for all claims, especially for those in the Self-Insured program. Thirty-six fatalities from work-related COVID-19 were identified (Table 3). The cause of death was stated as a COVID-19 either on the death certificate or in other claim documents.

Table 3. Exposure and illness characteristics

Characteristics	# Cases
<i>Tested Positive</i>	
Yes	5,103
No	3,187
<i>Exposure</i>	
Exposure to person known to have COVID-19	6,438
Exposure to person suspected to have COVID-19	1,749
Undetermined	103
<i>Quarantined</i>	
Yes	7,828
No	160
Undetermined	302
<i>Other Features</i>	
Travel outside Washington	41
Hospitalized	132
Fatality	36
Total Cases	8290

Table 4. Most definitive result of laboratory testing

Laboratory Testing	# Cases
<i>Positive</i>	5,103
<i>Did not test positive</i>	3,187
Negative	1868
Inconclusive result	25
Test result unknown	479
No test administered	238
Undetermined if tested	577
Total Cases	8,290

Claimant characteristics

Workers who met our surveillance case definition for occupational COVID-19 exposure or illness were predominantly female (65% of cases, Table 5), had a median age of 40 years (range 17-80, Table 5), and predominately worked in healthcare industries and occupations (Table 6 and 6).

Claimants' industry is encoded using the 2007 NAICS system and is reported at the 2-digit sector level in Table 6. The top three industries among cases was Healthcare (66%), Public Administration (15%), and Educational Services (5%, Table 6). The Public Administration sector includes city and county governments and employs the majority of first responders and correctional officers in our dataset. The Educational Services sector contains mostly cases from a large teaching hospital providing direct patient care (95% of the cases in the sector) and a smaller number of primary and secondary school systems.

Note that the 'Administrative and Support and Waste Management and Remediation Services' sector contains healthcare workers, many of them contracted workers in nursing home facilities.

Claimants' occupation is encoded using the 2000 SOC system and is reported at the 2-digit group level in Table 7. The top three occupational groups were 'Healthcare Practitioners and Technical Occupations', Healthcare Support Occupations, and Protective Service Occupations (Table 7). At the individual occupation level (6-digit SOC), Registered Nurses, classified under 'Healthcare Practitioners and Technical Occupations', make up 24% of all cases (data not shown). Nursing Aides, Orderlies, and Attendants, classified as a Healthcare Support Occupation, make up 15% of all cases (data not shown). The largest single occupations within the Protective Service group are firefighters (6% of all cases), police officers (3% of all cases), and correctional officers (2% of all cases, data not shown).

Overall, 80% of cases were accepted by L&I. However this varies greatly between industry and occupation. Cases in Healthcare, Public Administration, and Educational Services have a claim acceptance rate over 90%, while cases in Retail, Construction, and Manufacturing have an acceptance rate below 15% (Table 6). Similar trends are found in the occupational data. Healthcare and Protective Service workers have a claim acceptance rate over 90%, while Sales, Construction, and Education workers have a rate below 25% (Table 7).

Table 5. Claimant sex and age

Sex/Age	# Cases (% Total)
<i>Claimant Sex</i>	
Female	5,375 (65%)
Male	2,912 (35%)
Unknown	3 (<1%)
<i>Claimant Age</i>	
17-19	35 (0%)
20-29	1,711 (21%)
30-39	2,343 (28%)
40-49	1,852 (22%)
50-59	1,525 (18%)
60-69	732 (9%)
70+	60 (1%)
Unknown Age	32 (0%)
Total Cases	8,290 (100%)

Among the 36 fatalities, the majority occurred among Healthcare workers (N=19, Table 6). An out-sized number of fatalities were observed in the Agriculture and Manufacturing sectors. Looking at the number of fatalities per 1,000 cases, Healthcare has four fatalities per 1,000 cases (N=19), while Manufacturing had 27 per 1,000 (N=3) and Agriculture had 33 per 1,000 (N=4, Table 6).

