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Impact of COVID-19 on the Construction Industry: 2 Years in Review

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OVERVIEW

The COVID-19 pandemic has led to dramatic changes in the U.S. labor force and business practices, in large part because of high rates and numbers of nonfatal and fatal illnesses. The construction industry experienced numerous disruptions, from material delivery delays and project suspensions to concerns about future project funding. In addition, many construction firms improved workplace safety and implemented new practices, such as mask-wearing, social distancing, and more flexible absenteeism policies. After the initial waves of the pandemic, the construction industry saw promising recovery, especially in 2021. This Data Bulletin provides information on the two-year impact of COVID-19 on the industry, including changes in spending, employment, small business trends, OSHA inspections and citations, and worker safety and health. Data used come from a variety of publicly available sources, including the U.S. Bureau of Labor Statistics, U.S. Census Bureau, U.S. Department of Commerce, U.S. Occupational Safety and Health Administration (OSHA), and the Delphi Group at Carnegie Melon University (see the Data Sources section below for more information). Time periods covered by this report varied by source according to data availability.

THIS ISSUE

This issue examines the impact of COVID-19 on the construction industry over the past two years.

KEY FINDINGS

COVID-19 illness among construction workers was reflected by large increases in nonfatal illnesses compared to pre-pandemic levels.
Charts 12, 13

Employment in the construction industry fell 10% from 2020 Quarter (Q) 1 to Q2 but soon rebounded and was 4% higher in 2022 Q1 than in 2020 Q1.
Chart 4

More than half of construction small businesses reported reduced work hours at the start of the pandemic, but by the end of April 2022 17% of construction small businesses were reporting reduced work hours.
Chart 9

As of April 2022, nearly two-thirds (63%) of construction small businesses continued to report a moderate to large negative effect of COVID-19.
Chart 10

The COVID-19 vaccination rate was 82% for workers in all occupations in May 2022 and 52% for those in construction and extraction occupations.
Chart 14

NEXT DATA BULLETIN

Transportation Injuries in the Construction Industry

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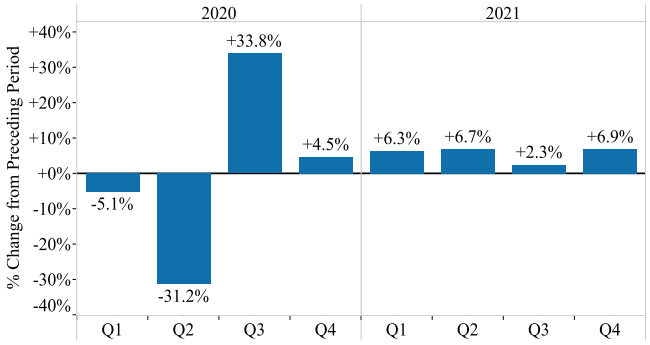
Unless otherwise noted, numbers in text and charts were calculated by the CPWR Data Center.

The economic impact of the pandemic was examined first through two economic measures, the U.S. *real gross domestic product* (GDP) and *construction spending*. Real GDP fell significantly at the start of the pandemic, with a 31.2% decline in the second quarter of 2020. However, it increased 33.8% in the next quarter (chart 1). The decline and rebound were the largest changes since GDP has been recorded in the U.S. Since then, GDP increased steadily from 2020 Q4 to 2021 Q4, with a notable decrease in the rate of growth in 2021 Q3.

