

## COVID-19: Healthcare Cost Considerations for Employers

**Krista Penn**

**Tom Garrity, ASA, MAAA**

**Israel Alvarez**

### Background

---

As of April 7, 2020, the number of confirmed cases of the respiratory disease known as “coronavirus disease 2019” (COVID-19) has spread to nearly all corners of the world, with many U.S. states and cities under “shelter in place” or “stay at home” orders. The result has been one where a confluence of evolving risks has come together, including operational, financial, and health risks, all of which will likely directly impact employers (Hall 4).

The Wakely Broker Consulting Services (Wakely BCS) team is paying close attention to emerging data on the cost and utilization of treatment for individuals with COVID-19, blending that information with other considerations such as employer downsizing due to economic strain. In this whitepaper, we summarize those considerations, how they may impact employers in the coming year and beyond, and how we are adjusting the actuarial services we provide to benefits brokers on behalf of their employer clients to account for COVID-19 related risks.

### Key Actuarial Considerations

---

#### [Impact to Claims Costs](#)

On March 23, 2020, Covered California released the first national projection of health care costs due to the COVID-19 pandemic for 170 million Americans in the commercial market. The one-

year projected costs range from \$34 billion to \$251 billion for testing, treatment and care specifically related to COVID-19, with potential COVID-19 costs for 2020 ranging from 2 percent to more than 21 percent of premium if the full first-year costs of the pandemic had been priced into 2020 premiums (Bertko 1).

The wide cost range in estimated total COVID-19 costs in 2020 for the commercial market is indicative of significant uncertainty, not only in understanding COVID-19 incidence, morbidity and mortality rates in the U.S., but also other factors such as the healthcare system’s ability to manage capacity, the availability of necessary equipment (leading to scarcity pricing), the effectiveness of self-isolation and self-quarantine initiatives to flatten the infection rate curve, etc. (Bertko 7). Regardless, increased costs may be passed onto payers immediately through fee-for-service claims or later in other payment arrangements (Hall 14).

Regulatory changes will also likely impact cost. For instance, on March 30, 2020, the Centers for Medicare and Medicaid Services (CMS) announced it is relaxing many of its usual safety standards for hospitals so they can expand services to fight the coronavirus pandemic. By changing the rules for what constitutes a hospital bed, hospitals and healthcare systems will be able to triage patients to a variety of community-based locales, including ambulatory surgery centers, inpatient rehabilitation centers, and

even hotels, dormitories, and convention centers. CMS also expanded the definition of what kind of care can be delivered at home (COVID-19 tests, for example) (Sanger-Katz).

With this uncertainty in mind, and recognizing new information will continue to emerge in the coming months that will likely alter current estimates, current COVID-19-related cost estimates are summarized below.

### Inpatient Care

Covered California reports the best estimate commercial cost for severe cases requiring an inpatient stay in 2020 is \$72,000 (based on a stay of 12 days, similar for flu or pneumonia patients) (Bertko 4). Using hospitalization rate data from a study published in *The Lancet* on March 30, 2020 and weighting by 2019 U.S. population data, Wakely estimates that the overall risk of hospitalization for Americans under the age of 60 due to COVID-19 is 2.2%, with the likelihood of hospitalization increasing by age (Verity 7; “Population Pyramids”). See Table 1 below.

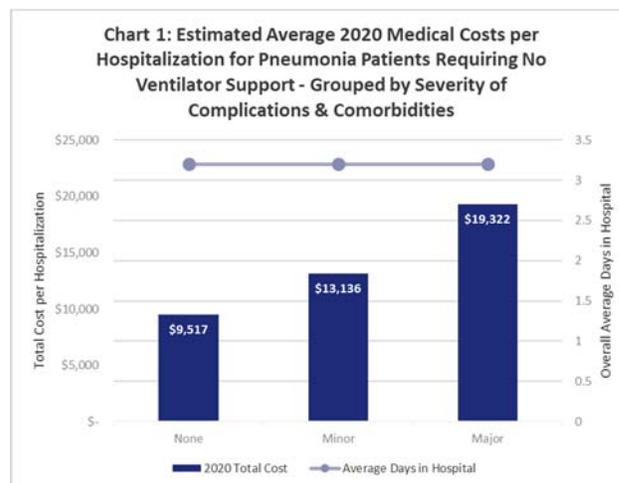
**Table 1: Estimated COVID-19 Hospitalization Rate for the 2019 U.S. Population, by Age Group**

