Washington State Health Services Research Project
Research brief No. 103

COVID-19 diagnoses, treatments, outcomes, and costs in the Washington All-Payer Claims Database, March – December 2020

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Background

Community transmission of COVID-19 was first reported in Washington on Feb. 28, 2020. Confirmed cases began to rise in March, and by June 30, there were 33,435 confirmed cases, 4,922 hospitalizations, and 1,305 deaths in Washington. A second surge occurred summer of 2020, and by Sept. 30, there were 89,539 confirmed cases, 7,955 hospitalizations, and 2122 deaths. A third wave followed through the fall and winter months. By Dec. 31, 2020, there were 250,593 cases, 15,292 hospitalizations, and 3,733 deaths[1]. In this report, we examine COVID-19 related diagnoses, treatments, outcomes, and costs in the Washington State All-Payer Claims Database (WA-APCD).

Conclusions

Most cases of COVID-19 result in only mild symptoms. However, more severe cases can result in extremely long and expensive hospital visits. Mortality was high among hospitalized cases early in the pandemic. Patients hospitalized with COVID-19 during the initial surge between March and June had a median length of stay of six days for commercial insurance plans, eight days for Medicaid and 19 for Medicare. The average cost of a 30-day episode of care for a COVID-19 hospitalization was $26,958. For patients who required 96 or more hours of mechanical respiration, the average length of stay was 27 days, for an average 30-day cost of $94,302. Of those hospitalized, 14% required invasive mechanical respiration, and 16% died in the hospital.

Outcomes improved slightly in the second, summer surge (Figure 1). Between July and September 2020, median length of stay for a COVID-19 hospitalization decreased to five days for commercial and Medicaid patients, and seven days for Medicare. The percentage of hospitalized patients that required respiration decreased to 9%, and the inpatient mortality rate decreased to 13% (still alarmingly high).

Outcomes continued to improve through the fall and winter months of 2020. Hospital length of stay was reduced, and fewer patients required respiration or died in hospital. By the onset of

[1] : Washington State Department of Health, COVID-19 dashboard. https://www.doh.wa.gov/Emergencies/COVID19/DataDashboard accessed June 2021.

the third COVID-19 wave, the Food and Drug Administration (FDA) granted emergency use authorization for the use of convalescent plasma and the drug remdesivir. Clinicians could draw on lessons learned from earlier cases. And quarantine measures at nursing homes helped protect some of the most vulnerable, so that inpatient cases were likely to be younger with fewer complicating conditions. Between October and December 2020, median length of stay for a COVID-19 hospitalization decreased to four days for commercial and Medicaid patients, and six days for Medicare. The percentage of hospitalized patients requiring respiration decreased to 2%, and the inpatient mortality rate decreased to 6%.

The cost of treating COVID-19 has been considerable. Insurance in Washington paid $20 billion for COVID-19 patients diagnosed between March and December 2020 — including all claims for 30-day episodes of care following diagnosis. We examined 30-day episodes of care to assess the total financial impact above baseline for COVID-19 patients. As treatment and outcomes improved, the average 30-day cost per COVID-19 patient decreased from $7,973 in March-June to $2,033 in October-December (Figure 1). Baseline average cost for all Washington covered lives in 2020 was $264 per month.

Study population

The study population includes people with medical insurance in Washington, any time between March and December 2020. The Washington All-Payer Claims Database (WA-APCD) includes medical, dental, and pharmacy claims from publicly funded payers. This includes Medicaid, Medicare Advantage, Public Employees Benefit Board, and Labor and Industries, commercial plans (including group and individual markets), and all pharmacy claims. WA-APCD does not include claims from the Veterans Administration or self-funded commercial plans. Medicare fee-for-service data is only available through 2017. At the time of analysis, the WA-APCD data were complete through December 2020.

Based on representation in the 2017 WA-APCD (which includes Medicare FFS) compared to the 2017 insured population, we adjusted Medicare Advantage member counts and paid amounts by a factor of 3.17 to compensate for missing Medicare fee-for-service claims. We adjusted commercial counts and paid amounts by a factor of 1.20 to compensate for other missing payers. Medicaid is fully represented in the database, so we didn’t need to make an adjustment.