1. Percent change in Real GDP from preceding period, 2020-2021*

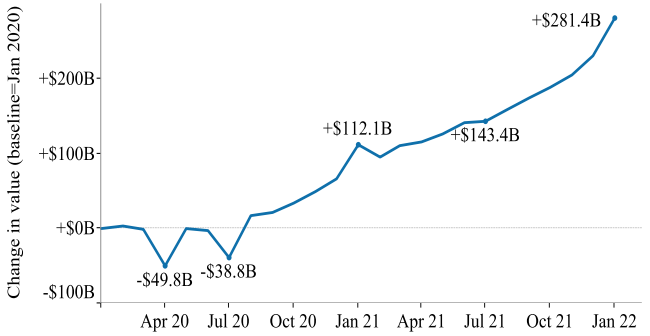


Source: *U.S. Department of Commerce Bureau of Economic Analysis. Table 1. Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period.*

** Seasonally adjusted annual rate.*

There were two significant quarterly drops in construction spending during the pandemic, a 3.5% decline (-$49.8 Billion (B)) in April 2020 and a 2.7% decline (-$38.8B) in July 2020, compared to the January 2020 baseline (chart 2). These were largely driven by private residential construction (-$26.8B in April 2020 and -$23.0B in July 2020) and private nonresidential construction (-$13.7B in April 2020 and -$23.1B in July 2020; chart 3). Overall, construction spending increased from August 2020 to January 2022, with private residential spending accounting for much of this growth.

2. Change in construction spending for all construction by month, January 2020-January 2022*^

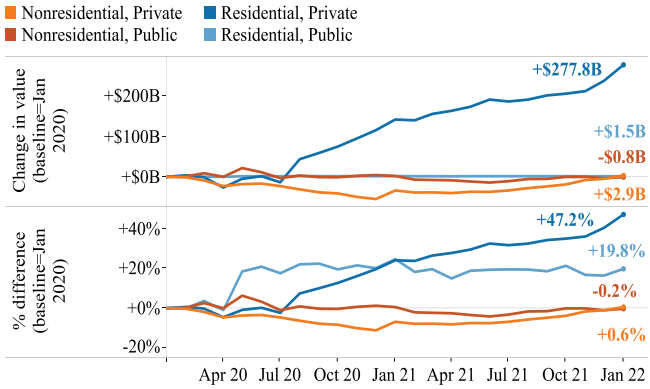


Source: *U.S. Census Bureau. Construction Spending. Value of Construction Put in Place.*

** Seasonally adjusted annual rate.*

^ Used the most recently available value provided as monthly estimates can be updated.

3. Change in construction spending by month and type of construction, January 2020-January 2022*



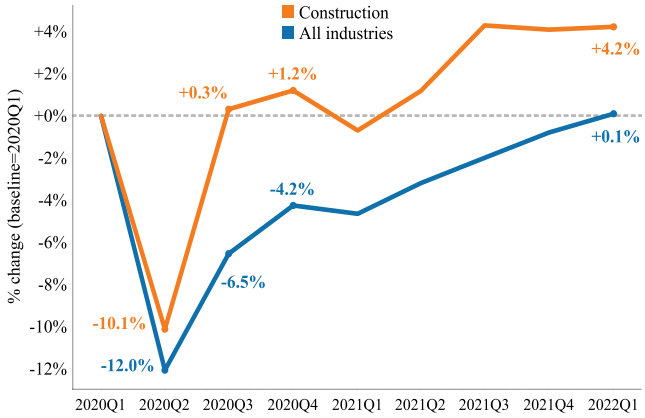
Source: *U.S. Census Bureau. Construction Spending. Value of Construction Put in Place.*

** Seasonally adjusted annual rate.*

^ Used the most recently available value provided as monthly estimates can be updated

Employment in construction and all industries fell sharply at the beginning of the pandemic (-10.1% and -12.0%, respectively, between 2020 Q1 and 2020 Q2; chart 4). Construction employment, however, rebounded more rapidly than employment in all industries and was 4.2% higher in 2022 Q1 than 2020 Q1, while employment in all industries was only 0.1% higher than in 2020 Q1.

