

Introduction

America's hospitals and health systems have stepped up in heroic and unprecedented ways to meet the challenges of COVID-19. As outbreaks have occurred across the country infecting more than 1 million people, hospitals have ramped up testing efforts and are treating hundreds of thousands of Americans in an effort to save lives and minimize the virus' spread.¹ This includes establishing testing tents, adding general and intensive care unit (ICU) bed capacity, and developing COVID-19 units to isolate and treat patients with the disease while safeguarding the health of other patients and hospital staff.

These challenges have created historic financial pressures for America's hospitals and health systems. Hospitals have cancelled non-emergency procedures, and many Americans are postponing care as they shelter in place to stop the spread of the virus. Treatment for COVID-19 has created incredible demand for certain medical equipment and supplies as the virus has disrupted supply chains, increasing the costs that hospitals face to treat COVID-19 patients. At the same time, COVID-19 has led to unprecedented job losses, giving way to a rise in the number of uninsured. And while doctors, nurses, and other health care workers have met the COVID-19 challenge with heroic efforts, many hospitals and health systems, especially those located in hotspot areas of the pandemic, are supporting them by providing essentials like child care, transportation, and in some cases, housing.

Hospitals and health systems face catastrophic financial challenges in light of the COVID-19 pandemic. The American Hospital Association (AHA) undertook four analyses to better understand and quantify these financial challenges. Including:

- the effect of COVID-19 hospitalizations on hospital costs;
- the effect of cancelled and forgone services, caused by COVID-19, on hospital revenue;
- the additional costs associated with purchasing needed personal protective equipment (PPE); and
- the costs of the additional support some hospitals are providing to their workers.

This report attempts to quantify these effects over the short-term, which are limited to the impacts over a four-month period from March 1, 2020 to June 30, 2020. Based on these analyses, the AHA estimates a **total four-month financial impact of \$202.6 billion** in losses for America's hospitals and health systems, or an average of **\$50.7 billion per month**.

Although the federal government moved quickly to provide relief, more help is needed. Critics have argued that hospitals were well funded prior to the COVID-19 public health emergency, however, the reality is that many hospitals were already facing financial pressures. Experts have raised concerns about low payment rates from government payers, which in part led the Congressional Budget Office to project that between 40% and 50% of hospitals could have negative margins by 2025 prior to the pandemic.^{2,3,4} Congress created a provider relief fund to support health care providers during the pandemic, but this fund is intended to stabilize providers in order to keep

their doors open, rather than fully restore compensation to pre-COVID-19 levels. Further, these funds are being distributed to all health care providers with only a portion of these funds going directly to hospitals.⁵ Other providers – such as physicians and other clinicians, laboratory and testing facilities, and durable medical equipment providers – are drawing down from health care provider relief funds as well.⁶ Hospitals and health systems will need more funds to treat patients, save lives, and get America back on its feet.

This report assesses the financial impact of COVID-19 on hospitals and health systems. It begins with an overview of the crisis and how it has affected hospitals and health systems. Then, it describes the approach used to model the impacts, including key assumptions and data sources used to complete the analysis. Then, the report presents the findings in greater detail and concludes with a discussion of these findings.

Background

In mid-January, 2020, the first case of COVID-19 in the U.S. was reported in Snohomish County, Wash.⁷ Confirmed cases increased to 1,000 by March 11, 100,000 by March 27, and over 1 million on April 28. The effect of the virus on daily life was swift and catastrophic with the advent of strict social distancing practices and stay-at-home orders. California Gov. Gavin Newsom was the first governor to issue a stay-at-home order on March 19, and by early April every state had restrictions in place to mitigate the spread of the disease.⁸

The virus has effectively grounded both local and national economies to a halt. More than 30 million Americans have filed for unemployment insurance since the end of February.⁹ The St. Louis Federal Reserve estimated that this number could rise as high as 47 million by the end of the second quarter of 2020.¹⁰ On April 29, the U.S. Department of Commerce found that first quarter gross domestic product contracted by 4.8% – an important signal of the pandemic’s deleterious effects on the American economy.¹¹ These economic impacts have devastated many industries including our nation’s hospitals and health systems.

