Early Childhood Vaccines: Success Stories and Opportunities

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Disclosures

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Sub-investigator on investigator-initiated clinical trial funded by Sanofi Pasteur

Honoraria from WebMed and Oxford University Press

Success of Childhood Vaccinations

95% decrease in vaccine-preventable disease in last 50 years

"One of greatest public health achievements of 20th century"

Impact on children born between 1994* and 2013

- **322 million cases of disease prevented**
- **21 million hospitalizations prevented**
- **732,000 premature deaths prevented**
- **$295 billion in direct costs saved**

Photo courtesy of
Chayene Rafaela via unsplash.com

Success of Childhood Immunization

Image from AAP Red Book online

In 1961, I tended my young cousin while her mother went to work. She was ill with a fever and complained of a sore throat. The next morning she was unable to breathe and began turning blue. An ambulance was called and she was transported to St. Mark's Hospital in North Salt Lake. The doctors there performed a tracheotomy and did everything they could for her, but she passed away that afternoon from diphtheria.

Childhood Immunization Schedule, 1994

TABLE 1. Recommended childhood immunization schedule*† — United States, January 1995

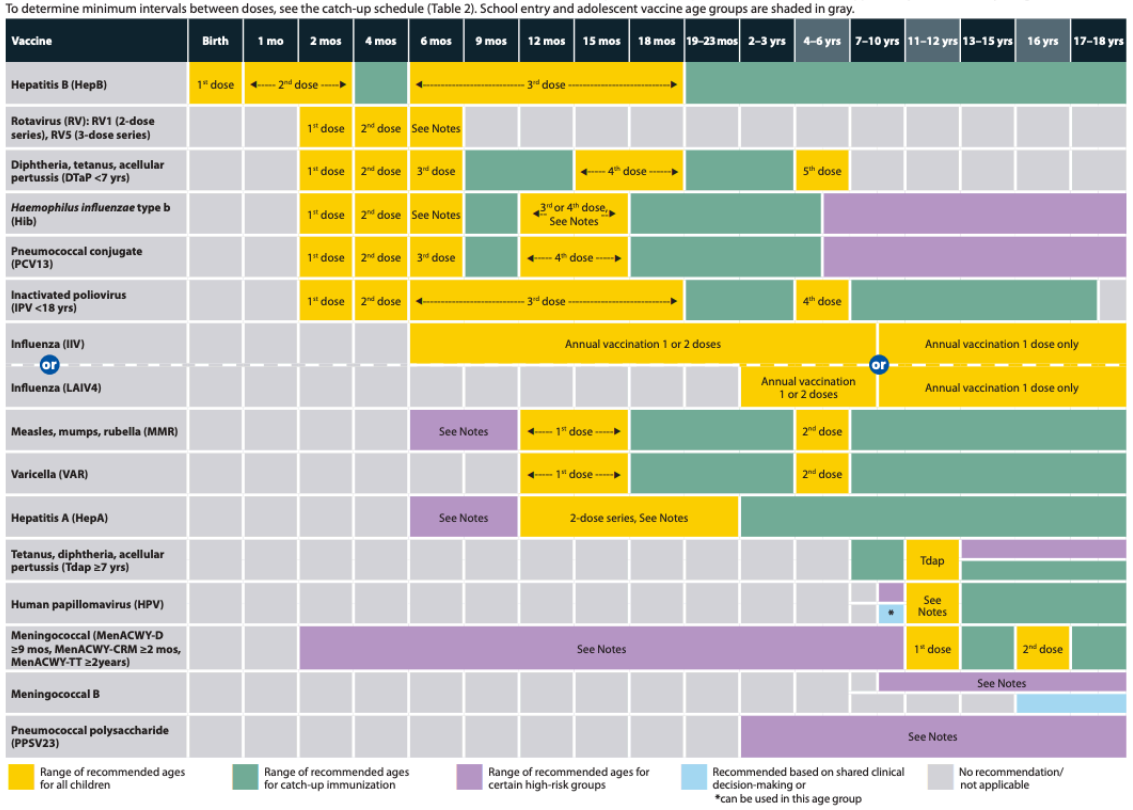
Vaccine	Birth	2 Months	4 Months	6 Months	12§ Months	15 Months	18 Months	4 - 6 Years	11-12 Years	14-16 Years
Hepatitis B¶	HB-1	HB-2		HB-3						
Diphtheria-Tetanus-Pertussis (DTP)**		DTP	DTP	DTP	DTP or DTaP ≥ at 15 months			DTP or DTaP	Td	
Haemophilus influenzae type b††		Hib	Hib	Hib	Hib					
Poliovirus		OPV	OPV	OPV				OPV		
Measles-Mumps-Rubella§§					MMR			MMR	or MMR	

https://www.cdc.gov/mmwr/PDF/rr/rr4405.pdf

Childhood Immunization Schedule, 2021

Table 1 Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2021

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2). School entry and adolescent vaccine age groups are shaded in gray.

