

Cost Evaluation of Potential Conclusive COVID-19 Presumption in California Workers' Compensation

By the WCIRB Actuarial and Research Teams

Summary

The COVID-19 pandemic and resultant stay-at-home orders are significantly impacting California's economic, health care and workers' compensation systems. Some COVID-19 workers' compensation claims have already been filed. However, at this time, it is unclear what proportion of the illnesses and deaths directly resulting from the virus will ultimately be determined to be work-related. Some states have enacted presumptions of COVID-19 claims being work-related for certain front line workers and similar proposals are under discussion in California.

On April 8, 2020, Assemblyman Tom Daly, Chair of the Assembly Insurance Committee, requested the WCIRB to provide an estimate of the potential cost impact of presumptions provided to front line workers in California. Specifically, the WCIRB was requested to provide the cost impact of a conclusive presumption for health care workers, firefighters, EMS and rescue employees, front line law enforcement officers and other essential critical infrastructure (ECI) employees. In response and to provide insight on the potential cost impact of COVID-19 claims on the California workers' compensation system, the WCIRB has completed an initial analysis of these costs.

For purposes of this analysis, the WCIRB assumed that the ECI workers were those identified as "Essential Critical Infrastructure Workers" in Governor Newsom's March 19, 2020 Executive Order N-33-20. The WCIRB segregated these workers into ECI Group 1, which includes health care workers, firefighters, EMS and rescue employees, and front line law enforcement officers and ECI Group 2, which includes all other workers on the Governor's ECI list. In evaluating the impact of a conclusive presumption, we assumed all symptomatic ECI workers with COVID-19 would file a compensable workers' compensation claim. While some ECI workers would file a compensable workers' compensation claim in the absence of a conclusive presumption, we had no basis to estimate this proportion and, as a result, made no estimate of the incremental impact of a conclusive presumption. Also, while it is likely that some non-ECI workers will file compensable workers' compensation claims, estimating the cost impact of such claims was outside the scope of this analysis. Finally, our cost estimates exclude any potential costs for workers who are being quarantined but have not been diagnosed with COVID-19.

The cost estimates in this report are based on WCIRB data including unit statistical reports, aggregate financial data calls and medical transaction data. We also relied upon external data from the American Community Survey¹ (ACS), the Division of Workers' Compensation (DWC) Official Medical Fee Schedule, and a number of published studies on COVID-19 incidence rates and medical treatment patterns and costs. At times, we relied upon judgmental assumptions based on published research or feedback from workers' compensation experts that may or may not materialize. In general, the cost impact of COVID-19 claims will vary significantly based on the number of workers covered by a presumption, the proportion of these workers that have COVID-19 and the number of workers' compensation claims that are filed as a result. Given the current level of uncertainty surrounding these factors, the cost estimates in this Research Brief are presented as a range of potential impacts based on varying assumptions of the number of COVID-19 claims filed. **On this basis, the WCIRB estimates that the annual cost of COVID-19 claims on ECI workers under a conclusive presumption ranges from \$2.2 billion to \$33.6 billion with an approximate mid-range estimate of \$11.2 billion, or 61% of the annual estimated cost of the total workers' compensation system prior to the impact of the pandemic.**

¹ The WCIRB sourced the ACS data from IPUMS-USA, University of Minnesota, www.ipums.org.

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Key Findings

Table 1 summarizes the overall potential annual total cost of medical and indemnity benefits and loss adjustment expenses (LAE) on COVID-19 claims arising during 2020 segregated between the WCIRB’s two categories of ECI workers. In evaluating the impact of a conclusive presumption, estimates shown in Table 1 reflect the assumption that all ECI workers in the state² who have the novel coronavirus and are symptomatic will file a compensable workers’ compensation claim for COVID-19.