Hospital and health system revenues have declined sharply as a result of the COVID-19 pandemic. To increase personal and public safety across the country while conserving PPE, hospitals moved to cancel non-emergency procedures. At the same time, many Americans have forgone care, including primary care and other specialty care visits. On March 18, the Centers for Medicare & Medicaid Services (CMS) recommended that most elective surgeries and non-essential medical, surgical and dental procedures be cancelled or delayed during the COVID-19 outbreak.¹² Since then, several governors mandated cancellation of non-essential services in their state.

These measures have resulted in adjusted discharges – a measure that accounts for both inpatient and outpatient services – decreasing by 13% from the previous year.¹³ Health care providers have raised concerns that patients are forgoing important care, such as chronic disease management, which can further jeopardize their health.¹⁴ An additional consequence of these factors has been steep reductions in revenue for all hospitals and health systems across the country.

These losses in revenue have been met with a sharp increase in costs for hospitals since the beginning of the pandemic. COVID-19 outbreaks in parts of the country have resulted in surges in hospitalizations and ICU patients. The Centers for Disease Control and Prevention estimated the cumulative hospitalization rate to be 29.2 per 100,000 people, with even higher rates for Medicare-aged individuals (95.5 per 100,000) and adults aged 50-64 (47.2 per 100,000).¹⁵ COVID-19-related hospitalizations are associated with high costs of treatment:

- The Kaiser Family Foundation estimates that the cost of treating a patient with COVID-19 could be more than \$20,000, and over \$88,000 for patients that require ventilator support.¹⁶

- A study by FAIR Health estimated the average cost of treating patients with commercial coverage to be \$38,221.¹⁷

At the same time, experts anticipate that millions of Americans could become uninsured given the spike in unemployment. The number of people without insurance could increase to over 40 million.¹⁸ These coverage losses put families at financial risk and increase uncompensated care at hospitals. Hospitals have already seen some of the effects manifest; bad debt and charity care increased 13% over the previous year in March, according to a recent study from Kaufman Hall.¹⁹

The above estimates do not include the additional costs of acquiring drugs, medical supplies and equipment that hospitals must incur to meet the demand for services. COVID-19 increased the demand for medical equipment and supplies, such as hospital beds and ventilators, and disrupted many supply chains. As a result, prices for these necessary supplies have increased exponentially since the beginning of the pandemic. For example:

- The Society for Healthcare Organization Procurement Professionals (SHOPP) estimated that costs of certain medical supplies have increased tenfold since the beginning of the pandemic.²⁰
- Hospitals in New York City reported paying four times the usual price for medical gloves and 15 times the usual price for masks.²¹

Moreover, these estimates do not account for increased labor costs. Many hospitals are experiencing increased overtime costs as hospitals experience a surge in patients or front-line workers become sick. Some hospitals have implemented bonus pay for front-line employees. Some have turned to staffing firms to address health care worker shortages or meet surge demand, and staffing firms have increased their prices due to an increase in demand for health care workers.

Supporting front-line health care workers. Physicians, nurses, and health care workers are on the frontlines of battle against the disease. Some hospitals have incurred costs to ensure that workers and their families are cared for while the workers are providing care to COVID-19 patients. For example, many health care workers need child care while they are working.²² Housing, transportation, and COVID-19 screening and testing costs have also emerged as important needs for health care workers. Hospitals and health systems are working to develop solutions that meet the needs of their employees.

Methodology

The AHA undertook four analyses to estimate the financial impact of these challenges. This includes:

- the net financial impact of COVID-19 on hospital costs;
- total revenue losses from cancelled surgeries and other services;
- the additional costs associated with purchasing needed PPE; and
- the costs of the additional support some hospitals are providing to their workers.

Below is an overview of the methodology used in these analyses. Additional detail about the methodology is found in the appendix at the end of this report.

The estimates described here are limited to the impacts over a four-month period from March 1, 2020 to June 30, 2020. This study does not assess the financial impact of continued revenue losses or increased costs beyond June 30. Any future waves of COVID-19 infections may result in additional net losses. Further, this study also does not assess the long-term, systemic financial impacts of the COVID-19 pandemic on hospitals or the communities they serve. Therefore, these estimates likely under represent the full financial losses that hospitals and health systems face.

