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**COVID-19 VACCINE
EDUCATION AND EQUITY
PROJECT ISSUE BRIEF**

DECEMBER 2021

VACCINATION EQUITY IN THE COVID-19 ERA



Vaccines are a critical part of the public health infrastructure and one of the most cost-effective interventions in health care. The COVID-19 pandemic has put a spotlight on vaccines and has highlighted the challenges of ongoing health disparities as they relate to vaccine access and uptake.

Health departments, researchers, medical and patient groups, and many others have been investigating the US uptake of COVID-19 vaccines since they were first administered to health care workers in December 2020. Such studies document vaccination disparities related to race and ethnicity, geography, health insurance status, income, and type of job.

This brief is intended to summarize data on current disparities in COVID-19 vaccination rates, describe the decline in most routine vaccinations that has occurred during the pandemic, and provide context on disparities that existed before the pandemic and continue today. It also recommends how health groups can incorporate successful approaches to improve both COVID-19 rates and address longstanding vaccination inequities, which have led to lower vaccination rates for many and to a higher incidence of vaccine-preventable disease in vulnerable populations.

COVID-19 VACCINATION DISPARITIES

Race and Ethnicity

Over the course of the vaccination rollout, Black and Hispanic people have been less likely than non-Hispanic whites to receive a vaccine. There are many social, geographic, political, economic, and environmental factors that create challenges to vaccination access and acceptance in communities of color. According to the Centers for Disease Control and Prevention (CDC), some of these factors include education, income, and wealth gaps; job access and working conditions; racism and other forms of discrimination; gaps in healthcare access; transportation and neighborhood conditions; and lack of trust as a result of past medical racism and experimentation.¹ In addition to being less likely to get a vaccine, Black and Hispanic Americans are more likely to get seriously ill and die from COVID-19 due to the factors listed above.²

On November 17, 2021, the Kaiser Family Foundation (KFF) published its latest analysis of COVID-19 vaccination rates by race/ethnicity using CDC data. It reports Total Population COVID-19 vaccination data for Whites, Blacks, Hispanics, and Asians for 43 states. Among the notable findings:

- 72 percent of Asians, 56% of Whites, 54% percent of Hispanics, and 49% of Blacks received at least one dose of COVID-19 vaccine³;
- Vaccination rates vary widely by state;
- Racial and ethnic rate differences narrowed over the past year, particularly for Hispanics;
- Asians had higher vaccination rates than Whites in all but 5 states⁴;
- Whites had a higher vaccination rate than Hispanics in 26 states, while Hispanic vaccination rates were higher or similar in 16 states⁵; and
- Whites had higher vaccination rates than Blacks in all but 9 states.⁶

Vaccination rate differences narrowed between late April 2021, when vaccination was opened to most US adults, and November 15, 2021. More specifically:

- Between April and November, the gap between White and Black vaccination rates narrowed from 14 points (38%-24%) to 7 points (56%-49%).⁷
- Differences between Whites and Hispanics narrowed from 13 points (38% - 25%) in late April to 2 points (56%-54%) by November.⁸

Data reporting for children's COVID-19 vaccination by race and ethnicity is less robust. As of mid-November, CDC reported that 4% of children ages 5-11, 58% of ages 12-15, and 65% ages 16-17 had received at least one dose, but CDC does not currently report race or ethnicity data for vaccinated children.⁹ Currently, 8 states appear to gather such data, finding that:

- Black children had lower rates than White children in some but not all states¹⁰;
- Asian children generally had higher rates than other groups¹¹; and
- Hispanic children had comparable or higher rates than Whites in most states.¹²

Even less data is available for smaller population groups, particularly Native Hawaiian or Pacific Islanders. This points to the need for more comprehensive data collection with consistent reporting standards, and the ability to disaggregate data for smaller population groups.