Table 6. Claimants’ industry for potential and confirmed cases

Industry Sector	Case-Capture		Features of cases			
	Potential Cases	Cases	% WC Accepted	Tested Positive	Hospit- alized	Fatal
Health Care & Social Assistance	6,128	5,468	96%	3,628	84	20
Public Administration	1,363	1,206	93%	530	19	7
Educational Services	496	407	95%	330	10	1
Admin. & Support & Waste Mgmt. & Remediation Serv.	406	273	78%	191	5	-
Retail Trade*	294	137	15%	82	3	-
Construction	278	90	6%	36	-	-
Manufacturing*	231	111	7%	51	1	3
Accommodation & Food Serv.	214	121	23%	33	3	-
Agricult., Forestry, Fish. & Hunt.	209	123	38%	85	2	4
Oth. Serv. (except Public Admin)	179	112	80%	43	-	-
Transportation & Warehouse.*	157	92	30%	36	4	1
Wholesale Trade	125	56	9%	13	1	-
Profess., Scientific, & Tech. Serv	111	42	26%	19	-	-
Real Estate & Rental & Leasing	55	21	33%	5	-	-
Arts, Entertain., & Recreation	26	13	0%	12	-	-
Finance & Insurance	20	8	0%	3	-	-
Information	11	7	29%	4	-	-
Utilities	4	2	100%	1	-	-
Mgmt. of Comp. & Enterprises	2	1	100%	1	-	-
Mine., Quarry, Oil & Gas Extract	2	0	-	-	-	-
Unknown/Unclassified	70	0	-	-	-	-
Total Cases	10,381	8,290	87%	5,103	132	36

*NAICS industry sectors have been combined for Manufacturing (31, 32, 33), Retail Trade (44, 45), and Transportation and Warehousing (48, 49).

Table 7. Claimants' occupation for captured and cases

Occupational Group	Case-Capture		Features of cases			
	Potential Cases	Cases	% WC Accepted	Tested Positive	Hospit- alized	Fatal
Healthcare Practitioners & Tech.	3,105	2,810	97%	1,756	38	6
Healthcare Support	1,781	1,594	97%	1,186	26	4
Protective Service	1,136	1,028	97%	459	16	6
Personal Care & Service	651	572	92%	429	13	3
Office & Administrative Support	516	396	81%	228	8	3
Transport. & Material Moving	319	136	44%	61	4	4
Food Prep. & Serving Related	316	221	61%	133	2	2
Bldg. & Grounds Clean. & Maint	313	209	79%	157	5	1
Construction & Extraction	248	74	12%	33	-	-
Production	246	123	41%	69	2	3
Management	194	140	72%	86	5	1
Installation, Maint., & Repair	180	96	52%	71	3	-
Farming, Fishing, & Forestry	169	96	44%	61	2	2
Community & Social Services	131	108	93%	69	2	1
Sales & Related	122	57	11%	35	-	-
Education, Training, & Library	54	34	24%	12	-	-
Life, Physical, & Social Science	43	18	83%	9	-	-
Business & Financial Operations	29	23	48%	19	1	-
Arts, Design, Entertain., Sports, & Media	18	9	78%	4	-	-
Architecture & Engineering	15	8	38%	2	-	-
Computer & Mathematical	14	5	60%	2	-	-
Legal	7	4	0%	1	-	-
Unknown/Unclassified	774	529	60%	221	5	-
Total Cases	10,381	8,290	87%	5,103	132	36

Temporal trends

As our surveillance system is updated weekly, we can observe current trends in occupational exposures to COVID-19. However there are a few limitations. There is a median lag time of 18 days between the worker’s reported injury date (this varies by (or due to) the date of exposure, quarantine, or first medical treatment) and when the claim is established. More limiting is the underreporting of COVID-19 cases in the workers’ compensation (WC) system.

In 2020, the Department of Health reports 193,623 confirmed positive cases statewide for individuals of working-age (20 to 64 years old, Table 8). In the same year, we observed only 6,248 WC cases for work-related COVID-19 exposure or illness (Table 8). If we restrict our analysis to workers known to have tested positive in 2020 – a more accurate comparison to the DOH data – we observe only 3,964 WC cases. This represents 2-3% of the laboratory-confirmed statewide cases for working-age individuals. Similarly, for the months January 2021 through June 2021, we observe only 1-2% of the of the laboratory-confirmed statewide working-age cases.