Age Group	2019 U.S. Population	Population Distribution	COVID-19 Hospitalization Rate	Weighted COVID-19 Hospitalization Rate
0-9	39,891,845	12.1%	0.0%	0.0%
10-19	42,398,071	12.9%	0.1%	0.0%
20-29	46,179,065	14.0%	1.0%	0.1%
30-39	43,980,069	13.4%	3.4%	0.5%
40-49	40,288,440	12.2%	4.3%	0.5%
50-59	42,557,686	12.9%	8.2%	1.1%
60-69	37,845,098	11.5%	11.8%	1.4%
70-79	23,009,234	7.0%	16.6%	1.2%
80+	12,915,409	3.9%	18.4%	0.7%
<b>Weighted Average Hospitalization Rate, All Ages</b>				<b>5.4%</b>
<b>Weighted Average Hospitalization Rate, Ages 0-59</b>				<b>2.2%</b>

Once infected, Covered California estimates that 15% of those with COVID-19 will require hospitalization (Bertko 4). A study released by the Centers for Disease Control and Prevention

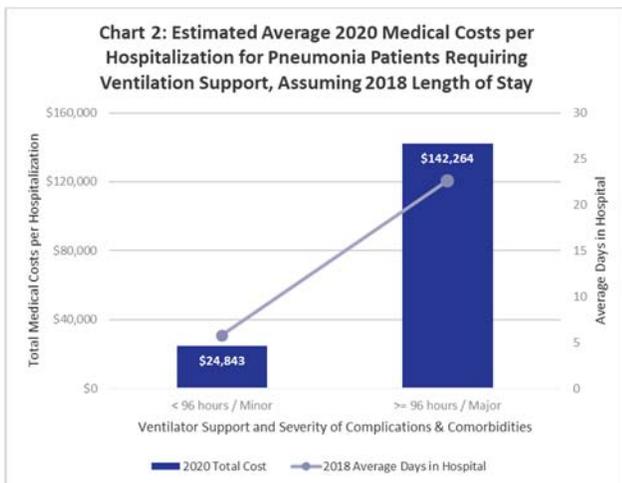
(CDC) on April 3, 2020 reports that Americans with underlying medical conditions who contract COVID-19 are more likely to require hospitalization, consistent with findings from other countries. The CDC evaluated 7,162 COVID-19 cases in the U.S. with complete health information about the patients, representing about 6% of the 122,653 cases reported to the CDC as of March 28, 2020. Of those cases where the patient had one or more underlying medical conditions, about 44% ended up hospitalized, as compared to about 9% of those with no underlying medical conditions. Diabetes and heart, lung and kidney disease result in the highest rates of hospitalization. (The CDC Covid-19 Response Team, 383-385).

Analysis released by the Kaiser Family Foundation (KFF) on March 16, 2020 finds that average costs per admit in 2018 for pneumonia ranged from \$9,800 for patients with no complications or comorbidities to \$20,300 for those with major complications and comorbidities, with an average overall hospital stay of 3.2 days for both patients with and without complications and comorbidities (Rae). Estimated 2020 rates are shown in Chart 1.<sup>1</sup>



<sup>1</sup> Wakely estimated costs by comparing the change in CMS MS-DRG weights between 2018 and 2020 and applying the difference to the 2018 costs reported by KFF. The DRG codes used and the rate of change were: (1) Pneumonia w/ No Complications and Comorbidities (DRG 195): -2.5% change; (2) Pneumonia w/ Minor Complications and Comorbidities (DRG 194): -4.6% change; and (3) Pneumonia w/ Major Complications and Comorbidities (DRG 193): -4.8% change.

Also according to the KFF study, patients in 2018 who received less than 96 hours of ventilator support stayed an average of 5.8 days compared to 22.6 days for patients with 96 or more hours of ventilator support (Rae). Adjusting the pneumonia admissions cost averages based on the severity of complications and comorbidities to a per-day cost, multiplying by the average number of days for ventilator support reported by KFF, and adjusting for 2020 rates,<sup>2</sup> the total medical cost for patients receiving less than 96 hours of ventilator support (and assumed to have minor complications and comorbidities) was \$25,000, while patients receiving 96 or more hours of ventilator support and assumed to have major complications and comorbidities was more than \$142,000. See Chart 2.