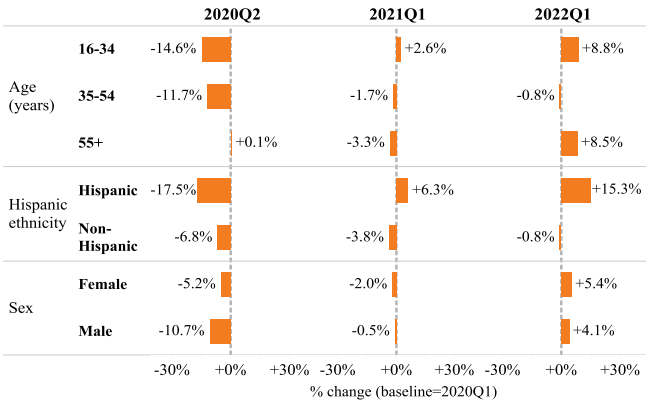
4. Change in employment by quarter, construction versus all industries, 2020Q1-2022Q1



Source: *U.S. Bureau of Labor Statistics, Current Population Survey.*

Hardest hit at the start of the pandemic were construction workers who were under age 35 or Hispanic: employment in each group declined over 14% between 2020 Q1 and 2020 Q2 (chart 5). However, employment in these groups rebounded, surpassing 2020 Q1 levels by over 8% in 2022 Q1.

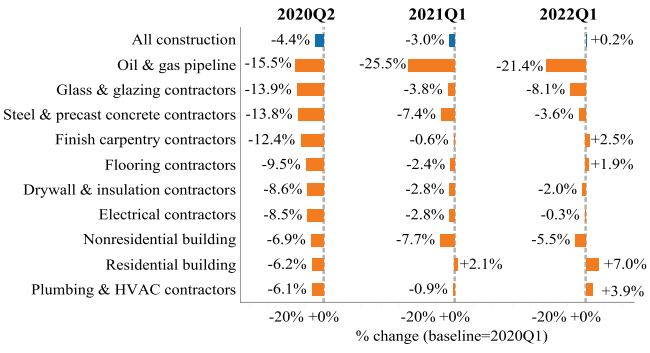
5. Change in construction employment since 2020Q1, by demographics



Source: *U.S. Bureau of Labor Statistics, Current Population Survey.*

The three construction *detailed subsectors* hit hardest by the pandemic were Oil and Gas Pipeline (NAICS 23712), Glass and Glazing Contractors (NAICS 23815), and Steel and Precast Concrete Contractors (NAICS 23812). All three experienced private *wage-and-salary* employment falling more than 13% between 2020 Q1 and 2020 Q2 (chart 6). Employment in all three of these subsectors remained lower in 2022 Q1 than in 2020 Q1. In contrast, Finish Carpentry Contractors (NAICS 23835), Flooring Contractors (NAICS 23833), Residential Building (NAICS 23610), and Plumbing and HVAC Contractors (NAICS 23822) had higher employment levels in 2022 Q1 despite significant declines of over 6% at the start of the pandemic.

6. Change in private wage-and-salary employment since 2020Q1 in the 10 construction subsectors* with the largest employment drop in 2020Q2

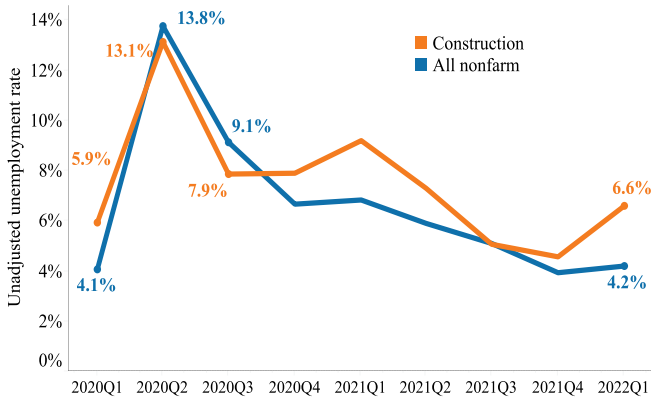


Source: *U.S. Bureau of Labor Statistics, Current Employment Statistics. March 2022 estimate is preliminary.*

**Subsectors with "Other" in title were excluded (NAICS: 23819, 23829, 23839).*

The private wage-and-salary *unemployment rate* in all nonfarm industries surpassed that of construction in the second and third quarters of 2020 (Q2: 13.8% versus 13.1%; Q3: 9.1% versus 7.9%; chart 7). However, unemployment in construction was the same as or higher than that of all industries in all other quarters examined. By 2022 Q1, the unemployment rate was 6.6% in construction and 4.2% in all industries.