We need to note that the Medicare Advantage population is not the same as Medicare fee-for-service. In 2017, Medicare advantage members were slightly older (average age 70.8 years for Medicare Advantage, 69.6 for Medicare fee-for-service) and had a higher prevalence of COVID-19 risk factors (60.6% for Medicare Advantage, 51.1% for Medicare fee-for-service). Using Medicare advantage as a proxy for Medicare fee-for-service will inflate the values to some extent. Still, this seemed preferable to the gross underestimation that would have come from disregarding the Medicare fee-for-service population entirely. Similarly, the commercial population represented in the database may not be the same as the commercial population not represented, though we don’t have the data to assess this.

Table 1 presents the study population by payer, age, sex, race. Race and ethnicity data are largely missing in WA-APCD for Medicare Advantage and commercial payers and are only presented for Medicaid. To provide a baseline for comparison with COVID-19 costs, we calculated average per-member-per-month

medical cost paid by insurance for each demographic group.

There were 5.5 million covered lives in the WA-APCD for 2020, representing, after adjustment, 7.1 million covered lives in Washington. The uninsured population is not represented. Average insurance paid medical cost in 2020 was $264 per-member-per-month. Medical cost increased with age, up to an average $613 for members age 75 and older. Among Medicaid-only members, average monthly medical cost was highest for American Indian / Alaska Natives at $238, followed by Whites ($186), Blacks ($162), Native Hawaiian / Pacific Islanders ($130), Hispanics ($124), and Asians ($107). It should be noted that differences in cost may reflect disparities in access and coverage and should not be interpreted as indicative of population health.

Eleven percent of the study population (762,538 members) had preexisting risk conditions for severe COVID-19 before March 2020 with an average cost of $516 per month in 2020. Six percent (440,164) of the study population had an inpatient admission during 2020. The average cost for a 30-day episode of care following inpatient admission was $3,380.

COVID-19 medical claims

The Mathematica COVID-19 Primer[2] provides definitions and code lists for COVID-19 related diagnoses and procedures. Using this document, we identified claims with COVID diagnosis and service date between March 1, 2020 and Dec. 31, 2020. We identified members with claims for respiratory diagnoses (viral pneumonia, bronchitis, lower respiratory infection, acute respiratory distress syndrome) that were indicative of more severe cases. We identified members with preexisting risk factors (chronic kidney disease, chronic lung disease, diabetes, HIV, immunocompromised, liver disease, moderate/severe asthma, serious heart conditions, severe obesity) diagnosed between March 1, 2019 and March 1, 2020. We identified claims for novel therapeutic procedures (convalescent plasma, remdesivir, sarilumab, tocilizumab), and identified pharmacy claims for hydroxychloroquin. And we examined outcomes for inpatient cases (length of stay, ICU admission, mechanical respiration, respiration 96-plus hours, died in hospital). For COVID-19 patients, we compiled the total amount paid by medical insurance for each member for 30 days following the first COVID-19 diagnosis. For members without COVID-19 diagnosis, we calculated the average monthly medical cost.

Results

COVID-19 diagnoses

There were 17,689 members (adjusted count) with a COVID-19 diagnosis between March 1 and June 30; 20,441 between July 1 and Sept. 30; and 35,350 between Oct. 1 and Dec. 31, 2020. (Table 2) Note that these adjusted counts are considerably less than the number of confirmed COVID-19 cases in the state. Cases only enter the WA-APCD if they generate a medical claim. Asymptomatic or mild cases that do not require treatment would not be represented.

[2] Mathematica - A COVID-19 Primer: Analyzing Health Care Claims, Administrative Data, and Public Use Files. https://mathematica.org/publications/a-covid-19-primer-analyzing-health-care-claims-administrative-data-and-public-use-files accessed January 2021.

Average cost for a 30-day episode of care following COVID-19 diagnosis was $7,973 between March and June, $4,756 between July and September, and $2,033 between October and December 2020 (Figure 1).