### Outpatient & Professional Care

For testing to confirm whether an individual is infected with COVID-19, Covered California estimates an average of \$120 for lab-only tests

and \$240 (includes consumer out-of-pocket portion) for a primary care physician office visit or televisit plus lab testing (Bertko 5).

For individuals infected with the COVID-19 virus who only require outpatient care, Covered California has modeled a best estimate cost of \$600, based on the assumption that each person will have one primary care visit and two televisits (Bertko 6).<sup>3</sup> There is insufficient data at this time to estimate what percentage of individuals will require outpatient services, as the number of persons infected so far who did not seek treatment is unknown.<sup>4</sup>

### Prescription Drugs

There is little or mixed evidence that the anti-malaria drug, hydroxychloroquine, can be effective in treating the symptoms of the COVID-19 disease. However, on March 31, 2020, the Federal Drug Administration (FDA) approved off-label use of this drug to help people infected with the coronavirus (Mundell).

Pharmaceutical companies and other medical entities are also currently trying to determine if other existing drugs might be effective in treating coronavirus. For instance, the existing drugs favipiravir and tocilizumab are currently in clinical trials (Niarchos; Slater).

Anti-viral drug treatments like hydroxychloroquine may range from \$50 to \$2,000 per dose (Bertko 6). A full course of favipiravir may be around \$650 (Niarchos). Depending on if and when these drugs become available in 2020 and

<sup>2</sup> Wakely estimated costs by comparing the change in CMS MS-DRG weights between 2018 and 2020 and applying the difference to the 2018 costs reported by KFF. For ventilator support, the DRG codes used and the rate of change were: (1) Respiratory System Diagnosis w/ Ventilator Support <=96 Hours (DRG 208): +4.1% change and Pneumonia w/ Minor Complications and Comorbidities (DRG 194): -4.6% change for a blended 2020 change rate of -0.4%; and (2) Respiratory System Diagnosis w/ Ventilator Support >96 Hours (DRG 207): +4.0% change and Pneumonia w/ Major Complications and Comorbidities (DRG 193): -4.8% change for a blended 2020 change rate of -0.7%.

<sup>3</sup> Although Covered California's best estimate for outpatient services is \$1,200 according to Table 2 on page 4, they report on page 5 that the low estimate of \$600 "is a best estimate based on [the] estimated \$250 that Medicare would pay for these three visits and applying the 2.4 [commercial] multiplier" (Bertko 6).

<sup>4</sup> Covered California's best estimate for the commercial market is that 85% of all infected individuals will require outpatient services (Bertko 4). However, we believe this projection is significantly overstated, as widespread testing for COVID-19 in the U.S. population has not yet been established to estimate the true number of infected individuals, including those who tested positive but did not require care.

the number of currently infected individuals, the number of people receiving the treatment could be in the millions.

### [Impact to Utilization for Other Services](#)

A reduction in utilization rates for many non-COVID-19 related services is expected. Reasons for this downturn include:

- Elective surgeries and provider visits seen as non-essential are being postponed both as hospitals prepare to treat patients with COVID-19 and consumers self-isolate and tighten their belts in anticipation of an economic downturn.
- Disruption in supply chains.
- Some healthcare facilities such as ophthalmologists and oral surgeons are operating at minimal capacity due to “stay at home” orders.
- For emergency room visits, recent changes to regulations made by CMS will allow hospitals to direct patients visiting emergency rooms to different facilities according to their needs, potentially reducing utilization of emergency rooms for minor health issues (Sanger-Katz).

Conversely, utilization is expected to increase for some services. Mental health concerns and treatments may see an increased demand in the coming weeks, especially with televisits becoming more widely available (Hall 12).

Duration and severity of the coronavirus pandemic will ultimately impact the degree to which pent up demand for routine and non-essential services, including elective surgeries, will lead to increased utilization later in 2020. According to a 2010 study by MBA Actuaries Consulting Services and sponsored by the Society of Actuaries, experience shows often that deferral of care during a crisis is not

recaptured after large scale disturbances, such as natural disasters like Hurricane Katrina (Toole 38). People also postpone most care during strong economic downturns, as was the case following the 2008 recession (Abelson).