7. Unemployment rate in private wage-and-salary workers, construction versus all nonfarm industries, 2020Q1*-2022Q1

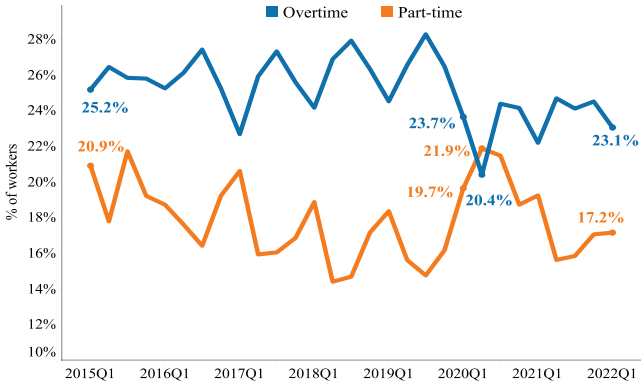


Source: *U.S. Bureau of Labor Statistics, Current Population Survey. Table A-14. Unemployed persons by industry and class of worker, not seasonally adjusted.*

**February 2020 estimate was corrected by BLS.*

The percentage of construction workers with *part-time* or *overtime* schedules has long followed a seasonal pattern, with part-time hours typically declining and overtime hours increasing between the first and second quarters of each year (chart 8). However, even with these seasonal influences, the proportion of part-time workers rose from 19.7% to 21.9% between 2020 Q1 and 2020 Q2, and the proportion of overtime workers dropped from 23.7% to 20.4% during this period. However, by 2022 Q1, worker schedules were similar to pre-pandemic levels (part-time: 19.7% in 2020 Q1 versus 17.2% in 2022 Q1; overtime: 23.7% in 2020 Q1 versus 23.1% in 2022 Q1).

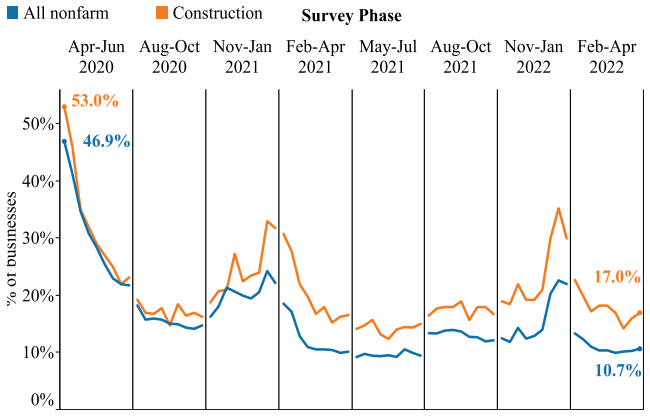
8. Percentage of part-time and overtime construction workers, 2015Q1-2022Q1



Source: *U.S. Bureau of Labor Statistics, Current Population Survey.*

Next, the impact of the pandemic on *small businesses* was examined. Between April 2020 and April 2022, reduced work hours were reported by an average of 21.0% of construction businesses and 16.1% of all nonfarm businesses (chart 9). The proportion of businesses with reduced work hours was highest in April 2020, at 53.0% in construction and 46.9% in all nonfarm industries. By April 2022, 17.0% of construction businesses and 10.7% of all nonfarm businesses reported reduced work hours. Over the past two years, construction businesses were consistently more likely to report reduced work hours than all nonfarm businesses. This difference most likely results from a limited capacity for remote work.

