

How Hospital Labor Costs and Revenue Margins Changed During the COVID-19 Pandemic: National and Statewide Trends

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The COVID-19 pandemic exposed many weaknesses in the U.S. health care system and society as a whole. During 2020 and 2021, hospital median net profit margins rose to the highest levels compared to prior years, fueled by federal and state COVID funding and enhanced federal program rates. While profit margins were higher, the impact of rising labor costs on hospital financing is gaining increased attention as hospitals and insurance companies begin negotiating their annual contracts. During the most acute phase of the pandemic, when hospital beds were occupied with COVID-19 patients, hospital administrators struggled to maintain their labor force, especially their nurses. They often resorted to use of contractual arrangements, which cost much more than employed staff.

Seeing a need for a data-driven insights on and solutions to this problem, the National Academy for State Health Policy (NASHP) added estimates of labor costs to its Hospital Cost Tool (HCT) 2.0. The HCT data set is the first to publish labor cost estimates for all short-term acute hospitals in the United States over the past decade, including during the COVID-19 pandemic. Drawing on the Centers for Medicare & Medicaid Services' Healthcare Cost Report Information System (HCRIS) database, the HCT is designed to provide state policymakers and researchers with analytical insights into how much hospitals spend on patient care, and how such costs relate to hospital charges (list prices) and actual prices paid by health plans.

Using the NASHP HCT 2.0, Mathematica studied the national trends of revenue, profit, and labor cost among general acute hospitals from 2011 to 2021. The national statistics reflect equal weighting for individual hospitals, so states with large numbers of hospitals have a larger influence on the national findings.

Key Takeaways

1. Despite rising labor and other operating costs, hospitals largely achieved record profits in 2020 and 2021, supported by federal payment policy changes and funding support in response to the COVID-19 pandemic.
2. During the pandemic, hospitals' labor costs for patient care per adjusted discharge grew by 18 percent nationally. About half of this increase was attributed to higher labor costs for patient care, while the other half was attributed to decreased utilization of hospital services.
3. With few exceptions, the higher labor costs per adjusted discharge at the state level reflected both increased labor intensity, as measured by the number of full-time equivalents (FTEs) per adjusted discharge, and growing hourly rates for labor during the pandemic.
4. Contract labor costs, as a share of hospitals' labor costs for patient care, doubled from 3 percent in 2019 to 6 percent in 2021, which was driven by both increased FTEs and hourly rates for contract staff.
5. Overall, compared with 2019 levels, 2021 hospital operating costs increased 10%, with about 3% attributed to labor costs and 7% attributed to other operating costs. Patient care labor costs increased 9%, with 3% attributed to contract staff and 6% to hospital employed staff.

Study Data and Methods

Our analysis drew on NASHP's HCT 2.0 data, which extract from 35,634 Medicare cost reports from 2011 to 2021 for short-term acute care hospitals in 50 U.S. states and the District of Columbia. We excluded critical-access hospitals because, unlike general acute care hospitals, they are not required to report labor costs in Medicare cost reports, and thus the data were not available.