Net Financial Impact of COVID-19 Hospitalizations

The net financial impact of COVID-19 hospitalizations was calculated by relying on a variety of data sources and recent modeling to estimate the three primary components of the model: (1) the total number of COVID-19 hospitalizations in the U.S. over a four-month period; (2) the incremental cost of a COVID-19 hospitalization; and (3) the expected reimbursement from private and government payers for COVID-19 hospitalizations.

To estimate the total number of expected hospitalizations, local COVID-19 hospitalization data to date were scaled-up to the U.S. population. Payer mix data were then applied to generate estimates of hospitalizations by payer. The incremental cost of a COVID-19 hospitalization was estimated by segmenting the hospitalizations into two cohorts – those who require mechanical ventilation and those who do not – and applying published cost estimates for clinical diagnoses most similar to COVID-19. To estimate payments received for these hospitalizations, Medicare payment data were used for the same clinical diagnoses used to estimate costs. These amounts were adjusted to include the 20% MS-DRG add-on for COVID-19 treatment. The Medicare payments were scaled to Medicaid, commercial payers, and the uninsured based on available published payment ratios. The final step was to subtract payments from costs for each payer and aggregate those net impacts to generate a total financial impact across all payers.

Total Revenue Losses from Cancelled Surgeries and Other Services

Estimates of the lost revenue from cancelled hospital services due to the COVID-19 pandemic were calculated using a combination of 2018 Medicare inpatient and outpatient claims files and the 2018 AHA Annual Survey Database (ASDB). Claims were classified into three categories: emergency department (ED)-related; non-ED-related medical; and non ED-related surgical. Medicare revenues were calculated from claims data, and revenues for other payers were estimated using ratios of net revenues from the other payers to those from Medicare, derived from the ASDB. Three different levels of service interruptions under which hospitals may operate were then identified:

- Level 1: cancellation of 67% of ED-related services; cancellation of all non ED-related services
- Level 2: cancellation of 67% of ED-related services; cancellation of 50% of non ED-related medical services; cancellation of all non ED-related surgical services
- Level 3: cancellation of 67% of ED-related services; cancellation of 50% of all non ED-related services

Finally, these levels of service interruptions were blended over a four-month timeframe to estimate the lost revenue due to cancelled services.

Additional Costs Associated with Purchasing Needed PPE

Data from SHOPP were used to estimate the increased costs of purchasing PPE. SHOPP provided estimated costs for acquiring PPE prior to the COVID-19 pandemic and the current estimated costs for acquiring PPE during the pandemic, using CDC guidelines. The difference in prices was calculated and then scaled up by the total number of U.S. hospital beds.

Costs of Additional Support Some Hospitals are Providing to their Workers

This analysis estimates the costs of providing support to front-line hospital workers located in COVID-19 hotspots and their families, including child care, housing, transportation, and COVID-19 screening and treatment. Hotspots were identified as the top 100 counties with the highest COVID-19 infection rate, using county-level data matched against the AHA ASDB.²³ Publicly available data on the daily costs of child care, daily public transportation costs, and the estimated federal per diem rates for lodging were used to generate estimates for each of these support services. Cost estimates of COVID-19 hospitalizations were used for estimating treatment costs for hospital workers infected with COVID-19 and estimates of laboratory test costs were used for the total cost of screening hospital workers for COVID-19 were aggregated to generate the total estimate of the cost hospitals are incurring in providing these support services. We assume hospitals are bearing some portion of these costs.

Results

The AHA estimates a **total four-month financial impact of \$202.6 billion** in losses for America's hospitals and health systems, or an average of **\$50.7 billion per month**. This estimate was derived by combining the estimates of various components of reduced revenue and increased costs described below.

Net Financial Impact of COVID-19 Hospitalizations

- The AHA estimates the net financial impact of COVID-19 hospitalizations over a four-month period will be \$36.6 billion. In other words, the nation's hospitals and health systems will collectively lose \$36.6 billion, including payments for COVID-19 patients, from March to June 2020 treating COVID-19 patients alone.

Total Revenue Losses from Cancelled Surgeries and Other Services

- The AHA estimates that, as a result of cancelled hospital services due to the COVID-19 pandemic, U.S. non-federal hospitals stand to lose approximately \$161.4 billion in revenue over a period of four months, from March to June 2020. This includes cancelled surgeries, various levels of cancelled non-elective surgeries and outpatient treatment, and reduced emergency department services.