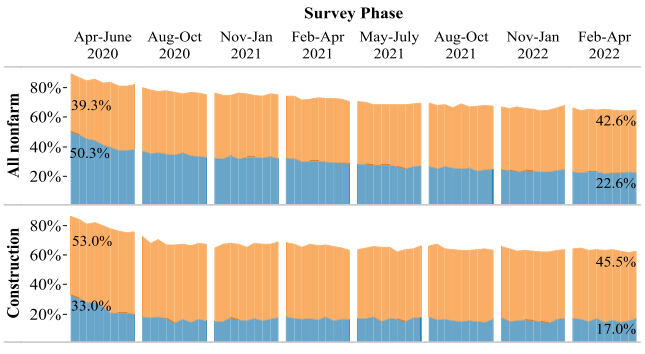
9. Reduction in hours worked by paid employees, construction versus all nonfarm industries, April 2020 - April 2022



Source: *U.S. Census Bureau, Small Business Pulse Survey.*

At the first survey point in 2020, 86.0% of construction businesses and 89.6% of all nonfarm businesses reported a *moderate to large negative effect* of COVID-19 (chart 10). By April 2022, 62.5% of construction and 65.2% of nonfarm businesses reported a moderate to large negative effect. For construction businesses, the percentages from April 2020 to April 2022 decreased for both moderate (53.0% vs 45.5%) and large (33.0% versus 17.0%) negative effects.

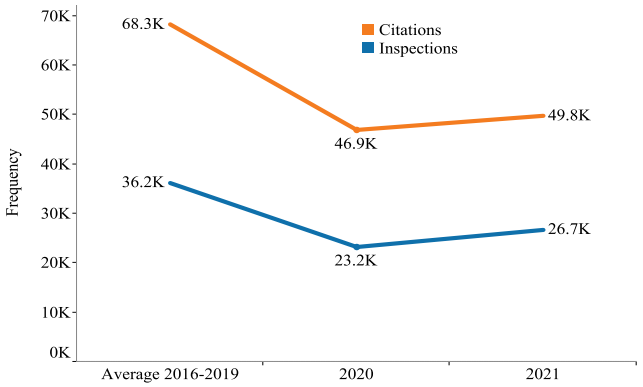
10. Impact of COVID-19 on small businesses, construction versus all nonfarm industries, April 2020-April 2022



Source: *U.S. Census Bureau, Small Business Pulse Survey.*

The pandemic also affected OSHA *inspections* and *citations* for the construction industry. From 2016 to 2019, there were an average of 36.2 thousand (K) inspections and 68.3K citations (chart 11). Compared to those years, there was a 35.9% decline in inspections and 31.3% decline in citations in 2020, resulting from reductions in face-to-face interactions by OSHA during the pandemic. Despite on-going pandemic concerns, inspections increased 15.1% (23.2K to 26.7K) and citations increased 6.2% (46.9K to 49.8K) in 2021.

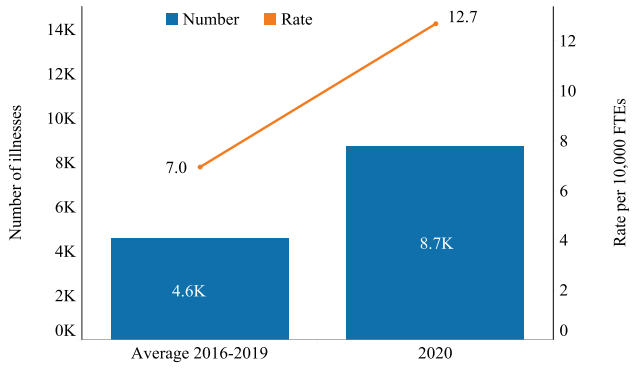
11. Number of OSHA inspections and citations in construction, 2016-2021



Source: *Occupational Safety and Health Administration, Federal and State Inspections Data.*