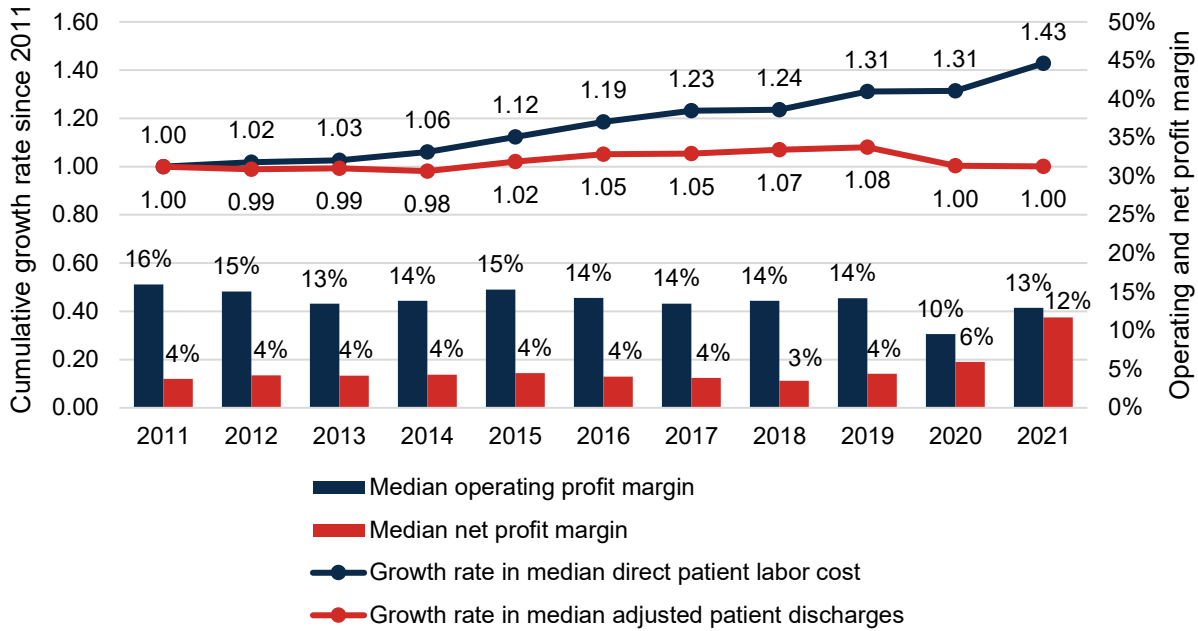
We calculated direct patient labor costs using Worksheet S-3. Direct patient labor costs (referred to as "labor costs" hereafter) include the costs of vacation, holiday sick leave, other paid time off, severance pay, bonuses, and benefits for hospital employees and contract laborers. It excludes patient services billed for through other methods, such as direct patient care by physicians, and costs for personnel not providing direct patient care, such as administration staff. Hospital operating costs include only the portion of Operating Expenses related to hospital patient care and eligible for reimbursement per Medicare federal regulations, sometimes referred to as Medicare Allowed Costs.

To understand the factors driving the changes in labor costs, we examined trends in labor costs per adjusted discharge, number of FTEs, and hourly rates for hospital employees and contract labor separately. We measured utilization by adjusted patient discharges, which is the sum of hospital inpatient and outpatient discharges multiplied by the ratio between total hospital charges and inpatient charges. We summarized the medians of hospital utilization and labor costs based on the ending year in Medicare cost reports, which is typically the end of the hospital fiscal year. For example, if a cost report covered July 1, 2020, to June 30, 2021, we assigned the cost report to fiscal year 2021.

Study Results

As shown in Exhibit 1, nationally, hospital utilization and labor costs have been growing from 2011 to 2019, as well as the median annual operating profit margin. Due to differences in report timing, the data from the 2020 cost reports reflect a mix of months before and during the COVID-19 public health emergency (which started in January 2020), and the 2021 data reflect the combined effect of the pandemic in calendar years 2020 and 2021. The growth trend in adjusted utilization shows that although pre-pandemic utilization was rising by 1 or 2 percentage points every year, it dropped by 8 percentage points in 2020 and 2021 compared with 2019. In contrast to the drop in utilization, labor costs spiked nationally by 9 percentage point from 2019 to 2021, following a decade of steady growth.