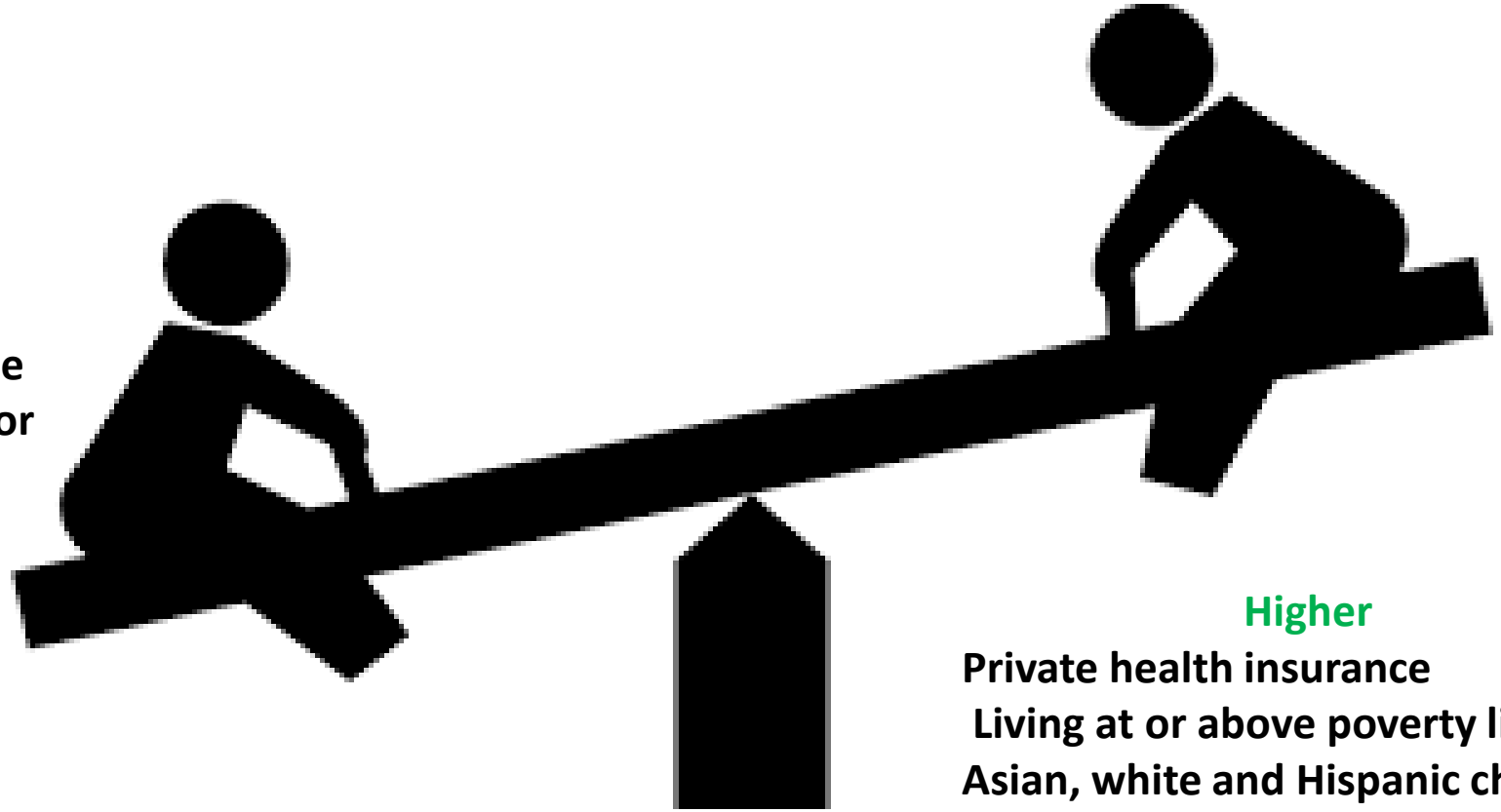


https://www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf

Immunization Rates not Uniform

Lower

Uninsured or Medicaid
Living below poverty line
Black, American Indian or Alaskan Native