COVID-19 VACCINATION DISPARITIES *CONT.*

Rural Versus Urban and Other Geographic Disparities

The *Journal of Rural Health* recently reported on CDC data showing a substantial disparity between rural and urban counties' vaccination rate of people aged 18 and older. By mid-August 2021:

- Forty-six percent of rural county adults had been fully vaccinated versus 60% in urban counties.¹³

The study notes rural residents are poorer, have less insurance coverage, more limited health care sites and infrastructure, and must travel further for care than urban residents. Within rural counties, the vaccination rate was lower the more rural the county. Recreation-dependent rural counties had higher vaccination rates, while farming and mining-dependent communities were lower.¹⁴

Previously, CDC identified rural and urban county differences in COVID-19 vaccination, including a rural-urban vaccination rate difference of approximately 7 points (39% rural-46% urban)¹⁵, suggesting the difference has widened based on more recent data above. Seventy-two percent of states had higher vaccination rates in urban than in rural counties, with five states having higher rates in rural than in urban counties, and another five states reporting similar rates of rural and urban vaccination.¹⁶ Vaccination rates of people aged 65 and older were similarly high in rural and urban counties.¹⁷

Pharmacies play a prominent role in COVID-19 vaccination, so access to pharmacies is an important consideration for rural COVID-19 vaccination. A review of potential COVID-19 vaccination sites by the Rural Health Policy Institute showed more than 100 US counties with no pharmacies

at all, and more than 400 counties with no pharmacies enrolled in the rollout of COVID-19 vaccines to the general US population.¹⁸

Insurance Status, Income, and Job-Related Disparities

CQ Roll Call used state health or Medicaid data to investigate Medicaid enrollees' COVID-19 vaccination status and compared it to the state's overall COVID-19 adult vaccination rate:

- In Georgia, Medicaid enrollees had a 10% vaccination rate compared to 34% for all adult Georgians.¹⁹
- In Idaho, adults on Medicaid were about half as likely to be vaccinated (20% to 44%) as the overall state population.²⁰
- California achieved a 55% vaccination rate among all adults, yet at least seven counties reported vaccination rates of <25% for adults on Medicaid.²¹

In South Carolina, there was a strong correlation between counties with low incomes, high rates of Medicaid enrollment, and lower adult vaccination rates compared to counties with higher incomes and lower Medicaid enrollment.²²

Another study examined vaccination status for health care personnel prioritized for COVID-19 vaccination at long term care facilities. There were significant rate disparities among physicians (75%), nurses (56%) and aides (46%).²³ Aides, having lower income, living in poverty, and not having a high school diploma were all associated with lower vaccination rates.²⁴

VACCINATION RATE DECLINES FOR ROUTINE VACCINES DURING THE PANDEMIC

Since the onset of the pandemic, numerous health organizations and researchers (e.g., WHO, UNICEF, Gavi, CDC, NFID, state Departments of Health) have documented the decline in routine vaccinations that occurred in the US and other countries beginning in March 2020.

JAMA Pediatrics authors analyzed vaccination data from eight US health systems to assess vaccination rate changes from September 2019 to September 2020.²⁵ They assessed vaccination status at ages <24 months, 4 to 6, 11 to 13 and, and 16 to 18. The authors reviewed changes in weekly vaccination rates for routine childhood vaccines and the proportion of the age group that was up to date (UTD) for all recommended vaccines. Among the notable findings:



- Childhood vaccinations declined sharply from the start of the pandemic through May 2020, and lower vaccination rates persisted through the period studied.²⁶
- Weekly vaccination rates were lower for all age groups, and post and pre-pandemic rate differences were larger as age increased.²⁷
- By September 2020, 74% of infants aged seven months and 57% of infants aged 18 months were UTD on all routine vaccines, compared to 81% and 61% in September 2019.²⁸ Disparities were particularly pronounced for infants 18 months old.
- The proportion of children UTD was lowest for non-Hispanic Black children across most age groups both during and before the pandemic:
 - In May 2019, 70% of non-Hispanic Black infants aged 7 months were UTD on all routine vaccines, compared to 82% across all infants aged 7 months.²⁹

VACCINATION RATE DECLINES FOR ROUTINE VACCINES DURING THE PANDEMIC *CONT.*

Researchers also reported immediate declines in Vaccines for Children (VFC) program ordering and administration of non-influenza vaccine doses and measles-containing vaccine doses (measles, mumps, rubella –MMR, and measles, mumps, rubella, and varicella –MMRV) beginning in March 2020, particularly for children older than 24 months.³⁰

Other research examined routine pediatric vaccination during Covid at a state level. Michigan's health improvement organization studied the pandemic's impact on vaccination by looking at May 2020 vaccination data compared to 2016–2019 data at ages 1, 3, 5, 7, 16, 19 and 24 months. They found rate declines across all age groups and all vaccines except hepatitis B (which is typically hospital-administered).³¹ Only 50% of Michigan infants aged 5 months were UTD for all routine vaccines in May 2020, compared to rates of 66–68% from 2016–2019.³² For 16-month-olds, measles-containing vaccine coverage declined to 71% in May 2020 compared to 76% in May 2019.³³ Total vaccine doses administered to children under 18 years declined 21% from January–May 2020 compared to the same time periods in 2018 and 2019.³⁴ UTD vaccination status was lower for children enrolled in Medicaid at all ages assessed, with the largest difference in May 2020 at age 7 months, with 35% of children on Medicaid UTD on vaccines, and 55% of those not on Medicaid UTD.³⁵