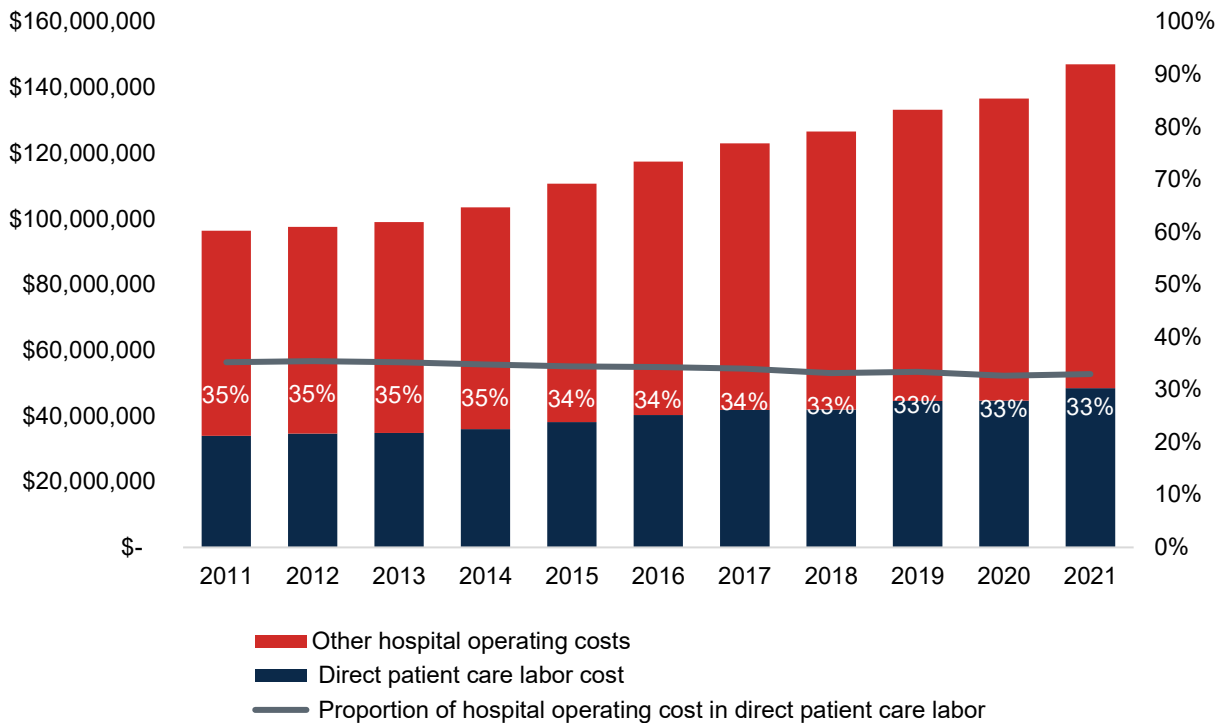
Exhibit 1. National Trends in the growth of direct patient care labor costs and hospital utilization compared with hospital operating and net profit margins, 2011–2021



Despite increasing labor costs especially when adjusted by declining utilization rates, median net profit margins were higher in 2020 and 2021 compared with previous years. Hospitals’ net profit margins, which reflect net income divided by net patient revenue and do include COVID-19 funding reached 6 percent in 2020 and 12 percent in 2021, far exceeding the pre-pandemic level of 4 percent. We also found an increase in hospitals’ median operating profit margins in 2021 after a drop from 14 percent pre-pandemic to 10 percent in 2020. Operating profit margins reflect the difference between net patient revenue and hospital operating costs divided by net patient revenue, and do not include federal funding for COVID-19 (Provider Relief Fund and Small Business Association Loan Forgiveness amounts) increased in 2021. The 3-percentage increase of operating profit margins from 2020 to 2021 was partly a result of the COVID-related changes in federal payment policies such as suspension of the 2-percent sequestration on Medicare payments, the increased Medicare payments for COVID-19 admissions, and federal medical assistance percentage for Medicaid.

Putting labor cost into a larger context to understand the changes in net profit margins, Exhibit 2 shows that nationally labor costs grew at about the same pace as other components of hospital operating costs. The growth in labor costs contributed to 28 percent of growth in national median hospital operating costs. The proportion of hospital operating cost in direct patient care labor remained at 33 percent before and during the pandemic.

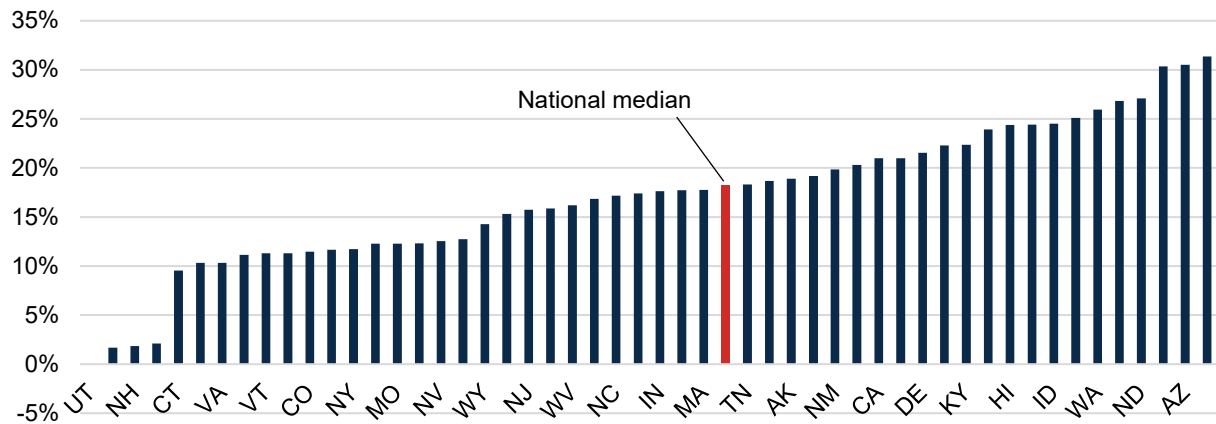
Exhibit 2. National Trends in median direct patient care labor cost and other hospital operating cost, 2011–2021