---

*The first wave of the U.S. COVID-19 pandemic is expected to end by early July, assuming social distancing is continued through May 2020.*

---

A model of projected hospital resource use based on COVID-19 deaths released by the Institute for Health Metrics and Evaluation (IHME) on March 30, 2020 estimates that the first wave of the COVID-19 pandemic in the U.S. will end by early July, assuming social distancing is continued through May 2020, although state-by-state differences exist (Murray). In general, we expect there will be an overall reduction in utilization for routine and non-essential services at least through May 2020, particularly given that the unemployment rate is not likely to bounce back quickly (Hatzius 1).

Employers should be mindful of changes in payment patterns, either due to providers submitting claims more slowly or administrators processing claims more slowly due to social distancing and city lock downs.

### [Impact to Employer Budgets](#)

Although the CARES Act signed into law on March 27, 2020 provides tax relief provisions and business loans to provide emergency economic assistance, there is little in the bill that will help employers address healthcare coverage affordability (Plunkett).

## 2020 Budgets

For fully-insured employers with calendar year policies, impacts to 2020 budget should be isolated to changes in employee enrollment mix.

For self-funded employers, in the near term, the extent to which employers downsize due to economic strain could be a relevant factor, not only to the number of individuals utilizing the employer-sponsored health plan, but also in terms of the remaining employee makeup and how that affects medical costs on a per employee basis. For instance, if younger workers are more susceptible to layoffs, employers could see an increase in per employee costs, particularly since emerging evidence indicates severe COVID-19 cases disproportionately affect older individuals (Hall 8, Verity 7) as shown in Table 1.

Other financial considerations include the number of COVID-19 claims that will hit specific stop-loss (SSL) thresholds for self-funded employers. Based on current cost estimates discussed earlier, we do not expect employers with SSL deductibles greater than \$100,000 to see a huge increase in the number of SSL claims. However, there is increased likelihood that some aggregate stop-loss thresholds will be reached in 2020, considering the likelihood of COVID-19 spreading within a group if one person has the virus.

## 2021 Budgets

Both fully insured and self-funded employers should expect an increase in premium equivalent costs in 2021, although estimates vary widely at this point. Considerations for 2021 are summarized below.

Fully insured carriers are in the process of setting rates for 2021. Even though most states will not allow insurers to recoup for unexpected losses from 2020, insurers will likely be conservative, either in their assumptions or risk

margin when setting 2021 rates and budgeting for COVID-19-related costs in 2021. Covered California estimates 2021 premium increases to individuals and employers in the commercial market from COVID-19 alone could range from 4 percent to more than 40 percent without federal intervention (Bertko 1). Based on emerging information and modeling, this upper bound appears to reflect a very conservative scenario.

---

*Insurers will likely be conservative when setting 2021 premium rates, either in their assumptions or risk margin. Both fully insured and self-funded employers should expect an increase in premium equivalent costs in 2021, although estimates vary widely at this point.*

---

Self-funded employers should also be prepared for higher-than-normal stop-loss renewals, if for no other reason than uncertainty regarding the impact of COVID-19. In addition to potential stop loss premium increases, stop loss carriers may also significantly increase attachment points for the 2021 policy year to reflect higher anticipated cost under the SSL deductible.

To help mitigate untenable spikes in premiums, insurance industry lobbying groups, America's Health Insurance Plans and the Blue Cross and Blue Shield Association, are already urging federal lawmakers to enact policies to maintain a stable marketplace, such as implementing a temporary risk mitigation program to compensate insurers for extreme costs to keep premiums from spiking (Livingston). Insurers and employers are also prodding Congress to consider helping them pay for the COVID-19 crisis by setting up a special reinsurance program that would cover the most expensive

medical claims. The federal government would fund the program to lower the amount being paid by employers and insurers (Abelson).

On the treatment front, a vaccine for COVID-19 is not expected for another 12 to 18 months. “It will take at least a year to a year-and-a-half to have a vaccine we can use,” according to National Institute of Allergy and Infectious Diseases (NIAID) director Anthony Fauci, MD (Fauci).