CDC research published in June 2021 found that administration of routine childhood vaccines returned to pre-pandemic levels in ten US jurisdictions from June–September 2020 after the substantial declines from March–May 2020 but noted that this rebound was insufficient to catch up all children that were behind.³⁶

The CDC and several states reviewed immunization information system data in 11 US jurisdictions from September–December 2020 to explore the pandemic's specific impact on influenza vaccination, comparing vaccination for all age groups to the same months in 2018 and 2019. Influenza vaccination across all ages 6 months and older was 9% higher in 2020 than for those months in 2018 and 2019.³⁷ However, influenza vaccination declined notably for children aged 6–23 months, by 14%, and for those 2–4 years, by 12%, across the same time period.³⁸

Avalere Health analyzed adolescent and adult vaccine claims submissions in February and June 2021 that compared pre-pandemic administration to the current year. The review spanned commercial, Managed Medicaid, Medicare Advantage and Medicare Fee for Service (FFS) claims. For adolescents, rates for recommended vaccines remained 13–35% below 2019 levels through November 2020.³⁹ Adult vaccinations followed similar patterns and remained 17–40% below 2019 levels during the September–November 2020 period.⁴⁰ There was an increase in influenza vaccination from 2019 to 2020 for all populations.

Another CDC paper found that administration of pneumococcal, Tdap, and zoster vaccines to Medicare beneficiaries declined up to 90 percent by mid-April 2020 compared to January–February 2020 vaccine administration.⁴¹ Vaccinations increased after these declines, but zoster vaccination had still declined by 43% in July 2020 compared to the January–February period, and Tdap vaccination declined by 23% over the same time frame.⁴²

VACCINATION DISPARITIES BEFORE THE PANDEMIC

Substantial vaccination rate disparities were in place before the COVID-19 pandemic. Understanding and assimilating knowledge of these disparities is critical to working toward improved and more equitable vaccination rates in the future.

In October 2021, the CDC reported on national vaccination coverage by age 24 months for children born in 2017 and 2018.⁴³ They found generally stable trends in vaccination rates from 2015 through 2018, while documenting disparities in place before the pandemic. The study reviewed administration of the combined 7-vaccine recommended series, which includes ≥ 4 doses of diphtheria, tetanus toxoids, and acellular pertussis vaccine; ≥ 3 doses of poliovirus vaccine; ≥ 1 dose of measles-containing vaccine; ≥ 3 or ≥ 4 doses (depending upon product type) of Haemophilus influenzae type b conjugate vaccine; ≥ 3 doses of hepatitis B vaccine; ≥ 1 dose of varicella vaccine; and ≥ 4 doses of pneumococcal conjugate vaccine.

Living below the poverty level and being Black or Hispanic were associated with lower vaccination rates, while geographic associations (MSA, rural/urban) were not consistently present and did not appear to influence rates in a single direction. Rates increased for children born in 2017 and 2018 compared to children born in 2015 and 2016 for four vaccinations (rotavirus, > 1 dose HepA, HepB birth dose, > 2 doses influenza) and did not decrease for any.

However, the number of vaccines with significant disparities increased. More specifically:

- Black children (65% completion), Hispanic children (66%) and children of multiple races (69%) were less likely to have completed the 7-vaccine series than White (75%) or Asian (74%) children.⁴⁴
- Differences for influenza vaccination were larger – 75% of Asian children, 66% of Whites, 57% of multiple race children, 57% of Hispanic children, and 46 percent of Black children had completed recommended doses.⁴⁵

In addition, disparities by type of insurance coverage were significant:

- Children with private insurance were vaccinated from 9 percentage points higher (for > 3 hepatitis B doses) to 38 percentage points higher (> 2 influenza doses) than uninsured children for vaccines in the series⁴⁶
- Children with Medicaid were 12 percentage points (66% to 78%) less likely to have completed the 7-dose series than privately insured children.⁴⁷
- Uninsured children had only a 49% completion rate for the series.⁴⁸