Table 8. Count of workers’ compensation (WC) cases and Dept. of Health (DOH) cases by month

Month	WC Cases by Established Date	WC Cases by First Positive Test*	DOH Cases (Ages 20-64)	Positive WC Cases per 1,000 DOH Cases
January 2020	0	0	4	-
February 2020	2	3	21	143
March 2020	380	393	5,858	67
April 2020	830	441	5,642	78
May 2020	669	214	6,798	31
June 2020	560	188	10,632	18
July 2020	592	424	16,270	26
August 2020	621	247	13,630	18
September 2020	424	179	9,212	19
October 2020	447	279	15,114	18
November 2020	644	794	62,173	13
December 2020	1079	802	48,269	17
Total 2020	6,248	3,964	193,623	20
January 2021	631	443	44,118	10
February 2021	383	132	15,013	9
March 2021	309	98	17,705	6
April 2021	285	143	27,957	5
May 2021	280	106	20,296	5
June 2021	154	27	7,812	3
Total Jan-Jun 2021	2,042	949	132,901	7

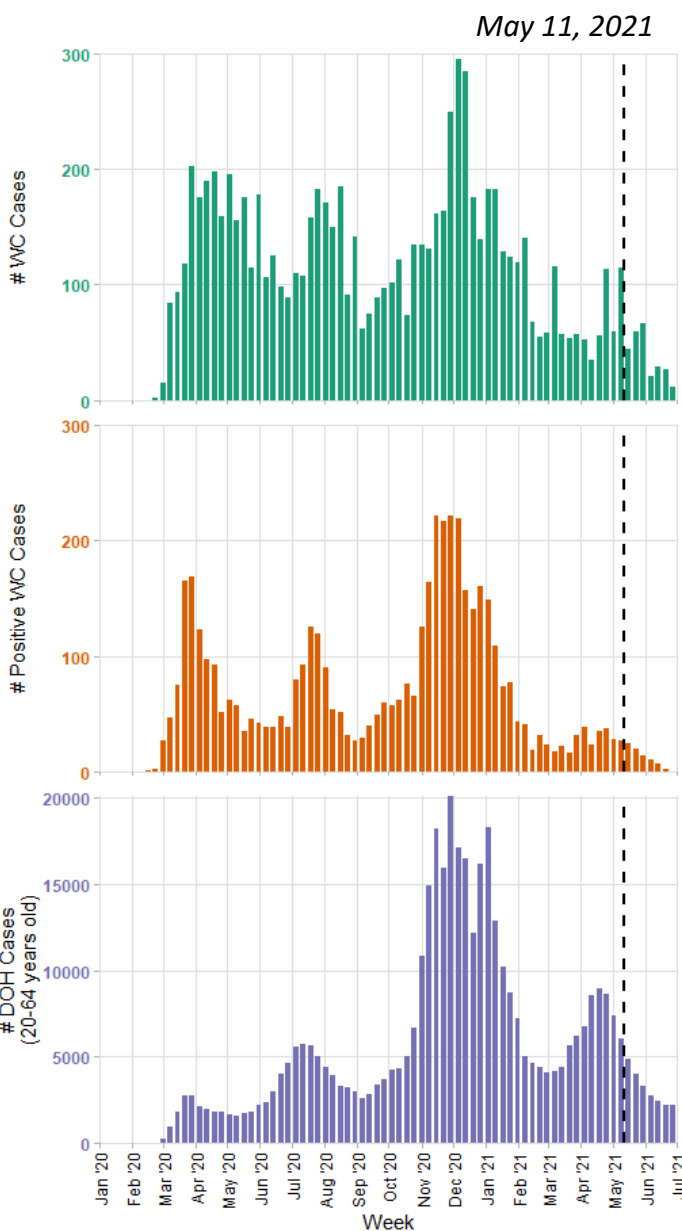
*Excludes positive cases with an unknown test date (N = 190)

While our surveillance system's case counts differ greatly from DOH's, we see similar temporal trends. The periods of July-August 2020 and November-January 2021 were periods of high case counts in both systems. The positive WC cases, plotted by date of first positive test, follows the temporal trends of the DOH most closely. There is an expected lag in the total WC case counts, plotted by established date.

The March-April 2020 peak of our cases doesn't appear in the DOH dataset. There are two contributing factors for this difference. Healthcare workers file the majority of the claims in our system and this group was likely at higher risk for COVID-19 early in the pandemic compared to the general public. This peak is more prominent in the WC case counts because the peaks in summer and winter of 2020 are likely undercounts. There is evidence that WC underreporting increased as the pandemic progressed.

On May 11th, 2021, the Washington State Legislature passed the Health Emergency Labor Standards Act, which expanded presumption of work-related exposure to all frontline workers effective immediately (5). We observed a spike in cases established in that week however this may be a random occurrence; similar one-week highs have occurred before. There is a slight increase in the number of cases per 1,000 statewide cases between May and June 2021 (14 per 1,000 vs. 20 per 1,000). The proportion of cases in occupations outside of Healthcare and Protective Services increased from 38% in May to 64% in June 2021, though the total case counts declined. We will continue to monitor for the effects of this legislation in the following months.