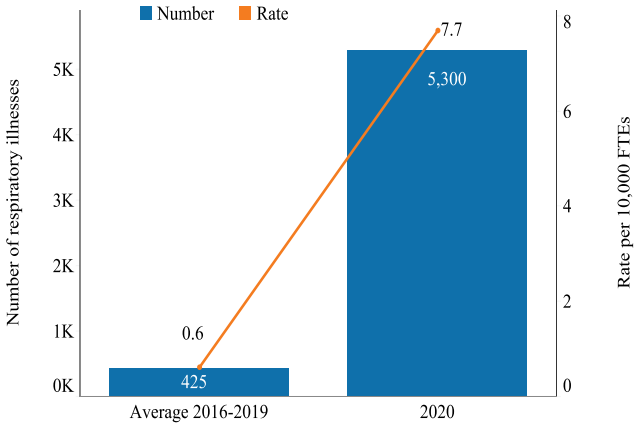
Several factors related to construction employees' health during the past two years of the pandemic were also examined. The rate of both fatal and nonfatal injuries increased from 2019 to 2020. The impact of COVID-19 among construction workers was estimated by examining *nonfatal illnesses*. There was a 90.2% increase in the number of illnesses in 2020 (n=8.7K) compared to the 2016-2019 average (n=4.6K; chart 12). There was also an 81.4% increase in the rate of nonfatal illnesses (per 10,000 *full-time equivalent workers [FTEs]*), from an average of 7.0 from 2016-2019 to 12.7 in 2020. The increase was even more alarming for *nonfatal respiratory illnesses,* with a 1147.1% increase in the number of cases (425 on average from 2016-2019 vs 5.3K in 2020) and 1,183.3% increase in the rate per 10,000 FTEs (0.6 from 2016-2019 vs 7.7 in 2020; chart 13).

12. Number and rate of nonfatal illnesses in construction, 2016-2020 (Private wage-and-salary workers)



Source: *U.S. Bureau of Labor Statistics. Illness cases by category of illness - rates, counts, and percent - industry division.*

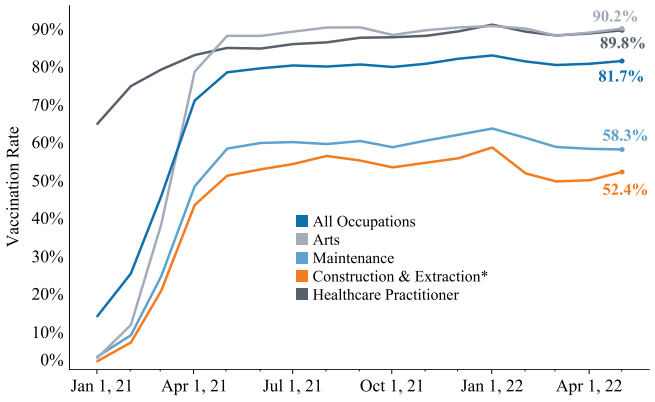
13. Number and rate of nonfatal respiratory illnesses in construction, 2016-2020 (Private wage-and-salary workers)



Source: *U.S. Bureau of Labor Statistics. Illness cases by category of illness - rates, counts, and percent - industry division.*

Self-reported COVID-19 vaccination was then examined, as vaccination is vital in keeping workers safe and maintaining business. Since vaccines first became available, construction and extraction workers have consistently lagged behind other occupational categories in vaccination rates. Workers in construction and extraction occupations on average reported a 54% vaccination rate from May 2021 to May 2022, compared to 81% for all occupations combined (chart 14). This finding is consistent with the COVID-19 Vaccination Dashboard, which also includes information on booster rates.

14. Vaccination rate of two highest and lowest^ occupation categories, January 2021 through May 2022



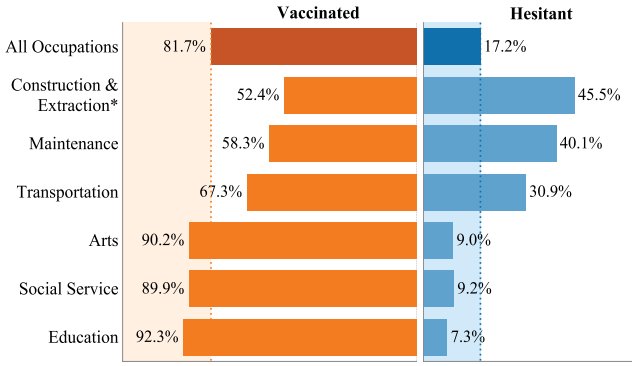
Source: *Delphi Group. COVID-19 Trends and Impact Survey.*

^By monthly average vaccination rate.