Overall, these trends suggest that although hospitals experienced operational challenges because of reduced hospital utilization combined with increased labor costs during the pandemic, federal payment policy changes and funding support helped most hospitals remain profitable in 2020 and 2021. Such findings are consistent with [a recent study](#) on the early effects of COVID-19 and federal relief funds on hospital profits.

The increase in total labor costs and decline in utilization in 2020 and 2021 suggest that hospitals spent more on labor per discharge than pre-pandemic. Indeed, from 2019 to 2021, the national median labor per adjusted discharge cost rose by 18 percent, from \$2,994 to \$3,539, (Exhibit 3)— about 55 percent of such increase was attributed to higher labor cost, the remaining 45 percent attributed to lower discharges. Comparing change in median costs per adjusted discharges across states, the growth varied widely across states, from no change in Utah to a 31 percent increase in Georgia. While median cost per adjusted discharge is a reasonable measure to perform initial comparison between states and national median, hospital size, ownership and other factors also impact the change in labor costs and utilization in each state. Those factors are not included in this measure.

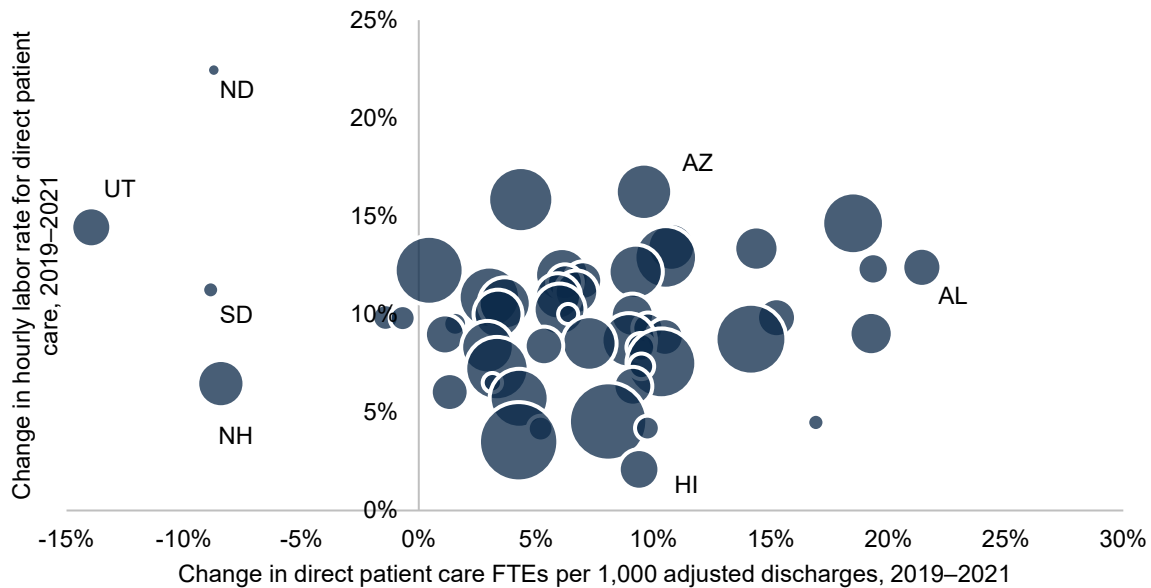
Exhibit 3. Change in labor costs per adjusted discharge, 2019–2021, by state



Both increased labor intensity, as measured by the number of FTEs per adjusted discharge and increased hourly rates for labor contributed to the growth in labor costs per adjusted discharge (Exhibit 4). From 2019 to 2021, the national median FTEs per 1,000 adjusted discharges grew by 6.7 percent, from 34 to 37, which could be due to the sicker patients admitted during the pandemic and to the rigid labor market (meaning that hospitals could not lay off staff in the short term to adjust for the utilization decline). During the same time, the national median hourly rate for labor grew by 11.1 percent, from \$42 to \$47.