Additional Costs Associated with Purchasing Needed PPE

- The AHA estimates the non-treatment costs for hospitals and health systems to be \$2.4 billion over a period of four months, from March to June 2020, or roughly \$600 million per month. Demand for equipment and supplies, such as PPE, has increased as a result of the COVID-19 pandemic. Hospitals have incurred additional costs as they struggle to acquire additional supplies to meet the needs of their patients and staff. Moreover, current guidelines require all hospital workers to wear some PPE, regardless of whether they are in direct contact with COVID-19 patients. These guidelines increase the need and expense for PPE relative to normal operations.

Costs of Additional Support Some Hospitals are Providing to their Front-line Workers

- The AHA estimates the cost of support for front-line hospital workers in COVID-19 hotspots to be \$2.2 billion through the end of June, or just under \$550 million per month. This includes the costs of providing child care, housing, transportation, and medical screening and treatment for COVID-19 for front-line workers. This estimate could increase as more outbreaks of COVID-19 occur, or if the policy decision was made to extend these benefits to all health care workers during the pandemic.

Discussion

Hospitals face catastrophic financial challenges in light of the COVID-19 pandemic. The AHA estimates a **total four-month financial impact of \$202.6 billion** in losses for America's hospitals and health systems, or an average of **\$50.7 billion per month**.

As with any model, these findings are sensitive to underlying assumptions. While the model accounts for the many costs borne by hospitals during this pandemic, there are additional costs that were not included due to limited available data. Therefore, the four-month financial impact estimate likely under-represents the true financial impact our hospitals and health systems face. Some of these important additional costs are:

- **Drug Shortage Costs.** Every year, hospitals expend financial resources to cope with ongoing drug shortages, with one estimate putting this cost at nearly \$400 million per year.²⁴ Due to the pandemic, lower than normal drug supply due to fractured pharmaceutical supply chains has been met with increasing demand for certain drugs necessary to treat the surge of patients with COVID-19 infections. This situation has created a perfect storm for drug shortages for many vital drugs resulting in higher costs for hospitals.
- **Wage and Labor Costs.** Salary and wage costs have risen during the COVID-19 pandemic. Many hospitals are experiencing increased overtime costs as hospitals experience a surge in patients or front-line workers become sick. Some hospitals have implemented bonus pay for front-line workers. Some have turned to staffing firms to address health care worker shortages or meet surge demand, and staffing firms have increased their prices due to an increase in demand for health care workers. The effect of the virus on hospital wages and labor costs is clear. However, it is not evenly distributed across the country and there are not yet reliable data that can be analyzed to understand the magnitude of the effect.
- **Non-PPE Medical Supplies and Equipment Costs.** Hospitals have experienced increased costs for non-PPE medical supplies and equipment. For example, many hospitals acquired ventilators in anticipation of a surge of COVID-19 patients. There are limited data available to understand the additional cost-burden hospitals face as they acquire non-PPE medical supplies and equipment in preparation for COVID-19 patients.
- **Capital Costs.** As the demand for hospital services has increased due to the pandemic, many hospitals and health systems around the country have worked to expand their treatment capacity by incurring costs to set up additional space for COVID-19 testing tents, ICU beds, and other treatment beds.

The totality of these costs combined with the uncertainty of the pandemic's duration is certain to imperil hospital finances. After years of declining margins, it was only recently that many of the credit rating agencies expressed optimism about hospitals' ability to weather low payment rates from government providers amidst increasing enrollment in government programs, competition from tech disruptors, and other increasing costs such as prescription drugs, and salary and wages. A third of U.S. community hospitals had negative operating margins in 2018.²⁵

Congress has moved quickly to support the country during the COVID-19 pandemic. Congress allocated \$100 billion for provider relief in the Coronavirus Aid, Relief, and Economic Security Act, and added \$75 billion to the relief fund in the Paycheck Protection Program and Health Care Enhancement Act. However, the AHA has expressed concern with how the funds have been distributed and the timeliness of these payments.²⁶

More support is needed. Hospitals continue to experience losses from cancelled and delayed procedures, while

incurring increased costs for treating patients suffering from COVID-19 and purchasing the equipment and supplies necessary to ensure the health and safety of patients, providers, and their families. Additional support will be critical as the country moves into a new phase of recovery and rebuilding. During this time, we'll need to address health disparities and ensure the health and safety of vulnerable communities. We'll face new behavioral health challenges in light of all that our nation has experienced. And we'll need increased resources to address clinical resiliency to support the health care workers who answered the call when the country needed them.