VACCINATION DISPARITIES BEFORE THE PANDEMIC *CONT.*



For adults, The American Journal of Preventive Medicine reviewed adult vaccination trends from 2010 to 2019 by race, ethnicity, household income, education level, and insurance status, finding strong associations with vaccination rates. For people on Medicare the review found:

- Influenza – an 11% difference between Blacks (61%) and Whites (72%) with rates for Hispanics (64%) and Asians (71%) in between.⁴⁹
- Pneumococcal – a 22% difference in rates between Asians (49%) and Whites (71%), with Hispanics also at 49%, and Black older adults at 58%.⁵⁰
- Vaccination disparities remained static during the 2010–2019 study period.

Among 18–64-year-old adults, similar racial, ethnic and socioeconomic disparities were in evidence, though the influenza vaccination disparity for this population narrowed:

- Black and Hispanic adults had a 35% rate for influenza, while for Whites it was 42%.⁵¹
- Blacks (22%) and Hispanics (23%) were also less likely to receive Tdap vaccines than Whites (37%)
- Tdap and zoster vaccines also had rate differences
- Lower income and educational levels were associated with lower rates
- People with Medicaid or who were uninsured had lower uptake than those with private insurance and Medicare



HIGH LEVEL RECOMMENDATIONS DRAWN FROM OUR EXPERIENCE WITH COVID-19

COVID-19 vaccine disparities have been widely discussed; however, the COVID-19 pandemic also exacerbated and underscored disparities in other vaccines and highlighted the urgent need to ensure broad access to all vaccines. We can learn from the COVID-19 experience to inform an approach to help close the gaps on vaccine disparities. In short, these would include:

Accessibility/Availability



Vaccines need to be convenient, geographically proximate, etc. Specific policies that could be contemplated here would include ensuring availability of adult vaccines at pharmacies across state Medicaid programs, ensuring that it is financially viable for clinicians to both stock and administer vaccines, and working with Federally Qualified Health Centers (FQHCs) to enhance the reach of vaccines into disadvantaged communities.

Affordability



People need to have good insurance coverage for vaccines (no or very low out of pocket cost). Specific policies could include eliminating cost-sharing in Medicare Part D, ensuring coverage across all Medicaid programs for all ACIP-recommended vaccines and eliminating copays across Medicaid programs.

Awareness



People need to know that the vaccines are available, that they are recommended, that they are safe, and that they are necessary. Specific areas for action may include greater awareness of VFC encouraging physicians across specialties to be part of the education process about vaccines and making an ongoing investment in culturally competent and respectful communication about the importance of vaccines.