The total cost estimates shown in Table 1 reflect a high-end illness/claim rate³ for health care workers and first responders of 60% based on the illness rate of health care workers from Wuhan, China, the initial epicenter of the outbreak.⁴ The low-end estimates are based on an illness/claim rate for health care workers and first responders of 4%, which is approximately based on estimates of COVID-19 cases for the first year for the population with commercial health insurance⁵ and estimates of infection rates for the working age population in China.⁶ Given the greater concentration of exposure to the novel coronavirus for health care workers and first responders and published data on the relative rate of health care workers in China contracting the novel coronavirus,⁷ the WCIRB assumed that the rate of COVID-19 claims for ECI Group 1 workers is five times as high as those for ECI Group 2 workers. The estimates in Table 1 range from \$1.2 to \$18.1 billion in total annualized costs for ECI Group 1 workers and \$1.0 to \$15.6 billion for ECI Group 2 workers. The approximate mid-range cost estimate for the total system is \$11.2 billion (\$6.0 billion for ECI Group 1 workers and \$5.2 billion for ECI Group 2 workers). This is based on an illness/claim rate of 20% of ECI Group 1 workers and 4% of ECI Group 2 workers.

Health Care Workers and First Responders – ECI Group 1		Other ECI Workers – ECI Group 2		Total System Cost in Billions
Percent of Workers with COVID-19 Claims	Cost in Billions	Percent of Workers with COVID-19 Claims	Cost in Billions	
4%	\$1.2	0.8%	\$1.0	\$2.2
5%	\$1.5	1%	\$1.3	\$2.8
10%	\$3.0	2%	\$2.6	\$5.6
15%	\$4.5	3%	\$3.9	\$8.4
20%	\$6.0	4%	\$5.2	\$11.2
30%	\$9.0	6%	\$7.8	\$16.8
40%	\$12.0	8%	\$10.4	\$22.4
50%	\$15.1	10%	\$13.0	\$28.0
60%	\$18.1	12%	\$15.6	\$33.6

Table 2 summarizes the distribution of the approximate mid-range estimate of \$11.2 billion into temporary disability benefits, permanent disability benefits, death benefits, medical costs and loss adjustment expenses. Comparatively, the WCIRB estimates that the total cost of losses and LAE in the California workers’ compensation system in 2020, prior to the impact of COVID-19 claims, is \$18.3 billion.⁸

² This includes all workers in the state including those who are employed by insured, legally self-insured or legally non-insured employers, but excludes those employed by the Federal Government or those who are self-employed. In California, the insured system is approximately two-thirds of the size of the total system.

³ The high-end estimate is not intended as a “worst case” scenario. Nor is the low-end estimate intended to reflect the “best case” scenario. Instead they reflect the high and low ends of a range of reasonable assumptions based on available published research.

⁴ “Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China—Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention.” *JAMA*. 2020;323(13):1239-1242.

⁵ “The Potential National Health Cost Impacts to Consumers, Employers and Insurers Due to the Coronavirus (COVID-19).” *Covered California*, March 2020.

⁶ “Estimates of the severity of coronavirus disease 2019: a model-based analysis.” *The Lancet Infectious Diseases* (2020).

⁷ “Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China—Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention.” *JAMA*. 2020;323(13):1239-1242.

⁸ This includes \$6.1 billion in indemnity benefits, \$7.3 billion in medical benefits and \$4.9 billion in LAE.

Type of COVID-19 Claim	Number of Claims	Temporary Disability	Permanent Disability	Death	Medical	LAE	Total Cost
Mild (No Hospitalization)	378,300	\$0.4	N/A	N/A	\$0.1	\$0.2	\$0.7
Severe (Hospitalization w/o ICU)	70,900	\$0.2	N/A	N/A	\$3.6	\$1.4	\$5.2
Critical (Hospitalization w/ ICU, no Death)	20,300	\$0.1	\$0.1	N/A	\$2.6	\$1.0	\$3.8
Death	3,300	\$0.0	N/A	\$0.7	\$0.4	\$0.4	\$1.5
All Claim Types	472,900	\$0.7	\$0.1	\$0.7	\$6.7	\$3.0	\$11.2

Methodology and Assumptions

ECI Workers

The WCIRB mapped the occupations and industries exempted in Governor Newsom’s March 19, 2020 Executive Order N-33-20 to WCIRB classifications as well as to employment, wage and age of worker information obtained from ACS data. Table 3 summarizes the industries and estimated number of workers included.