As the country faces the inimitable challenges of COVID-19 head-on, Americans cannot afford the cost of closed hospitals and restricted access to life saving treatment – action is needed urgently to support our nation's hospitals and health systems and the heroes that work there.

Appendix: Methodology

The detailed methodology used in the AHA's modeling of the net financial impact of COVID-19 to hospitals and health systems is outlined below. The AHA undertook four analyses to estimate the financial impact of these challenges:

- the net financial impact of COVID-19 on hospital costs;
- total revenue losses from cancelled surgeries and other services;
- the additional costs associated with purchasing needed PPE and other supplies; and
- the costs of the additional support some hospitals are providing to their workers.

Net Financial Impact of COVID-19 Hospitalizations

The total number of COVID-19 hospitalizations in the U.S. over a four-month period. For the first component, a nationwide estimate of COVID-19 hospitalizations was calculated using data published by the New York City Department of Health and Mental Hygiene on the total number of hospitalized COVID-19 cases in New York City to date.²⁷ The hospitalization rate was then scaled up to a national estimate using U.S. Census population estimates, converted to hospitalizations per day and then applied over the four-month period of the AHA model. To estimate COVID-19 hospitalizations by payer, a payer mix estimate was derived from a 2019 study that evaluated emergency department visits by payer using Healthcare Cost and Utilization Project (HCUP) data for pulmonary conditions (pneumonia and other similar respiratory illnesses).²⁸ Our model did not adjust for any potential changes in payer mix due to the projected increases in the uninsured, as data on the exact nature of these changes are limited and it is unclear how changes in insurance status would manifest in changes in payer mix for COVID-19 hospitalizations.

The incremental cost of a COVID-19 hospitalization. For the second component, patients were segmented into two cohorts based on available clinical data: those who require mechanical ventilation and those who do not. Because mechanical ventilation use is often a sign of significant morbidity and impending mortality, the costs associated with its use are much higher than for patients who do not require that level of treatment. Therefore, total costs of treatment were estimated separately for patients who require mechanical ventilation and those who do not based on a set of corresponding diagnosis groups (DRGs) commonly used in payment for inpatient hospital services. These separate costs were then blended based on literature suggesting that only 20% of COVID-19 hospitalizations require ventilator use.²⁹ Rather than focusing on the total cost of COVID-19 treatment, the incremental cost of a COVID-19 hospitalization was then calculated.

The expected reimbursement from private and government payers for COVID-19 hospitalizations. The third component involved estimating reimbursements for COVID-19 hospitalizations for the two cohorts of patients mentioned above. Since reimbursement data for COVID-19 are not yet publicly available, Medicare data from the FY 2020 inpatient final rule were relied on to estimate a Medicare payment amount for COVID-19 hospitalization for each cohort of patients. These amounts were adjusted to include the 20% MS-DRG add-on for COVID-19 treatment. As with the estimate of costs, Medicare payment amounts for patients requiring mechanical ventilation were blended with those who do not. This blended Medicare payment amount was scaled to commercial payers and Medicaid based on published Medicare payment ratios.^{30,31} It is unclear what the mechanism or level of payment for the uninsured will be at this time. Although the Department of Health and Human Services has announced that a portion of the \$100 billion Provider Relief Fund will be used to reimburse health care providers

who have provided treatment for uninsured COVID-19 patients on or after Feb. 4, 2020 at Medicare rates, it also stated that this would be “subject to available funding.” Since it is uncertain how much funding will be available and for how long, this analysis assumes reimbursement at 50% of Medicare rates.

Finally, the net financial impact of COVID-19 hospitalizations over a four-month period for each payer was calculated by multiplying the number of hospitalizations for that payer by the estimated cost of and payment for, a COVID-19 hospitalization. The net financial impacts for each payer were then summed to generate a total net financial impact estimate.