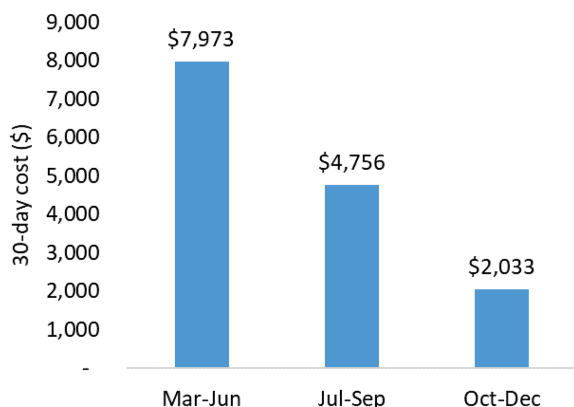

Figure 1. Average 30-day cost for COVID-19 patients, March – December 2020

Among members with COVID-19 diagnosis, 5,944 had severe respiratory diagnoses between March and June, 3,992 between July and September, and 5,270 between October and December. Diagnosed severe cases account for 18% of confirmed cases (reported by DOH in March-June), 7% of DOH-reported and confirmed cases in July-September, 3% of DOH-reported and confirmed cases in October-December 2020. The decrease in percentage of severe cases probably reflects improved testing identifying more asymptomatic and mild cases – again illustrating the caveat that the WA-APCD only captures cases that generate claims.

Hospital outcomes and costs

There were 4,816 (adjusted count) COVID-19 diagnosed members with inpatient claims between March 1 and June 30, 2020, for $26,413 adjusted average 30-day cost. Between July and September, there were 3,703 COVID-19 inpatient members for a $23,723 30-day cost.

Between October and September, there were 5,830 inpatient members for $10,318 30-day cost (Table 2). Note that our adjusted inpatient counts are fairly close to the state totals. Most inpatient admissions would generate medical claims, and so our estimates for inpatient outcomes and costs are more representative than our counts for diagnosed cases.

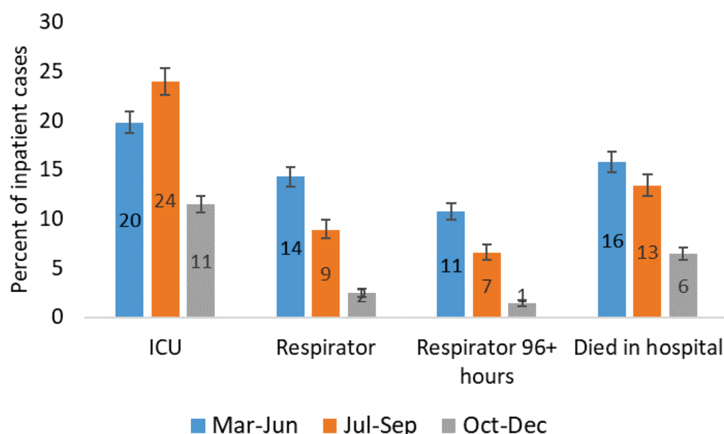

Figure 2. Hospital outcomes for COVID-19 patients, March – December 2020.

Among COVID-19 inpatient cases in March-June, 954 (20%) were treated in the ICU for an average 30-day cost of $38,972; 687 (14%) required respiration for $82,315 average 30-day cost; 517 (11%) required 96+ hours respiration for $94,302 average 30-day cost. 760 inpatient cases (16%) died in hospital with average cost of $32,084.

Among COVID-19 inpatient case in July-September, 888 (24%) were treated in the ICU for an average 30-day cost of $ 33,925; 330 (9%) required respiration for $80,347 average 30-day cost; 242 (7%) required 96+ hours respiration for $89,510 average 30-day cost. 495 inpatient cases (13%) died in hospital with average cost of $ 34,230.

Among COVID-19 inpatient case in October-December, 670 (11%) were treated in the ICU for an average 30-day cost of $ 24,562; 144 (2%) required respiration for $51,081 average 30-day cost; 83 (1%) required 96+ hours respiration for $67,612 average 30-day cost. 378 inpatient cases (6%) died in hospital with average cost of $25,357.

The median total length of stay for a Medicare Advantage inpatient stay in 2020 including transfers and 30-day readmissions was five days (Table 4). The average length of stay was 12 days. Median is more reflective of a “typical” length of stay, while the average value also accounts for occasional very lengthy visits.

In March – June, the median length of stay for a Medicare Advantage COVID-19 inpatient was eight days, with an average of 19 days. For COVID-19 ICU patients, median length of stay was nine days, average 20 days. For COVID-19 patients requiring respiration, median length of stay was 17 days, average 23 days. For COVID-19 patients who died in the hospital, median length of stay was seven days, average 10 days.