Worker Type	Category	Affected Workers (in Thousands)
Health Care Workers	ECI Group 1	1,071
Firefighters	ECI Group 1	38
EMS and Rescue Employees	ECI Group 1	22
Law Enforcement Officers	ECI Group 1	132
ECI Group 1 Total		1,262
Other ECI Employees – ECI Group 2		5,510
Total Estimated ECI Workers		6,772

The ACS data suggests approximately 18.8 million workers were employed in California sometime within the last year.¹⁰ Unemployment has increased dramatically during the COVID-19 crisis. For purposes of this study, the WCIRB has not tried to adjust employment counts for this sharp drop in employment, which most likely is greatest in non-ECI industries. The WCIRB estimates that ECI Group 1 consists of approximately 1.3 million workers, or 7% of statewide employment. The WCIRB also estimates that ECI Group 2 consists of approximately 5.5 million workers, or 29% of statewide employment.

The likelihood of hospitalization or death as a result of COVID-19 significantly depends on the age of the individual and their prior health history. The estimates included in this analysis are based on a combined rate of illness and claim filing with the assumption that, in valuing the cost impact of a conclusive presumption for ECI workers, all symptomatic employees with COVID-19 will file a compensable workers’ compensation claim. Given the greater concentration of exposure to the novel coronavirus for health care workers and first responders and published data on the relative rate of health care workers in China contracting COVID-19, the WCIRB assumed that the rate of COVID-19 claims for these workers (ECI Group 1) is approximately five times as high as those for other ECI workers (ECI Group 2). Conversely, while some workers’ compensation claims will be filed by workers who are not ECI workers, any estimate of this impact was outside the scope of this study. Finally, the WCIRB has based these estimates on an annualized period rather than the Governor’s stay-at-home period, which assumes that exposure to the novel coronavirus for the ECI workers and a presumption of compensability will be in effect for the entire year.

⁹ The mid-range estimate assumes an illness/claim rate of 20% for ECI Group 1 workers and 4% for ECI Group 2 workers.

¹⁰ Based on 2017 ACS data trended to 2020 using employment growth from the March 2020 UCLA Anderson Forecast for the Nation and California.

¹¹ “Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China—Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention.” *JAMA*. 2020;323(13):1239-1242.

Proportion of Illness/Claim Types

Studies of the virus show that a significant proportion of individuals with COVID-19 are completely asymptomatic (ranging from 5% to 80%).¹² Although the asymptomatic cases would be carriers of the virus, the WCIRB assumed that they would not have a workers' compensation claim.

Of those having mild or more severe COVID-19, data from a number of published studies of COVID-19 suggests that the vast majority (approximately 80%) will have mild COVID-19 and fully recover at home without any significant medical treatment.¹³ These studies also suggest that approximately 15% of COVID-19 cases are severe and result in some hospitalization but do not require a stay in an intensive care unit (ICU), while 5% are critical and require advanced care including an ICU stay. Of the critical cases of COVID-19, the Chinese CDC estimated approximately 50% result in death, suggesting a death rate of approximately 2.5% of all cases.¹⁴ This figure is generally consistent with the midpoint of death rate estimates from the United States CDC (1.8% to 3.4%).

The information described above is based on the general population. The likelihood of having severe or critical COVID-19 depends heavily on the age and prior health of the individual. The vast majority of people with severe or critical COVID-19 are over the age of 50 and/or have underlying health conditions including hypertension, obesity, chronic lung disease, diabetes and cardiovascular disease.¹⁵ The California worker population is generally younger and likely with fewer underlying health conditions compared to the general population. The proportion of California workers with underlying health conditions is not clear. However, the WCIRB used the distribution of worker ages in the categories of ECI workers based on ACS data to adjust the rates of severe and critical cases of COVID-19 for the worker population.