## WakelyBCS Plan of Action

---

For upcoming reserve estimates, mid-year evaluations, renewals, and other analyses provided to our clients, WakelyBCS actuaries will be incorporating additional COVID-19-related analysis into our modeling and will include scenario testing in our deliverables, where appropriate, to demonstrate a range of outcomes. Additionally, we will continue monitoring emerging information and considerations such as:

- Changes in claims cost and utilization for non-COVID-19-related services as a result of social distancing and shelter-in-place orders.
- Monthly and quarterly impact in short-term depressed utilization and potential resulting pent up demand.
- Employer-specific factors, including demographics, regional infection rates, and employer policies impacting infection rates.
- Changes in claims payment patterns.
- The introduction of anti-viral treatments in 2020 and a possible vaccine in 2021-2022.
- Supply chain issues and scarcity pricing for certain services and equipment (e.g., ventilators and masks).

- The introduction of new providers (medical students, nurses, military) and places of services (pop-up hospitals).
- Potential federal action to flatten spikes in premiums and otherwise minimize impacts to healthcare affordability for employers and consumers.
- For self-funded plans, increases in the number of both specific and aggregate stop-loss hits in 2020, as well as stop-loss renewal rates in 2021.

## In Conclusion

---

In conclusion, the WakelyBCS team is closely monitoring emerging research and data in preparation to deliver the most accurate information possible to our clients. There is significant uncertainty in how COVID-19 and other operational and financial risks will unfold, but there will be more data and a broader consensus on potential impacts to health costs and utilization by this summer, in time for the evaluation cycle for plans renewing January 2021. We will continue to send out periodic updates as additional information about COVID-19’s impact on the healthcare system and employers becomes available.

---

Please contact the following WakelyBCS team members with any questions or to follow up on any of the concepts presented here:

**Tom Garrity**, ASA, MAAA  
480.386.5364 • [Tom.Garrity@wakely.com](mailto:Tom.Garrity@wakely.com)

**Israel Alvarez**  
480.277.3659 • [Israel.Alvarez@wakely.com](mailto:Israel.Alvarez@wakely.com)

## Cited Works

Abelson, Reed. "Coronavirus May Add Billions to the Nation's Health Care Bill." *www.nytimes.com*, 28 Mar. 2020, [www.nytimes.com/2020/03/28/health/coronavirus-insurance-premium-increases.html](http://www.nytimes.com/2020/03/28/health/coronavirus-insurance-premium-increases.html).

Bertko, John. "The Potential National Health Cost Impacts to Consumers, Employers and Insurers in the Commercial Market Due to COVID-19." *Covered California*, 24 Mar. 2020, [hbex.coveredca.com/data-research/library/COVID-19-NationalCost-Impacts03-21-20.pdf](http://hbex.coveredca.com/data-research/library/COVID-19-NationalCost-Impacts03-21-20.pdf).

CDC COVID-19 Response Team. "Preliminary Estimates of the Prevalence of Selected Underlying Health Conditions Among Patients with Coronavirus Disease 2019 – United States, February 12-March 28, 2020." *Morbidity and Mortality Weekly Report*, 03 Apr. 2020, [www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6913e2-H.pdf](http://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6913e2-H.pdf).

"Fauci: Vaccine at Least Year Away, as COVID-19 Death Toll Rises to 9 in Seattle." *CIDRAP*, 3 Mar. 2020, [www.cidrap.umn.edu/news-perspective/2020/03/fauci-vaccine-least-year-away-covid-19-death-toll-rises-9-seattle](http://www.cidrap.umn.edu/news-perspective/2020/03/fauci-vaccine-least-year-away-covid-19-death-toll-rises-9-seattle).

Hall, R. Dale, et al. "Society of Actuaries Research Brief: Impact of COVID-19." *Society of Actuaries* 03 Apr. 2020, [www.soa.org/globalassets/assets/files/resources/research-report/2020/2020-covid-19-research-brief-04-03.pdf](http://www.soa.org/globalassets/assets/files/resources/research-report/2020/2020-covid-19-research-brief-04-03.pdf).

Hatzius, Jan, et al. "US Daily: A Sudden Stop for the US Economy." *www.GoldmanSachs.com*, 20 Mar. 2020, [www.goldmansachs.com/insights/pages/gs-research/us-daily-20-mar-2020/report.pdf](http://www.goldmansachs.com/insights/pages/gs-research/us-daily-20-mar-2020/report.pdf).