By October – December, the median length of stay for a Medicare Advantage COVID-19 patient was six days, with an average of nine days. For COVID-19 ICU patients, median length of stay was six days, and the average was 10 days. For COVID-19 patients requiring respiration, median length of stay was 14 days, and the average was 15 days. For COVID-19 patients who died in the hospital, median length of stay was seven days, and the average was nine days.

Hospital outcomes and length of stay for commercial, Medicaid, and Medicare patients are given in Tables 3 and 4.

Preexisting risk factors

There were 762,538 members (adjusted count) with diagnoses for one or more risk condition during the year before March 2020, representing 11% of the total study population (Table 4).

In March-June, members with preexisting risk conditions account for 9,770 (55%) of COVID-19 diagnoses, 3,256 (68%) of inpatient cases, 465 (68%) of respirator cases, and 604 (79%) of cases who died in hospital.

In July-September, members with preexisting risk conditions account for 9,639 (47%) of COVID-19 diagnoses, 2,450 (66%) of COVID-19 inpatient cases, 224 (68%) of respirator cases, and 382 (77%) of cases who died in hospital.

In October-December, members with preexisting risk conditions account for 16,159 (46%) of COVID-19 diagnoses, 4,139 (71%) of COVID-19 inpatient cases, 117 (81%) of respirator cases, and 306 (81%) of cases who died in hospital.

Members with preexisting risk factors were more likely to have adverse outcomes. While the overall rate of adverse outcomes declined over time, the relative risk related to preexisting conditions increased in the October-December period. This suggests that improved treatment and public health measures were most effective at preventing adverse outcomes in the lower risk population.

Demographic patterns

COVID-19 outcomes varied by payer (Table 3) and by age, sex and race/ethnicity (Table 6). To provide sufficient sample for small demographic groups, we combined data for March – December.

The percentage of men and women with inpatient admission (49% men, 51% women) was close to the underlying proportion in the study population (48% men, 52% women). However, a larger fraction of men required a respirator (56% men, 44% women) or died in hospital (54% men, 46% women).

Advanced age is strongly related to adverse outcomes for COVID-19. Members age 65 or older accounted for 26% of the study population, but 59% of inpatient cases, 61% of cases requiring respiration, and 88% of those who died in hospital. The inpatient mortality rate was 11% for members aged 65-74, and 21% for members aged 75 and older.

Member race and ethnicity was not available for commercial and Medicare advantage payers. Race or ethnicity was available for 91% of members with Medicaid coverage only. Among Medicaid members, race and ethnicity data may not be missing at random. Members of unknown race were disproportionately represented among inpatient cases with poor outcomes. Results by race and ethnicity should be interpreted with caution.

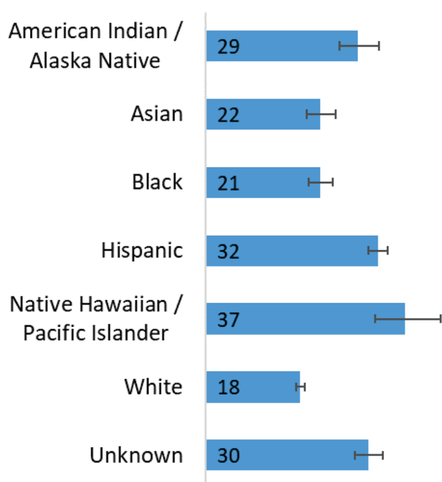

Figure 3. COVID-19 Hospitalizations per 10,000 Medicaid covered lives by race and ethnicity, March – December 2020.

Native Hawaiian / Pacific Islander Medicaid members had the highest hospitalization rate at 37 COVID-19 hospitalizations per 10,000 covered lives, followed by Hispanic (32 per 10,000), American Indian / Alaska Natives (29 per 10,000), Asian (22 per 10,000) Black (21 per 10,000) and White (18 per 10,000) (Figure 3).

Small numbers and wide margins of error make it difficult to assess hospital outcomes by race and ethnicity. Among Medicaid inpatient cases, respirator use is highest among Hispanic (11%) and unknown race (13%) (Figure 4).