Total Revenue Losses from Cancelled Surgeries and Other Services

Claims were classified into three categories of services: emergency department (ED)-related; non ED-related medical; and non ED-related surgical. For inpatient claims, ED-related services were identified if ED charges on the claim exceeded \$2,500: these were considered hospital inpatients that were admitted through the ED. For outpatient services, any claim with an ED charge was considered ED-related. Of the remaining non ED-related claims, inpatient services were classified as medical or surgical based on a crosswalk created by CMS that identifies Medicare severity diagnosis-related groups (MS-DRGs) as either medical or surgical. Outpatient surgical claims were identified using a range of current procedural terminology (CPT) codes for surgery of 10004 - 69990. Claims with CPT codes in the range of 36400 – 36425 (venipuncture) were not counted as surgical but instead placed in the medical service category.

Using provider net revenues for different payer types in the AHA Annual Survey Database, Medicare revenues calculated from the claims were estimated for other payers using the ratio of other payer net revenues to Medicare net revenues, and the resulting revenues were summed across providers. Furthermore, since the Medicare claims only included PPS and Maryland hospitals, total revenues across these hospitals were scaled to estimate total impacts for all hospitals in the U.S. (excluding federal hospitals).

Three levels of service interruptions were considered:

- Level 1: cancellation of 67% of ED-related services; cancellation of all non ED-related services
- Level 2: cancellation of 67% of ED-related services; cancellation of 50% of non ED-related medical services; cancellation of all non ED-related surgical services
- Level 3: cancellation of 67% of ED-related services; cancellation of 50% of all non ED-related services

This analysis uses a time period of four months, but given the uncertainty of what might happen beyond that time period, the estimated loss is most probably understated. The different levels of service interruptions over the four-month period were blended to reflect differences state-instituted moratoriums on non-ED procedures and differences in when states are easing these restrictions.

Additional Costs Associated with Purchasing Needed PPE

To estimate the increased costs of purchasing PPE, data from the Society for Healthcare Organization Procurement Professionals (SHOPP) were relied upon. SHOPP estimated the cost per day per bed for acquiring PPE “pre-COVID” (\$0.35/per bed day) and the current costs of acquiring PPE (\$25.58/ per bed day), accounting for the increase in demand and the need for more PPE based on CDC guidelines. The estimated daily costs under both

scenarios were scaled-up by the total number of U.S. hospital beds (excluding federal hospitals) and scaled up to generate monthly estimated totals.

Costs of Additional Support Some Hospitals are Providing to their Workers

This analysis estimates the costs of providing support to front-line hospital workers and their families, including child care, housing, transportation, and COVID-19 screening and treatment. While hospitals and health systems around the country are providing these supports to their front-line workers, it is especially the case for hospitals located in areas deemed as “hotspots” for COVID-19. Hotspots were identified as the top 100 counties with the highest COVID-19 infection rate, using county-level data matched against the AHA ASDB.³² To be conservative in estimating national costs, these costs were calculated assuming these support services were being offered at 50% of hospitals and health systems located in these COVID-19 hotspot areas.

For child care services, the number of hospital workers located in hotspots that had children under the age of 12 that may require child care were estimated and multiplied that by the average hourly cost of child care as estimated by the Office of Planning, Research & Evaluation at the Department of Health and Human Services.³³

For transportation services, 21.3% of hospital workers in hotspots were estimated to commute using public transportation based on data from the American Community Survey and multiplied that by the average daily cost of public transportation as estimated by the Bureau of Transportation Services.³⁴

For the cost of providing housing, 5% of hospital workers were estimated to require housing services and multiplied by the average per diem lodging rates published by the General Services Administration.³⁵

To estimate the costs of providing free daily testing for COVID-19, lab cost estimates (\$120/test) by Covered California were used, and multiplied by CDC estimates of the number of all COVID-19 cases among health care workers (11%), based on current testing capacity data.³⁶ Finally, to estimate the cost of covering hospitalization for hospital workers with COVID-19, CDC data for the number of hospital workers infected with COVID-19 in the U.S. were used, and the model assumes that 20% of all COVID-19 infections of hospital workers would require hospitalization. The COVID-19 hospitalization cost estimate was applied and multiplied by the number of estimated hospital workers requiring hospitalization.

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