Again, states had varied experiences with the hospital labor market. Although the median hourly rate for labor rose across states, growth ranged from 2 percent in Hawaii to 22 percent in North Dakota. The intensity of labor (that is, the median FTEs per adjusted discharge among hospitals) increased for most states, although a few states saw significant decreases (Utah, South Dakota, North Dakota, and New Hampshire).

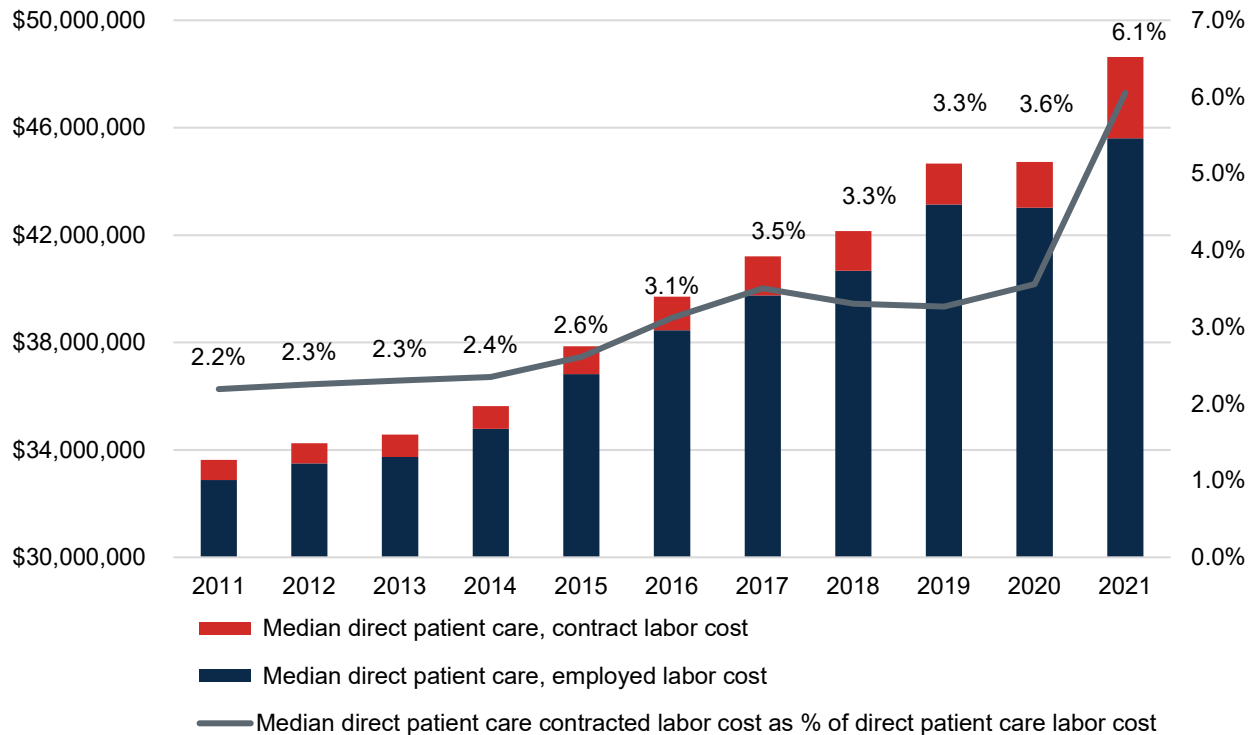
Exhibit 4. Changes in labor hourly rates and FTEs per adjusted discharge, 2019–2021



Note: The size of the circles represents the median number of adjusted patient discharges among hospitals in 2021.

Although the labor costs for hospital employed staff and contract staff both rose during the pandemic, the median cost of contract labor doubled from \$1.5 million in 2019 to \$3 million in 2021, growing much faster than the labor cost for hospital staff. As a result, contract labor as a percentage of total labor costs grew from 3.3 in 2019 to 6.1 percent in 2021 (Exhibit 6). Although hospitals still used a small portion of contract labor, a jump of 2.8 percentage points in the share of contract labor costs could have a drastic impact on hospitals that have slim profit margins.