Table 4 shows the proportion of COVID-19 severity categories and average cost of medical and indemnity benefits estimated by the WCIRB for the ECI workers. The percentage estimates for ECI workers are based on the distribution of ages of these workers from ACS data and the midpoint of hospitalization, ICU and death rate estimates by age interval from the United States CDC.¹⁶ Other than the proportion of death claims, which is significantly lower for affected workers, the age-weighted proportions are generally consistent with those published in other studies. The average loss shown in Table 4 by type of claim is based on the assumptions and estimates discussed below.

Type of COVID-19 Claim	Percent of Claims	Cost of Indemnity and Medical Benefits
Mild (No Hospitalization)	80%	\$1,400
Severe (Hospitalization w/o ICU)	15%	\$53,400
Critical (Hospitalization w/ ICU, no Death)	4.3%	\$137,800
Death	0.7%	\$333,300
All Claims	100%	\$17,400

¹² The [Centre for Evidence-Based Medicine](#) published a list of studies that showed asymptomatic individuals testing positive for COVID-19 ranged from 5% to 80% with the most credible estimates around 20%.

¹³ "Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China—Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention." [JAMA. 2020;323\(13\):1239-1242](#). As well as [estimates from the United States CDC](#) on COVID-19 cases in March.

¹⁴ "Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China—Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention." [JAMA. 2020;323\(13\):1239-1242](#).

¹⁵ "Severe Outcomes Among Patients with Coronavirus Disease 2019 (COVID-19) — United States, February 12–March 16, 2020." [CDC Mortality and Morbidity Weekly Report. March 27, 2020 / 69\(12\);343-346](#)

¹⁶ "Severe Outcomes Among Patients with Coronavirus Disease 2019 (COVID-19) — United States, February 12–March 16, 2020." [CDC Mortality and Morbidity Weekly Report. March 27, 2020 / 69\(12\);343-346](#)

Mild COVID-19 Claims

As shown in Table 4, the WCIRB estimates that 80% of all ECI workers with COVID-19 will not require hospitalization or significant medical treatment. It is unclear whether these workers will file workers' compensation claims to receive temporary disability (TD) benefits or whether they will utilize other benefits for paid sick leave made available by their employer or the Federal Government. However, for purposes of this study, the WCIRB assumed all ECI workers with mild COVID-19 will file a compensable claim for worker's compensation benefits. The CDC recommends that people with mild illnesses who do not require hospitalization stay home for 2 weeks after exposure.¹⁷ Based on the estimated distribution of weekly wages of ECI workers, the WCIRB estimates the average TD benefit to be \$620 per week for ECI Group 1 workers and \$540 per week for ECI Group 2 workers. This results in an average TD cost for mild COVID-19 claims of \$1,200 for ECI Group 1 workers and \$1,100 for ECI Group 2 workers.

Although the WCIRB believes the overall medical cost of mild COVID-19 claims to be small, there may be some medical costs related to a test of COVID-19, physician costs (telemedicine) and some medication. In total, the WCIRB estimates an average medical cost of approximately \$300 for mild COVID-19 claims based on the DWC Official Medical Fee Schedule and average payments in WCIRB medical transaction data for these types of services.

Severe COVID-19 Claims

As shown in Table 4, the WCIRB estimates that 15% of all ECI workers with COVID-19 will be severe and require some hospitalization but not a stay in an ICU. The diagnosis related groups (DRGs) for treating respiratory infections and inflammations (similar to severe COVID-19) suggest an average hospital stay of approximately 1 week.¹⁸ The WCIRB assumes an average of 1 week from onset of the symptoms to hospital admission. Based on feedback from a number of workers' compensation medical experts, the WCIRB assumed an additional 2-week period for recovery after hospitalization, including approximately 1 week of follow-up medical care. In total, the WCIRB estimates these workers will receive TD benefits for 4 weeks on average. As discussed above, the WCIRB estimates the average TD benefit for the types of workers affected to be \$620 per week for ECI Group 1 workers and \$540 per week for ECI Group 2 workers. This results in an average TD cost for severe COVID-19 illness claims of \$2,500 for ECI Group 1 workers and \$2,200 for ECI Group 2 workers.