**Some workers may work in non-construction industries.*

Looking at vaccination rates by major occupational category in May 2022, rates were highest among education workers (92.3%) and lowest among construction and extraction workers (52.4%: chart 15). *Hesitancy rates* tell a similar story, with construction and extraction workers having a hesitancy rate of 45.5%, compared to a rate of only 7.3% among education workers. Overall, 81.7% of people in all occupations were vaccinated and 17.2% reported being hesitant.

15. COVID-19 vaccine uptake and hesitancy, by selected^ major occupational category, May 2022



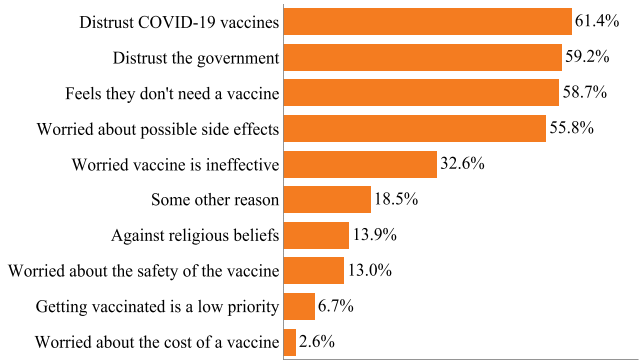
Source: *Delphi Group. COVID-19 Trends and Impact Survey.*

^The top 3 and bottom 3 occupations by vaccination rate in the month of May were selected.

**Some workers may work in non-construction industries.*

Among hesitant construction workers in May 2022, some of the most common perceived *barriers to vaccination* were a distrust of COVID-19 vaccines (61.4%), distrust of the government (59.2%), and a belief that they did not need a vaccine (58.7%; chart 16).

16. Barriers* to COVID-19 vaccination among hesitant construction and extraction** workers, May 2022



Source: *Delphi Group. COVID-19 Trends and Impact Survey.*

**Respondents were allowed to select one or more barrier items that applied.*

***Some workers may work in non-construction industries.*

COVID-19 illness among construction workers was reflected by large increases in nonfatal illness compared to pre-pandemic levels. The pandemic brought other considerable challenges to the construction industry over the past two years, including labor shortages, project delays or cancellations, supply chain disruptions, and rising material costs. The early impacts of the pandemic on employment have largely subsided, but employment in some subsectors remained lower than 2020 Q1 levels, indicating that recovery is not equally shared. Despite this slower recovery in some subsectors, unemployment in construction overall is at its lowest since April 2020.

More than half of small construction businesses still report negative impacts of the pandemic, including supply chain issues, price increases, and declines in workers' mental health. These challenges should continue to be examined.

The pandemic also affected OSHA inspections designed to assure compliance with safety regulations and reduce job hazards. OSHA inspections rose in 2021 but were still down from 2019 levels.

Construction work was deemed essential early in the pandemic. One of the most important steps to keeping construction workers safe on the worksite is the COVID-19 vaccine. The dramatic increases in nonfatal respiratory illnesses among construction workers highlights the pandemic's impact on construction worker safety and health and the need for vaccinations.

As workplaces try to "return to normal," protecting workers from COVID-19 remains a priority for the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and CPWR. OSHA has developed guidance for construction work. NIOSH has provided resources for COVID-19 information for the workplace. To help construction contractors and workers, CPWR has developed a COVID-19 Construction Clearinghouse, and several resources on the science and benefits of the COVID-19 vaccine.

ACCESS THE CHARTS & MORE

View the charts in PowerPoint and the data underlying the charts in Excel. Downloading will start when you click on each link. These files can also be found under this Data Bulletin at: cpwr.com/data-reports. In addition, see our latest Interactive Data Dashboard on Occupational Exposures in Construction.