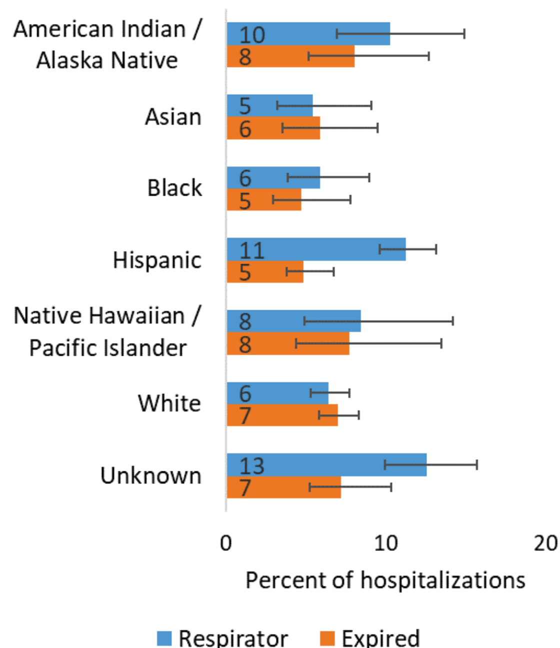

Figure 4. Hospital outcomes among Medicaid COVID-19 inpatient cases by race and ethnicity, March – December 2020.

Novel treatments

As the pandemic progressed, medical experts tried several novel therapies. Some, such as the anti-malaria drug hydroxychloroquin, were determined to be ineffective and risky. Others were proven effective or at least promising in clinical trials. Convalescent plasma received FDA emergency use authorization (EUA) Aug. 23,

2020, and the antiviral agent remdesivir received EUA Oct. 22 for hospitalized patients receiving supplemental oxygen[3]. Sarilumab and tocilizumab are monoclonal antibody therapies currently undergoing clinical trials but they have not yet received FDA approval[4].

Table 7 shows how medical practitioners in Washington used novel therapeutics in the March-July period before EUA of convalescent plasma and remdesivir and the August-December period after EUA. Novel therapeutics were rarely used before EUA. From March to July, 262 (4%) inpatient cases received convalescent plasma, remdesivir or both. Between August and December, 1,283 (16%) of inpatient cases had received novel therapeutics, with 1,190 (15%) receiving remdesivir, 253 (3%) receiving convalescent plasma, and 32 (<1%) receiving other new technology.

Medical practitioners prescribed Hydroxychloroquin to 256 COVID-19 patients between March and July, but only 87 patients between August and December. By late summer, 2020, a national consensus emerged that hydroxychloroquin is not effective against COVID-19, and carries considerable risk.[5]

Strengths and limitations

One of the strengths of the WA-APCD is its comprehensive nature. We can follow a patient through a complete episode of care across multiple settings, from initial diagnosis (perhaps in a primary care setting) to emergency department, inpatient admission, and through to possible rehabilitation in a skilled nursing facility or outpatient follow-up care.

Another strength is the ability to assess actual costs amount paid by insurance. These are generally, substantially less than the amount that the provider charges. Since prices negotiated by insurance companies are proprietary, claims data are perhaps the only source for detailed assessment of medical costs.

This study has two chief limitations: First is the lack of Medicare fee-for-service data for 2020. We adjusted for this lack by weighting Medicare Advantage data to ensure that Medicare had the correct, proportional representation in the overall totals. However, this method assumes that the Medicare fee-for-service population resembles Medicare Advantage in health, treatment and outcomes, which is not the case. Medicare advantage members in 2017 were slightly older and had higher prevalence of COVID-19 risk factors. Because of this, our adjusted values are likely to be somewhat elevated.

Second, medical claims data do not capture all COVID-19 cases, only those that generate claims. By June 1, for example, there were 33,435 confirmed cases in Washington, but only 17,689 diagnosed cases after adjustment. The remaining cases could be uninsured, or could be asymptomatic or mild cases that required no treatment. Those cases wouldn't generate a claim. Claims data greatly underestimates overall disease prevalence. However, since most inpatient cases would generate claims, our

[3] FDA News Release: FDA Approves First Treatment for COVID-19, October 22, 2020

[4] Melillo, Gianna 2021. Tocilizumab, Sarilumab Reduce Mortality Rates in Those Severely Ill With COVID-19 AJMC, January 21, 2021

[5] FDA News Release: Coronavirus (COVID-19) Update: FDA Revokes Emergency Use Authorization for Chloroquine and Hydroxychloroquine, June 15, 2020

estimates of inpatient outcome rates are probably reliable.