Livingston, Shelby. "COVID-19 Could Prompt Higher 2021 Insurance Premiums, Benefit Cuts." *Modern Healthcare*, 23 Mar. 2020, [www.modernhealthcare.com/insurance/covid-19-could-prompt-higher-2021-insurance-premiums-benefit-cuts](http://www.modernhealthcare.com/insurance/covid-19-could-prompt-higher-2021-insurance-premiums-benefit-cuts).

Mundell, E.J. "FDA approves malaria drugs for COVID-19 with little proof they work." *HealthDay*, 31 Mar. 2020, [www.upi.com/Health\\_News/2020/03/31/FDA-approves-malaria-drugs-for-COVID-19-with-little-proof-they-work/2071585690361/](http://www.upi.com/Health_News/2020/03/31/FDA-approves-malaria-drugs-for-COVID-19-with-little-proof-they-work/2071585690361/).

Murray, Christopher, et al. "Forecasting COVID-19 Impact on Hospital Bed-Days, ICU-Days, Ventilator Days and Deaths by US State in the next 4 Months." *Institute for Health Metrics and Evaluation*, 26 Mar. 2020, [www.healthdata.org/research-article/forecasting-covid-19-impact-hospital-bed-days-icu-days-ventilator-days-and-deaths](http://www.healthdata.org/research-article/forecasting-covid-19-impact-hospital-bed-days-icu-days-ventilator-days-and-deaths).

Niarchos, Nicolas. "A Drug Developed to Fight Ebola Could Hold Hope for Coronavirus Treatment." *Time*, 1 Apr. 2020, [www.time.com/5814045/ebola-drug-coronavirus-favipiravir/](http://www.time.com/5814045/ebola-drug-coronavirus-favipiravir/).

Plunkett, James. "The CARES Act: What Employers Need to Know About the Historic Stimulus Package." *The National Law Review*, 28 Mar. 2020, [www.natlawreview.com/article/cares-act-what-employers-need-to-know-about-historic-stimulus-package](http://www.natlawreview.com/article/cares-act-what-employers-need-to-know-about-historic-stimulus-package).

"Population Pyramids of the World from 1950 to 2100." *PopulationPyramid.Net*, [www.populationpyramid.net/united-states-of-america/2019/](http://www.populationpyramid.net/united-states-of-america/2019/), accessed 02 Apr. 2020.

Rae, Matthew, et al. "Potential costs of coronavirus treatment for people with employer coverage." *Peterson-Kaiser Health System Tracker*, 16 Mar. 2020, [www.healthsystemtracker.org/brief/potential-costs-of-coronavirus-treatment-for-people-with-employer-coverage](http://www.healthsystemtracker.org/brief/potential-costs-of-coronavirus-treatment-for-people-with-employer-coverage).

Sanger-Katz, Margot. "Hospital Safety Rules Are Relaxed to Fight Coronavirus." *www.nytimes.com*, 31 Mar. 2020, [www.nytimes.com/2020/03/30/upshot/hospital-rules-relaxed-coronavirus-fight.html](http://www.nytimes.com/2020/03/30/upshot/hospital-rules-relaxed-coronavirus-fight.html).

Slater, Hannah. "FDA Approves Phase III Clinical Trial of Tocilizumab for COVID-19 Pneumonia." *Cancer Network*, 26 Mar. 2020, [www.cancernetwork.com/news/fda-approves-phase-iii-clinical-trial-tocilizumab-covid-19-pneumonia](http://www.cancernetwork.com/news/fda-approves-phase-iii-clinical-trial-tocilizumab-covid-19-pneumonia).

Toole, Jim. "Potential Impact of Pandemic Influenza on the U.S. Health Insurance Industry." *Society of Actuaries*, Jun. 2020, [www.soa.org/globalassets/assets/files/research/projects/research-2010-pandemic-health-report.pdf](http://www.soa.org/globalassets/assets/files/research/projects/research-2010-pandemic-health-report.pdf).

Verity, Robert, et al. "Estimates of the Severity of Coronavirus Disease 2019: A Model-Based Analysis." *The Lancet Infectious Diseases*, 2020, p. 7. *Crossref*, [doi:10.1016/s1473-3099\(20\)30243-7](https://doi.org/10.1016/s1473-3099(20)30243-7).