REFERENCES

1. <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/vaccine-equity.html>
2. <https://covid.cdc.gov/covid-data-tracker/#health-equity-data>
3. IBID
4. IBID
5. IBID
6. IBID
7. IBID
8. IBID
9. IBID
10. IBID
11. IBID
12. IBID
13. Sun, Yue, MA, Monnat, Shannon M., PhD., "Rural-urban and within-rural differences in Covid-19 vaccination rates", Journal of Rural Health, published September 23, 2021, available at: <https://onlinelibrary.wiley.com/doi/10.1111/jrh.12625>
14. IBID
15. Various CDC Authors, Disparities in COVID-19 Vaccination Coverage Between Urban and Rural Counties – United States, December 14, 2020–April 10, 2021, Morbidity and Mortality Weekly Report (MMWR), Volume 70, Number 20, May 2021
16. IBID
17. IBID
18. RUPRI Center for Rural Health Policy Analysis "Pharmacy Vaccination Service Availability in Non-Metropolitan Areas (V3)", Ullrich, Fred, BA, Mueller, Keith, PhD, February 2021, available at: <file:///home/chronos/u-92bb7f30af5773d374a5285f42ecaa4a13dd99b0/MyFiles/Downloads/Maternal%20Immunization/RCG%20Covid%20Vaccination%20Disparities%20Paper/COVID%20Pharmacy%20Brief.pdf>
19. CQ Roll Call, Medicaid Beneficiaries Less Likely to Get Covid Shots, Sandhya Raman, posted June 30, 2021, available at: <https://www.rollcall.com/2021/06/30/medicaid-beneficiaries-less-likely-to-get-covid-19-shots/>
20. IBID
21. IBID
22. IBID
23. Various CDC, state health department, LTC staff, "Disparities in COVID-19 Vaccination Coverage Among Health Care Personnel Working in Long-Term Care Facilities, by Job Category, National Healthcare Safety Network – United States, March 2021", available at: <https://www.cdc.gov/mmwr/volumes/70/wr/mm7030a2.htm>
24. IBID
25. DeSilva, Malini B. MD, MPH, Haapala, Jacob, MPH, Vazquez-Benitez, Gabriela, PhD, et al "Association of the COVID-19 Pandemic With Routine Childhood Vaccination Rates and Proportion Up to Date With Vaccinations Across 8 US Health Systems in the Vaccine Safety Datalink", JAMA Pediatrics, published online October 7, 2021, available at: <https://jamanetwork.com/journals/jamapediatrics/fullarticle/2784888>
26. IBID
27. IBID
28. IBID
29. IBID
30. Santoli, Jeanne M., MD, Lindley, Megan C., MPH, DeSilva, Malini B., MD, MPH, et al "Effects of the Covid-19 Pandemic on Routine Pediatric Vaccine Ordering and Administration – United States 2020", Morbidity and Mortality Weekly Report, May 15, 2020, available at: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6919e2.htm>
31. Bramer, Cristi A., Kimmins, Lynsey M., MPH, Swanson, Robert, MPH, et al "Decline in Child Vaccination Coverage During the Covid-19 Pandemic – Michigan Care Improvement Registry, May 2016–May 2020", Morbidity and Mortality Weekly Report, May 22, 2020, available at: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6920e1.htm>
32. IBID
33. IBID
34. IBID
35. IBID
36. Patel Murthy, Bhavini, MD, Zell Elizabeth, MStat, Kirtland, Karen, PhD, et al "Impact of the COVID-19 Pandemic on Administration of Selected Routine Childhood and Adolescent Vaccinations – 10 US Jurisdictions, March–September 2020, Morbidity and Mortality Weekly Report, June 11, 2021, available at: https://www.cdc.gov/mmwr/volumes/70/wr/mm7023a2.htm?s_cid=mm7023a2
37. Castro Roman, Patricia, MPH, Kirtland, Karen, PhD, Zell, Elizabeth, MStat, et al "Influenza Vaccinations During the COVID-19 Pandemic – 11 U.S. Jurisdictions, September–December 2020", Morbidity and Mortality Weekly Report, November 12, 2021, available at: <https://www.cdc.gov/mmwr/volumes/70/wr/mm7045a3.htm>
38. IBID
39. Various authors, "The Covid-19 Pandemic – Impact on Adolescent and Adult Vaccine Utilization Across Markets", Avalere Health, June 2021, available at: https://avalere.com/wp-content/uploads/2021/02/The-COVID-19-Pandemic-Impact-on-US-Adolescent-and-Adult-Vaccine-Utilization-Across-Markets_White-Paper.pdf
40. IBID
41. Hong, Kai, PhD, Zhou, Fangjun, PhD, Tsai, Yuping, PhD, et al "Decline in Receipt of Vaccines by Medicare Beneficiaries During the Covid-19 Pandemic – United States 2020" Morbidity and Mortality Weekly Report, February 19, 2022, available at: <https://www.cdc.gov/mmwr/volumes/70/wr/mm7007a4.htm>
42. IBID
43. Hill, Holly A., MD, PhD, Yankey, David, PhD, Elam-Evans, Laurie, PhD, et al "Vaccination Coverage by Age 24 Months Among Children Born in 2017 and 2018 – National Immunization Survey-Child, United States, 2018–2020", Morbidity and Mortality Weekly Report, October 15, 2021, available at: <https://www.cdc.gov/mmwr/volumes/70/wr/mm7041a1.htm>
44. IBID
45. IBID
46. Hill, Holly A., MD, PhD, Yankey, David, PhD, Elam-Evans, Laurie, PhD, et al "Vaccination Coverage by Age 24 Months Among Children Born in 2017 and 2018 – National Immunization Survey-Child, United States, 2018–2020", Morbidity and Mortality Weekly Report, October 15, 2021, available
47. IBID
48. IBID
49. Kawai, Kosuke, ScD, Kawai, Alison Tse, ScD, "Racial, Ethnic and Socioeconomic Disparities in Adult Vaccination Coverage", American Journal of Preventive Medicine, 2021;61(4):465–473; available at: [https://www.ajpmonline.org/article/S0749-3797\(21\)00266-X/pdf](https://www.ajpmonline.org/article/S0749-3797(21)00266-X/pdf)
50. IBID
51. IBID

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