Table 1: Study population: WA-APCD covered lives, 2020

	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Covered lives, 2020	5,518,928	13,630,719	7,136,036	22,606,999	100	264
Commercial	3,273,469	5,682,701	3,933,532	6,828,563	55	145
Medicaid	1,804,205	4,337,734	1,804,205	4,337,734	25	200
Medicare	441,254	3,610,283,256	1,398,299	11,440,702	20	682
Female	2,826,447	7,658,453	3,695,691	12,637,719	52	285
Male	2,621,607	5,971,814	3,355,180	9,968,631	47	248
Unknown	70,874	451	85,165	649	1	
Age < 35	2,634,750	3,386,457	2,911,833	3,749,007	41	107
Age 35-64	1,958,180	6,167,780	2,375,846	8,115,019	33	285
Age 65-74	566,033	2,111,200	1,128,877	5,449,012	16	402
Age 75+	359,937	1,965,283	719,446	5,293,963	10	613
Unknown	28	-	33	-		-
American Indian / Alaska Native*	78,579	224,350	78,579	224,350	4	238
Asian*	111,075	143,127	111,075	143,127	6	107
Black*	157,711	307,095	157,711	307,095	9	162
Hispanic*	390,464	580,738	390,464	580,738	22	124
Native Hawaiian / Pacific Islander*	37,972	59,425	37,972	59,425	2	130
White*	863,621	1,930,784	863,621	1,930,784	48	186
Unknown*	164,783	327,871	164,783	327,871	9	166
Preexisting risk conditions	450,049	2,479,250	762,538	4,723,573	11	1,549
Inpatient**	292,671	4,404,298	440,164	7,365,038	9	1,394

*Medicaid only

**Total cost for 30-day episode of care following admission

Table 2: COVID-19 outcomes and cost

(a) March-June 2020	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Covered lives, 2020	5,515,270	4,000,684	4,622,486	6,614,940		232
COVID-19 diagnosis	12,276	79,761	17,689	141,033		7,973
Severe symptoms	3,910	64,988	5,944	113,781		19,143
Inpatient	2,999	73,301	4,816	127,197	100	26,413
ICU	594	21,813	954	37,185	20	38,972
Respirator	434	34,203	687	56,558	14	82,315
Respirator 96+ hours	328	30,115	517	48,749	11	94,302
Died in hospital	370	12,029	760	24,370	16	32,084

(b) July - September 2020	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Covered lives, 2020	5,515,270	4,000,684	4,622,486	6,614,940		232
COVID-19 diagnosis	15,170	56,912	20,441	97,211		4,756
Severe symptoms	2,683	38,937	3,992	67,310		16,861
Inpatient	2,361	51,206	3,703	87,839	100	23,723
ICU	555	17,808	888	30,111	24	33,925
Respirator	206	16,205	330	26,525	9	80,347
Respirator 96+ hours	146	12,748	242	21,705	7	89,510
Died in hospital	231	8,557	495	16,940	13	34,230

(c) October - December 2020	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Covered lives, 2020	5,515,270	4,000,684	4,622,486	6,614,940		232
COVID-19 diagnosis	25,387	39,338	35,350	71,867		2,033
Severe symptoms	2,981	24,490	5,270	48,921		9,283
Inpatient	3,153	31,175	5,830	60,153	100	10,318
ICU	331	8,277	670	16,449	11	24,562
Respirator	72	3,675	144	7,336	2	51,081
Respirator 96+ hours	38	2,656	83	5,598	1	67,612
Died in hospital	149	4,172	378	9,580	6	25,357

Table 3: COVID-19 outcomes and by payer, March – December 2020

	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
COVID-19 Diagnosis						
Commercial	21,135	42,533	25,397	51,109	35	2,012
Medicaid	23,665	64,779	23,665	64,779	32	2,737
Medicare	7,579	56,062	24,017	177,656	33	7,397
COVID-19 Inpatient						
Commercial	1,639	34,123	1,969	41,003	14	20,819
Medicaid	4,238	59,053	4,238	59,053	30	13,934
Medicare	2,557	50,234	8,103	159,187	57	19,646
COVID-19 ICU						
Commercial	251	10,495	302	12,611	13	41,811
Medicaid	608	15,470	608	15,470	26	25,445
Medicare	443	15,011	1,404	47,568	61	33,884
COVID-19 Respirator						
Commercial	100	9,198	120	11,052	11	91,978
Medicaid	371	23,900	371	23,900	34	64,420
Medicare	192	15,132	608	47,951	55	78,811
COVID-19 Respirator 96+ hours						
Commercial	70	7,171	84	8,617	11	102,444
Medicaid	261	20,632	261	20,632	33	79,051
Medicare	140	12,876	444	40,803	56	91,971
COVID-19 Died in hospital						
Commercial	69	3,367	83	4,045	5	48,790
Medicaid	263	7,477	263	7,477	17	28,431
Medicare	391	11,378	1,239	36,056	78	29,100