Exhibit 6. National median labor costs by hospital employed staff and contract labor, 2011–2021



To understand the increase in the contract labor costs, we compared the changes in the hourly rates and FTEs for contract staff. Exhibit 7 shows both national median hourly rates and FTE increased in 2021 compared to 2019 levels. Hourly rates rose significantly in 2019 through 2021—from \$65 to \$92, or 41 percent. Contracted labor FTEs also rose by 40 percent from 11.3 to 15.8 FTEs, while hospital employed FTEs dropped by 3 percent and total labor FTEs dropped by 2 percent during the same periods (Exhibit 8). Although increases in contracted labor rates and FTEs seem drastic, contracted labor constitute only 3 percent of total direct patient care labor, which lessens the impact of these large increases to a small portion of hospital expense growth.

Exhibit 7. National trends in median hourly rates for hospital employed staff and contract staff, 2011–2021

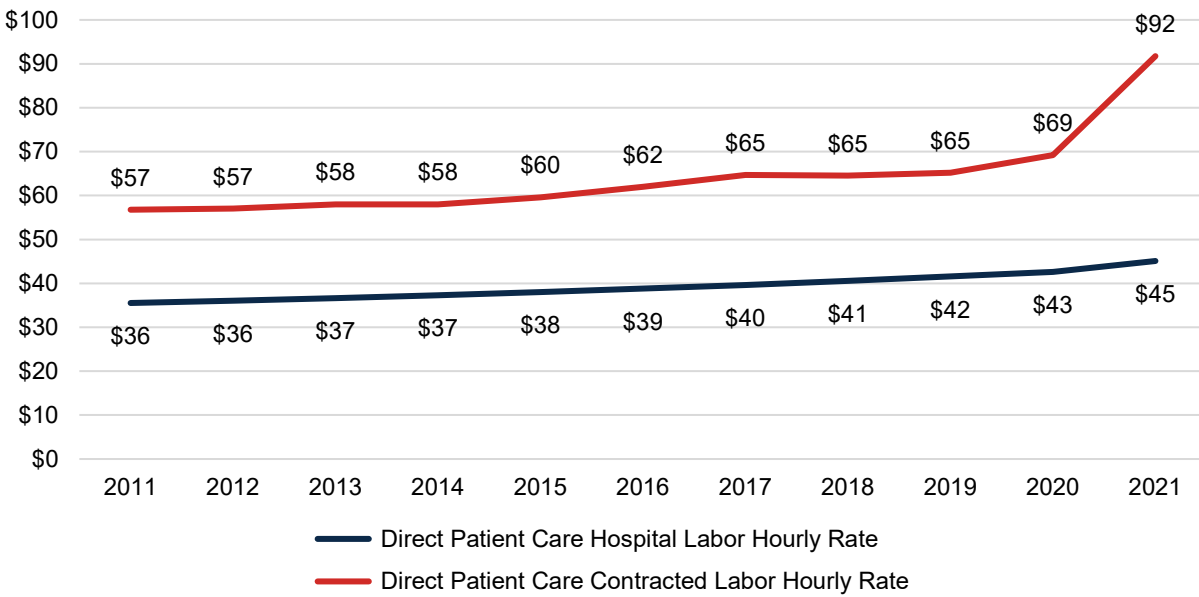
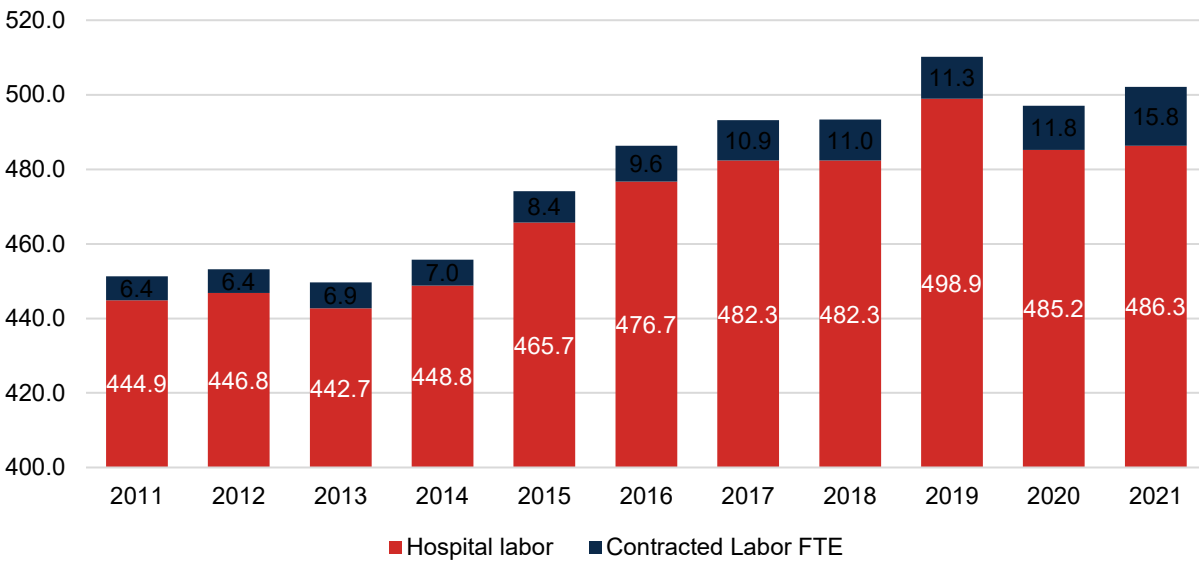