The WCIRB medical transaction data and the DWC's medical fee schedule for the DRGs for respiratory infections and inflammations suggest approximately \$300 for initial physician services, \$47,400 for inpatient care and \$3,500 for follow-up care. This results in an average \$51,200 of medical costs for a severe COVID-19 claim.

Critical COVID-19 Claims

As shown in Table 4, the WCIRB estimates that 4.3% of the ECI workers who have COVID-19 will have critical illnesses that require an ICU stay. The WCIRB assumed the majority of the ICU patients will need ventilator support. The DWC's medical fee schedule for the DRGs for hospitalization that includes ventilator support suggest an average hospital stay of approximately 2 weeks.¹⁹ The WCIRB assumes an average of 1 week from the time symptoms first appear to a hospital admission. Based on feedback from a number of workers' compensation medical experts who suggested that recovery from critical COVID-19 will be significantly longer for critical cases compared to mild or severe cases, the WCIRB assumed an average of an 8-week period for recovery after ICU care, during which these workers are likely to receive 4 to 6 weeks of rehabilitation and follow-up medical care. In total, the WCIRB estimates these workers will receive TD benefits for 11 weeks on average. As discussed above, the WCIRB estimates the average TD benefit for ECI workers to be \$620 per week for ECI Group 1 workers and \$540 per week for ECI Group 2 workers. This results in an average TD cost for severe COVID-19 claims of \$6,800 for ECI Group 1 workers and \$5,900 for ECI Group 2 workers.

¹⁷ See [CDC guidelines for COVID-19 patients](#).

¹⁸ DRGs 177, 178 and 179. See [CMS's guidance on the DRGs](#).

¹⁹ DRGs 207 and 208.

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The WCIRB consulted a number of workers' compensation claims experts to assess the potential for COVID-19 claims leading to permanent disability (PD) in California's workers' compensation system. Although there was a general consensus among experts that there is potential for PD arising from COVID-19, the likelihood and extent of PD was not clear. In any case, the number of COVID-19 claims with PD are expected to be small. To reflect the potential for PD and the level of uncertainty, based in part on information on PD from similar claims, the WCIRB assumed that 20% of the critical COVID-19 claims will have some form of PD. Based on WCIRB medical transaction data, unit statistical data and anecdotal information from workers' compensation claims experts, the average PD rating for a claim with respiratory issues similar to COVID-19 is estimated to be approximately 20%. Based on this projected rating, the WCIRB estimates an average PD benefit of \$22,000 for the critical COVID-19 claims that involve PD.

Similar to the methodology used for estimating the medical cost of a severe COVID-19 claim, the WCIRB used the WCIRB medical transaction data and the DWC's medical fee schedule for severe respiratory infections and inflammations and ventilator support (DRGs 177, 207 and 208) and estimated approximately \$300 of initial physician costs, \$92,000 of inpatient costs, and \$35,000 for rehabilitation and follow-up care for critical cases of COVID-19. This results in an estimated average of \$127,300 in medical costs for a critical COVID-19 claim.

Death Claims Arising from COVID-19

As shown in Table 4, the WCIRB assumed a death rate of 0.7% of COVID-19 claims for ECI workers. Based on the historical average cost of death claims in California, the WCIRB estimates the average death benefit in 2020 to be approximately \$220,000. The WCIRB assumed an average of 3 weeks of TD benefits on death claims based on the average length of hospitalization for critical COVID-19 claims (approximately 2 weeks) and an average of 1 week from onset of the symptoms to hospitalization. This results in an average TD cost for COVID-19 death claims of \$1,900 for ECI Group 1 workers and \$1,600 for ECI Group 2 workers. The WCIRB also estimated medical costs for COVID-19 death claims to be \$111,600, which is based on the DRGs for ventilator support assumed for the critical COVID-19 claims but using the higher case severity estimate given the advanced stage of these cases.