Figure 2. Timeline of WC cases, WC cases with positive laboratory tests, and DOH cases



WC case counts are reported by the week the claim was established. WC cases with a positive test and the Department of Health (DOH) cases are graphed by the week the confirmatory positive test was collected.

Geographic trends

Workers' risk of COVID-19 exposure varies from county to county due to localized outbreaks and differences in the COVID-19 guidelines set by county health departments. Both our surveillance system and the DOH use the residential address to classify a case by county. Naturally, the most populous counties in the state had the largest number of WC cases and positive cases by DOH: King, Spokane, and Pierce (Table 9). However, the counties with the highest rates of positive WC cases per 1,000 DOH cases were rural: Garfield, Pacific, and San Juan (Table 10).

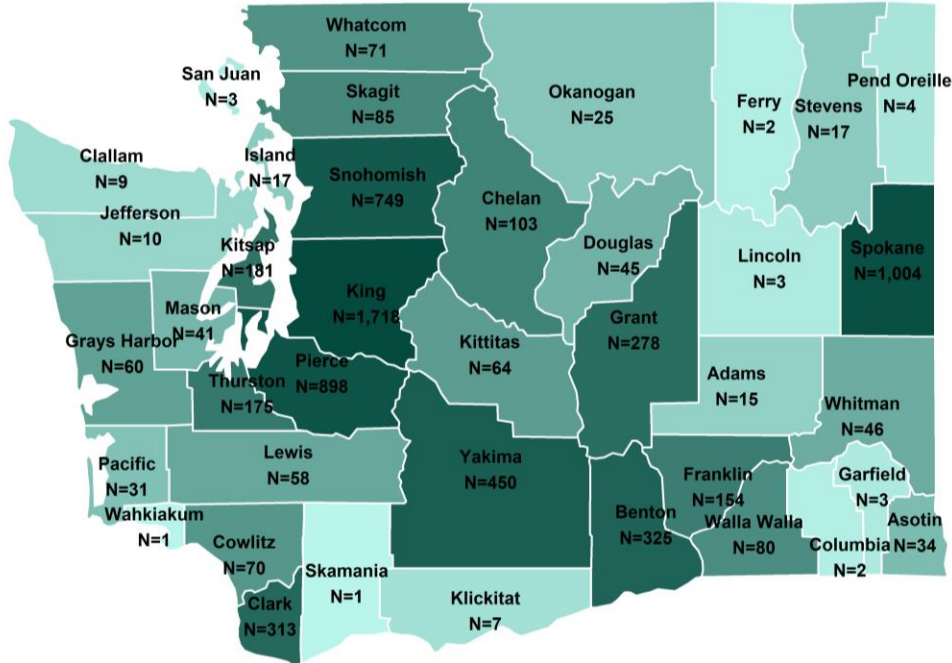
Table 9. Top 10 counties by number of WC cases

County	WC Cases	Positive WC Cases	DOH Cases (20-64 y.o.)	Positive WC Cases per 1,000 DOH Cases
King County	1,718	1,108	82,614	13
Spokane County	1,004	463	33,609	14
Pierce County	898	582	41,655	14
Snohomish County	749	496	29,577	17
Yakima County	450	381	22,305	17
Benton County	325	154	12,837	12
Clark County	313	173	18,937	9
Grant County	278	117	7,108	16
Kitsap County	181	106	6,258	17
Thurston County	175	96	8,021	12