Exhibit 8. National trends in median FTE for hospital employed staff and contract staff, 2011–2021



Conclusion

Using NASHP's HCT 2.0 data, we found that hospitals' total labor costs for patient care increased significantly despite the sharp decrease in utilization of hospital services in 2020 and 2021—the peak of the COVID-19 pandemic. At the national level, labor costs per adjusted hospital discharge grew by 18 percent during this period, with the increase ranging from zero to 31 percent across states. These trends are consistent with the acute burden on emergency departments and intensive care units, temporary shut-down of elective procedures, and clinical staff shortage that hospitals experienced during the pandemic.

When decomposing labor costs into FTEs per adjusted discharge and hourly rates, we found that hospitals in most states saw growth in both factors. We estimated that 28 percent of increase in operating costs between 2019 and 2021 was due to increase in labor cost for direct patient care costs. In addition, despite the relatively small share of contract labor in total direct patient care labor, its growth accounted for 38 percent of the increase in total direct patient care labor costs from 2019 to 2021. Other recent studies have shown similar levels of wage increases in health care during the pandemic, suggesting that the increase was [associated with declines in health care employment, especially in areas with high COVID-19 burden](#).

Our analysis shows that compared with 2019 levels, 2021 hospital operating costs increased 10 percent, with patient care labor costs accounting for 3 percent and other operating costs accounting for the other 7 percent. Labor costs account for about a third of the hospital operating costs at the national level. Given the significance of labor to hospital operations, continued labor shortages and pressures for higher wages may have a major impact on hospitals. On the other hand, more research is needed to understand the rapid growth of the non-labor portion of hospital expenses and anticipate their impacts on hospital financial performance.

Although the pandemic is now behind us, hospitals continue to grapple with staffing shortages due to burnout and dissatisfaction among health care workers. [Elsevier Health recently reported](#) that in 2022, 47 percent of U.S. clinicians said they planned to leave their jobs in the next two to three years. More recent reports indicate that workforce shortage may start to ease as [employment in health services recovers](#) and the record-high [hospital wage index starts trend down in late 2022](#); however, many hospitals continue to experience the impact of labor shortages in 2023. The 2022 Hospital Cost Reports data are not ready to analyze, but based on national medians from the HCT 2.0 data, we estimate that a 5-percent annual increase in hospital wages from 2021 to 2023 would reduce hospitals' median net profit margins by 4 percentage points—from 11.7 to 7.6 percent.

Another area of concern is the shift toward greater use of contract labor among hospitals. Even though temporary contract staff receive higher hourly wages than employed staff, hospitals facing critical workforce shortages might be compelled to hire more contract staff to meet patient demand. The reliance on contract labor not only increases hospitals' expenses but might also cause problems with workload management and staff communication. More research is needed to understand the impact of such unprecedented growth in the use of hospital contract labor on patient safety and quality of care.

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