Table 4: Inpatient length of stay, including transfers and readmissions, for COVID-19 patients by payer.

(a) Mar-June 2020	Commercial		Medicaid		Medicare	
	Average days	Median days	Average days	Median days	Average days	Median days
All Inpatient	4	2	6	2	12	5
COVID-19 inpatient	10	6	13	6	19	8
ICU	14	7	15	7	20	9
Respirator	23	16	25	16	23	17
Respirator 96+ hours	28	20	29	18	25	18
Died in hospital	13	8	12	8	10	7

(b) July - September 2020	Commercial		Medicaid		Medicare	
	Average days	Median days	Average days	Median days	Average days	Median days
All Inpatient	4	2	6	2	12	5
COVID-19 inpatient	8	5	10	5	15	7
ICU	10	7	12	6	18	8
Respirator	24	17	26	15	25	16
Respirator 96+ hours	29	21	30	20	27	19
Died in hospital	23	20	13	9	12	9

(c) October – December 2020	Commercial		Medicaid		Medicare	
	Average days	Median days	Average days	Median days	Average days	Median days
All Inpatient	4	2	6	2	12	5
COVID-19 inpatient	5	4	6	4	9	6
ICU	6	5	7	5	10	6
Respirator	**	**	12	5	15	14
Respirator 96+ hours	**	**	23	17	18	17
Died in hospital	**	**	9	4	9	7

** Too few cases to report

Table 5: COVID-19 outcomes and cost among members with preexisting risk factors

(a) March-June 2020	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Preexisting risk factors	450,049	2,479,250	762,538	4,723,573		1,549
COVID-19 diagnosis	5,860	46,797	9,770	98,113		10,042
Severe symptoms	2,127	37,758	3,688	78,692		21,338
Inpatient	1,791	42,704	3,256	87,787	100	26,958
ICU	338	11,483	617	24,004	19	38,912
Respirator	254	18,585	465	37,870	14	81,374
Respirator 96+ hours	183	16,424	347	33,160	10	95,667
Died in hospital	274	7,903	604	18,392	15	30,470

(b) July - September 2020	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Preexisting risk factors	450,049	2,479,250	762,538	4,723,573		1,549
COVID-19 diagnosis	6,131	33,130	9,639	64,807		6,724
Severe symptoms	1,440	24,003	2,431	46,771		19,242
Inpatient	1,382	30,268	2,450	59,214	100	24,173
ICU	346	10,344	616	20,250	25	32,879
Respirator	126	9,135	224	17,414	9	77,583
Respirator 96+ hours	93	7,830	175	33,160	7	88,525
Died in hospital	171	5,676	382	15,498	12	33,405

(c) October – December 2020	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Preexisting risk factors	450,049	2,479,250	762,538	4,723,573		1,549
COVID-19 diagnosis	9,866	23,875	16,159	50,074		3,099
Severe symptoms	1,822	16,643	3,577	36,937		10,326
Inpatient	2,033	20,425	4,139	44,335	100	10,712
ICU	230	5,747	517	12,749	12	24,674
Respirator	53	2,542	117	5,813	3	49,726
Respirator 96+ hours	29	1,951	69	4,641	2	67,403
Died in hospital	118	3,236	306	7,702	7	25,143

Table 6: COVID-19 outcomes and by age, sex and race, March – December 2020.