Loss Adjustment Expenses

Claims arising from COVID-19 will incur claim handling and defense costs as do other workers' compensation claims. At this time, there is no data available to suggest that COVID-19 claims will incur more or less claims administrative costs (unallocated loss adjustment expenses or ULAE) than the typical workers' compensation claim. Similarly, the WCIRB believes that COVID-19 claims will incur medical cost containment program (MCCP) costs similar to the typical workers' compensation claim. The WCIRB's projected ratio of these costs to losses based on insurer experience as of December 31, 2019 is 15.0% for ULAE and 4.3% for MCCP costs.

The WCIRB consulted several workers' compensation claims experts to assess the potential litigation costs for COVID-19 claims. There was a general consensus among experts that there would be some litigation arising from COVID-19 claims, particularly as to whether there was any PD. However, it was not clear whether allocated loss adjustment expense (ALAE) costs related to litigation on COVID-19 claims would be higher or lower on average than the typical workers' compensation claim. As a result, the WCIRB assumed ALAE on COVID-19 claims to be similar to the typical workers' compensation claim. The WCIRB's projected ratio of ALAE to losses based on insurer experience as of December 31, 2019 is 16.8%.

Conditions and Limitations

1. The WCIRB's system cost estimate presumed that all of the ECI workers with symptomatic COVID-19 will file compensable workers' compensation claims. We did not project what proportion of those workers would have filed compensable workers' compensation claims without a legal presumption of compensability. Nor did we try to estimate what proportion of non-ECI workers will file a compensable COVID-19 workers' compensation claim as that estimate was beyond the scope of this evaluation.
2. Some of the data used in the analysis was based on the experience of insured employers only. When needed to estimate the impact for the California workers' compensation system as a whole, the WCIRB assumed the patterns evident in the insured employer experience data were applicable to the entire state.
3. The high-end estimate reflected in this study is not intended as a "worst case" scenario. Nor is the low-end estimate intended to reflect the "best case" scenario. Instead, these estimates reflect the high and low ends of a range of reasonable assumptions based on available published research.
4. The COVID-19 pandemic is a rapidly evolving crisis. WCIRB estimates were based on information available at the time of this study. If subsequent information becomes available that changes the basis of our assumptions, these estimates would of course be affected.
5. This analysis is based on a broad-based presumption of COVID-19 claims being work-related for ECI workers. No specific presumption bill is currently before the California Legislature. If and when a presumption bill is under consideration by the Legislature, the WCIRB will update the estimates in the analysis based on the specific language contained in the bill.
6. Whenever possible, the WCIRB based its system cost estimates on WCIRB and other publicly available data as well as COVID-19 impact estimates by credible research and public health institutes. At times, judgmental assumptions were needed. Actual system cost results could differ significantly from those projected.
7. As discussed in this report, the WCIRB relied upon many publicly available sources of information to determine our assumptions. While we deemed the sources credible for the purposes we used the information, we did not independently validate the underlying information.

This Research Brief – Cost Evaluation of Potential Conclusive COVID-19 Presumption in California Workers' Compensation was developed by the Workers' Compensation Insurance Rating Bureau of California (WCIRB) and contains information for a specific period of time and may not reflect long-term trends before or after the specific period addressed in the Research Brief. This Research Brief contains data from a variety of sources, both public and private. The WCIRB has made reasonable efforts to ensure the accuracy of this Research Brief but cannot guarantee the accuracy of all the data or data sources. You must make an independent assessment regarding the use of this Research Brief based upon your particular needs and circumstances