DEFINITIONS

Barriers to vaccination *– Reported barriers to COVID-19 vaccination for those respondents who have not been vaccinated, did not have an appointment to get vaccinated at time of survey, and answered that they would "probably", "probably not", or "definitely not" get vaccinated should a vaccine be offered to them at time of survey.*

Citation *– Violation of any OSHA standard resulting from an inspection in the construction industry (NAICS 23).*

Construction spending *– An estimate of the total dollar value of construction work done (e.g, new structures or improvements to existing structures in private and public sectors), also known as the value of construction put in place.*

Full-time equivalent worker (FTE) *– Determined by the hours worked per employee on a full-time basis, defined as working 2,000 hours (40 hours x 50 weeks) per year*

Hesitancy rate *– The proportion of respondents who have not been vaccinated, did not have an appointment to get vaccinated at time of survey, and answered that they would "probably," "probably not," or "definitely not," get vaccinated should a vaccine be offered to them at time of survey.*

Inspection *– Inspection with a closed case status in the construction industry (NAICS 23), conducted by either federal or state OSHA offices in a calendar year.*

Moderate to large negative effect *– Responses of "moderate negative effect" or "large negative effect" from small businesses to the question: "Overall, how has this business been affected by the Coronavirus pandemic?"*

Nonfatal illness *– Any abnormal condition or disorder caused by exposure to factors associated with employment, including acute and chronic illnesses or diseases that may be caused by inhalation, absorption, ingestion, or direct contact.*

Nonfatal respiratory illness *– Any illness resulting from breathing in hazardous biological agents, chemicals, dust, gases, vapors, or fumes at work.*

Real gross domestic product (GDP) *– The value of goods and services produced without double counting for the intermediate goods and services used to produce them.*

Small business (U.S. Census Bureau, Small Business Pulse Survey) *– U.S. nonfarm, single-location employer business with 1-499 employees and receipts of $1,000 or more.*

Detailed Subsector *– 4- or 5-digit NAICS codes within construction (depending on the level available in the data).*

Part-time *– Reported working less than 35 hours at one's main job the week before the survey.*

Overtime *– Reported working more than 40 hours at one's main job the week before the survey.*

Unemployment rate *– Number of unemployed people as a percentage of the labor force (the labor force is the sum of the employed and unemployed).*

Vaccination rate *– The proportion of respondents who have received at least one dose of the COVID-19 vaccine.*

Wage-and-salary *– Workers who receive wages, salaries, commissions, tips, or pay from their employer.*

DATA SOURCES

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ABOUT THE CPWR DATA CENTER

The CPWR Data Center is part of CPWR–The Center for Construction Research and Training. CPWR is a 501(c)(3) nonprofit research and training institution created by NABTU, and serves as its research arm. CPWR has focused on construction safety and health research since 1990. The Data Bulletin, a series of publications analyzing construction-related data, is part of our ongoing surveillance project funded by the National Institute for Occupational Safety and Health (NIOSH).

Besides cpwr.com, visit CPWR's other online resources to help reduce construction safety and health hazards:

- Choose Hand Safety
  https://choosehandsafety.org/
- Construction Safety and Health Network
  https://safeconstructionnetwork.org/
- Construction Solutions
  https://www.cpwrconstructionsolutions.org/
- Construction Solutions ROI Calculator
  https://www.safecalc.org/
- COVID-19 Construction Clearinghouse
  https://covid.elcosh.org/index.php
- COVID-19 Exposure Control Planning Tool
  https://www.covidcpwr.org
- Electronic Library of Construction Occupational Safety and Health
  https://www.elcosh.org/index.php
- Exposure Control Database
  https://ecd.cpwrconstructionsolutions.org/
- Safety Climate - Safety Management Information System (SC-SMIS)
  www.scsmis.com
- Stop Construction Falls
  https://stopconstructionfalls.com/
- Work Safely with Silica
  https://www.silica-safe.org/

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