Table 10. Top 10 counties by number of positive WC cases per 1,000 DOH Cases

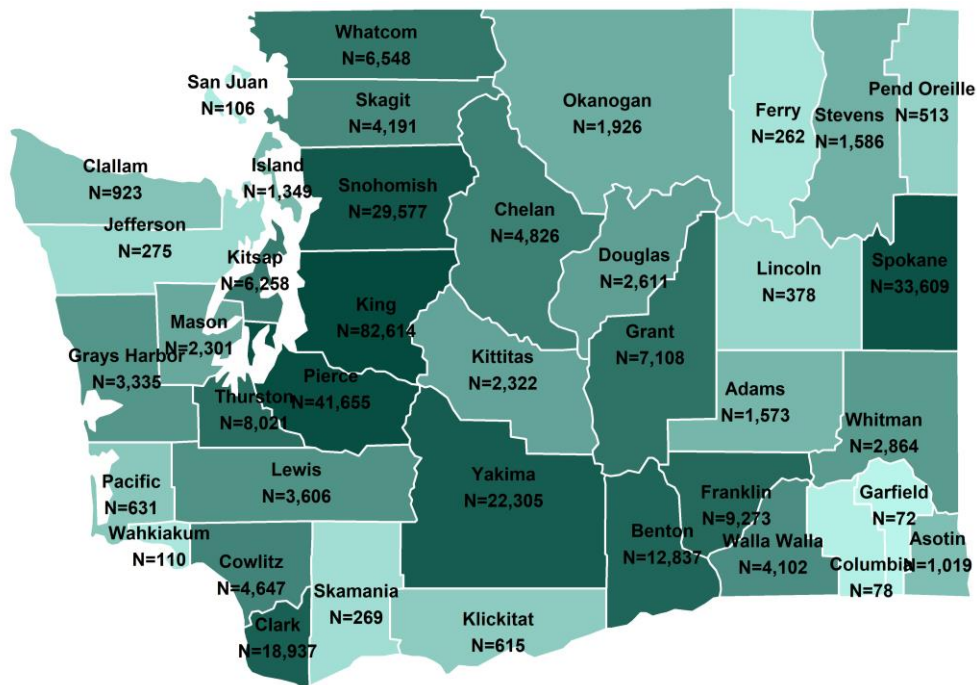
County	WC Cases	Positive WC Cases	DOH Cases (20-64 y.o.)	Positive WC Cases per 1,000 DOH Cases
Garfield County	72	3	72	42
Pacific County	631	31	631	30
San Juan County	106	3	106	28
Columbia County	78	2	78	26
Asotin County	1,019	34	1,019	23
Kittitas County	2,322	64	2,322	18
Snohomish County	29,577	749	29,577	17
Yakima County	22,305	450	22,305	17
Kitsap County	6,258	181	6,258	17
Chelan County	4,826	103	4,826	17

Figure 3. Map of WC cases by claimant's county of residence



Not shown: WC cases from out-of-state (N = 241) and with unknown county (N = 897)

Figure 4. Map of confirmed positive cases reported by the Department of Health (DOH) by county



Not shown: DOH cases with unknown county (N=1,292)

Underreporting by industry

An ongoing collaboration between SHARP and the DOH is working to clean and standardize the occupation and industry data collected during contract tracing interviews. Methods and limitations were described in a 2020 report (5). Preliminary data for DOH cases by NAICS industry sector from January 1st 2020 to June 30th 2021 is presented here. The total number of DOH cases calculated from this private-use dataset differs slightly from those provided through the DOH’s public data dashboard (difference of 2,678). The reason for this difference is unclear.

Industry remains unknown or uncoded for 66% of DOH cases among individuals 20-64 years old. For that reason, we cannot accurately compare claim filing rates between industries. We can say that there are approximately 16,300 Healthcare workers and 6,600 Public Administration workers who may have had occupational exposure and did not file claims for their COVID-19 illness (Table 11).

Table 11. Workers’ compensation (WC) cases and Dept. of Health (DOH) cases by industry

Industry Sector	Cases	DOH Cases (20-64 y.o.)
Health Care & Social Assistance	5,468	21,768
Public Administration	1,206	7,898
Educational Services	407	5,666
Admin. & Support & Waste Mgmt. & Remed. Serv.	273	4,814
Retail Trade*	137	12,539
Construction	123	5,653
Manufacturing*	121	7,265
Accommodation & Food Services	112	3,968
Agriculture, Forestry, Fishing & Hunting	111	10,061
Other Services (except Public Admin)	92	5,308
Transportation & Warehousing*	90	9,824
Wholesale Trade	56	3,715
Professional, Scientific, & Technical Services	42	4,068
Real Estate & Rental & Leasing	21	1,993
Arts, Entertainment, & Recreation	13	1,504
Finance & Insurance	8	2,698
Information	7	1,875
Utilities	2	618
Management of Companies & Enterprises	1	120
Mining, Quarry, Oil & Gas Extraction	0	74
Unknown/Unclassified	0	217,773
Total	8,290	329,202

* NAICS industry sectors have been combined for Manufacturing (31, 32, 33), Retail Trade (44, 45), and Transportation and Warehousing (48, 49).