(a) COVID-19 diagnosis	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Female	29,421	75,499	41,241	140,928	3,417	56
Male	22,957	87,875	31,836	152,615	4,794	44
Age<35	18,684	22,747	20,305	25,426	28	1,252
Age35-64	22,855	81,758	27,514	104,771	38	3,808
Age65-74	5,065	28,525	11,694	74,955	16	6,410
Age75+	5,774	30,343	13,565	88,391	19	6,516
American Indian / Alaska Native*	1,292	5,015	1,292	5,015	5	3,881
Asian*	1,174	2,180	1,174	2,180	5	1,857
Black*	1,999	3,960	1,999	3,960	8	1,981
Hispanic*	8,432	24,545	8,432	24,545	36	2,911
Native Hawaiian / Pacific Islander*	459	2,004	459	2,004	36	2,072
White*	8,405	17,419	8,405	17,419	2	4,365
Unknown*	1,904	9,656	1,904	9,656	8	5,071
*Medicaid only						

(b) Inpatient	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Female	4,282	63,857	7,338	120,246	51	16,386
Male	4,152	79,553	6,972	138,998	49	19,936
Age<35	1,239	17,844	1,314	19,976	9	15,202
Age35-64	3,621	73,092	4,509	93,501	32	20,736
Age65-74	1,593	26,632	3,628	69,829	25	19,246
Age75+	1,981	25,842	4,859	75,939	34	15,629
American Indian / Alaska Native*	224	4,436	224	4,436	5	19,802
Asian*	239	1,926	239	1,926	6	8,057
Black*	338	3,315	338	3,315	8	9,807
Hispanic*	1,259	22,893	1,259	22,893	30	18,183
Native Hawaiian / Pacific Islander*	142	1,918	142	1,918	36	9,990
White*	1,534	15,325	1,534	15,325	3	13,509
Unknown*	502	9,241	502	9,241	12	18,408
*Medicaid only						

(c) Respirator	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Female	268	17,272	488	32,535	44	66,640
Male	395	30,958	611	50,369	56	82,386
Age<35	49	4,673	52	5,680	5	108,861
Age35-64	312	26,286	375	32,192	34	85,846
Age65-74	175	10,858	379	27,417	34	72,345
Age75+	127	6,412	293	17,615	27	60,026
American Indian / Alaska Native*	23	1,574	23	1,574	6	68,433
Asian*	13	335	13	335	4	25,804
Black*	20	553	20	553	5	27,646
Hispanic*	142	11,586	142	11,586	38	81,589
Native Hawaiian / Pacific Islander*	12	867	12	867	3	72,223
White*	98	3,952	98	3,952	26	40,327
Unknown*	63	5,033	63	5,033	17	79,888
*Medicaid only						

(d) Died in hospital	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
Female	322	8,237	736	19,959	46	27,112
Male	401	13,985	849	27,621	54	32,541
Age<35	< 10					
Age35-64	146	8,948	186	10,921	12	58,603
Age65-74	176	5,572	393	14,454	25	36,746
Age75+	398	7,595	1,002	22,098	63	22,048
American Indian / Alaska Native*	18	693	18	693	7	38,488
Asian*	14	85	14	85	5	6,057
Black*	16	214	16	214	6	13,360
Hispanic*	61	3,308	61	3,308	23	54,234
Native Hawaiian / Pacific Islander*	11	236	11	236	4	21,433
White*	107	1,496	107	1,496	41	13,980
Unknown*	36	1,446	36	1,446	14	40,170
*Medicaid only						

Table 7: COVID-19 novel therapeutics

(a) March - July 2020	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
COVID-19 inpatient	3,888	87,611	6,224	154,300	100	24,790
New Theraputics	160	7,283	262	11,997	4.3	45,846
Convalescent Plasma	93	4,317	142	6,880	2.3	48,458
Remdesivir	75	3,023	134	5,340	2.2	39,724
Sarilumab	<10					
Tocilizumab	<10					
Other new tech	<10					
COVID-19 + Hydroxychloroquin	155	2,787	256	7,232	N/A	28,293

(b) August - December 2020	Member count	Total Paid Amount ($1,000s)	Adjusted count	Adjusted Paid Amount ($1,000s)	Adjusted Percent	Adjusted 30-day cost ($)
COVID-19 inpatient	4,546	55,799	8,086	104,944	100	12,978
New Theraputics	740	18,775	1,283	33,887	15.9	26,415
Convalescent Plasma	148	4,343	253	7,884	3.1	31,153
Remdesivir	684	17,276	1,190	31,058	15.7	26,096
Sarilumab	< 10					
Tocilizumab	< 10					
Other new tech	24	625	32	813	0.4	25,620
COVID-19 + Hydroxychloroquin	54	306	87	744	N/A	8,545