Discussion

Our goal in this surveillance system is to define the burden of COVID-19 in Washington workers' compensation (WC). However, when we compare our results to external data sources such as the state Department of Health's (DOH) COVID-19 case data, WC significantly underestimates the burden of COVID-19 in Washington's working population.

We observed that cases in Agriculture and Manufacturing sectors are more likely to be fatalities than other sectors. One explanation is that workers in these sectors are not filing claims for occupational COVID-19 unless the illness was severe or fatal. Even among healthcare and first-responders, we observe significant underestimates of COVID-19 when using WC data. From the one-third of confirmed cases reported by DOH with a known industry, we know that there are at least 16,300 Healthcare workers and 6,600 Public Administration workers who tested positive but did not file a claim. Some of these cases may not have been occupational COVID-19 exposures, however the difference between the confirmed DOH cases and the number of claims filed is stark.

There are many historic barriers to claim filing, such as language-barriers, fear of retribution, complex paperwork, and lack of knowledge or support from employers and medical providers. The pandemic is an unusual situation for WC systems and has unique barriers. Workers in high-risk industry sectors may not be aware of their enhanced eligibility for WC benefits or that Washington's WC benefits include wage replacement during quarantine regardless of COVID-19 contraction. Outside of COVID-19 infection, WC systems typically require proof of an injury or disease. Additionally, employers may provide their own COVID-19 benefits such as additional leave for quarantine. Workers covered by their employer's policies may have no need to file a WC claim. It is difficult to estimate the impact these policies have on claim filing, as these policies vary widely between employers and change over time.

In May 2021, the Washington State Legislature passed the Health Emergency Labor Standards Act (HELSEA), which extended presumptive workers' compensation coverage to certain frontline workers who have contact with the public. We have analyzed only one month of claim data following the enactment of HELSEA; it is too soon to take definitive statements on its impact. Early observations show small but positive changes. Between May and June, there was a slight increase in the number of cases per 1,000 statewide cases and an increase in the proportion of cases from occupations outside of Healthcare and Protective Services. The effects of HELSEA may be moderated by the increased vaccination among workers and the general public. As of September 2021, 69% of Washington State residents 12 years and older are fully vaccinated ([4](#)). Workers have up to one year to file a claim following an injury or exposure, and two years to file from the date of an occupational disease diagnosis.

The current case identification methods function well at identifying claims for COVID-19 exposure or illness, with some opportunities for improvement. A notable difference between our surveillance system and others systems using workers' compensation data is that we did not include adjudication

decisions, such as claim acceptance, in our case definition. Were we to include claim acceptance as part of our case definition, we would have lost two-thirds of our cases outside the healthcare industry.

Since March 2020, we have reviewed thousands of claim documents and read workers' testimonies to a wide breadth of experiences during the pandemic. This open, qualitative process has guided the development of our surveillance system and deepened our understanding of the administrative data. We will continue to adapt our surveillance work to the ever changing demands of the pandemic.

Conclusions

Workers' compensation data is an effective and rich source of information for understanding the burden of COVID-19 in the Washington State workforce. The vast majority of cases were filed by workers in the Health Care and Social Services sector. Statewide case data available through the Department of Health suggests that there is significant underreporting of COVID-19 in the workers' compensation data, particularly among workers in occupations outside of healthcare and first-responders. In future work, we will monitor the effects of recent legislation expanding benefits for frontline workers (HELSEA) and expand our surveillance to study the long-term effects from COVID-19, such as post-COVID syndromes.

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References

1. SHARP. *COVID-19 Research and Resources*. www.lni.wa.gov/safety-health/safety-research/covid-19
2. SHARP (2020). *Methods for COVID-19 Surveillance in Washington Workers' Compensation Data*. https://lni.wa.gov/safety-health/safety-research/files/2020/64_15_2020_COVIDSurveillanceMethods_08182020.pdf
3. Washington State Department of Labor and Industries. *Health Emergency Labor Standards Act (HELSEA) Implementation*. www.lni.wa.gov/safety-health/safety-rules/rulemaking-stakeholder-information/helsa-implementation
4. Washington State Department of Health. *COVID-19 Data Dashboard*. Accessed August 17th 2021. www.doh.wa.gov/Emergencies/COVID19/DataDashboard#dashboard
5. Washington State Department of Health and Department of Labor and Industries (2020). *COVID-19 Confirmed Cases by Industry Sector*. www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/data-tables/IndustrySectorReport.pdf