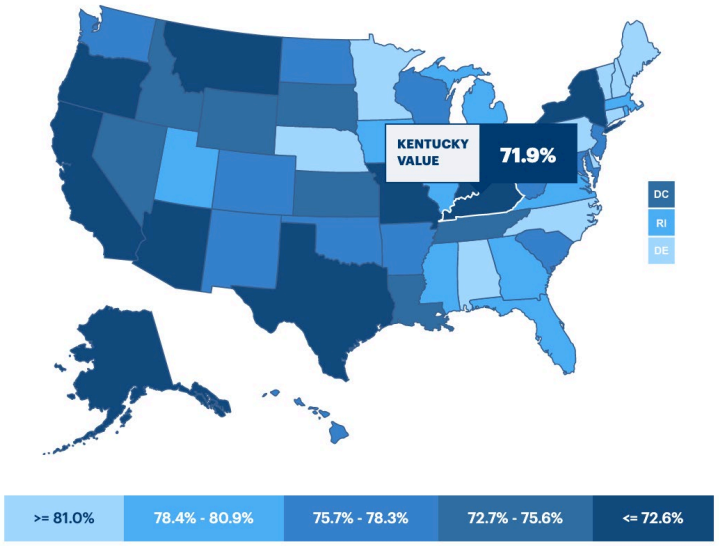
Higher

Private health insurance
Living at or above poverty line
Asian, white and Hispanic children

Early Childhood Immunizations by State, 2020

Kentucky Ranks 43rd!

Percentage of children who received by age 35 months all recommended doses of the combined 7-vaccine series: diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine; measles, mumps and rubella (MMR) vaccine; poliovirus vaccine; Haemophilus influenzae type b (Hib) vaccine; hepatitis B (HepB) vaccine; varicella vaccine; and pneumococcal conjugate vaccine (PCV)

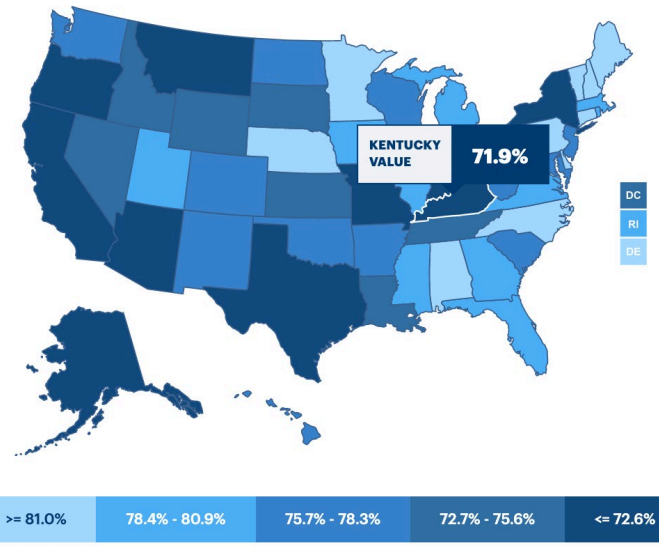


America's Health Rankings analysis of CDC, National Immunization Survey-Child (Birth Cohort), United Health Foundation, AmericasHealthRankings.org, Accessed 2021.

Early Childhood Immunizations by State, 2020 vs 2019

Kentucky Ranks 43rd!

Percentage of children who received by age 35 months all recommended doses of the combined 7-vaccine series: diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine; measles, mumps and rubella (MMR) vaccine; poliovirus vaccine; Haemophilus influenzae type b (Hib) vaccine; hepatitis B (HepB) vaccine; varicella vaccine; and pneumococcal conjugate vaccine (PCV)



2020

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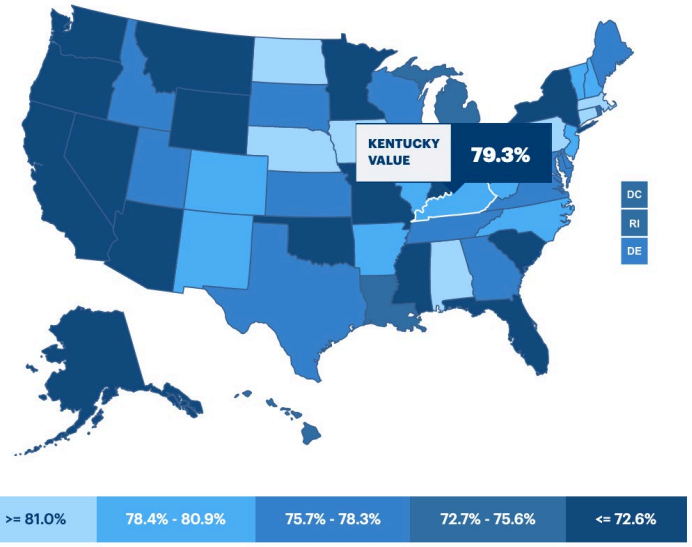
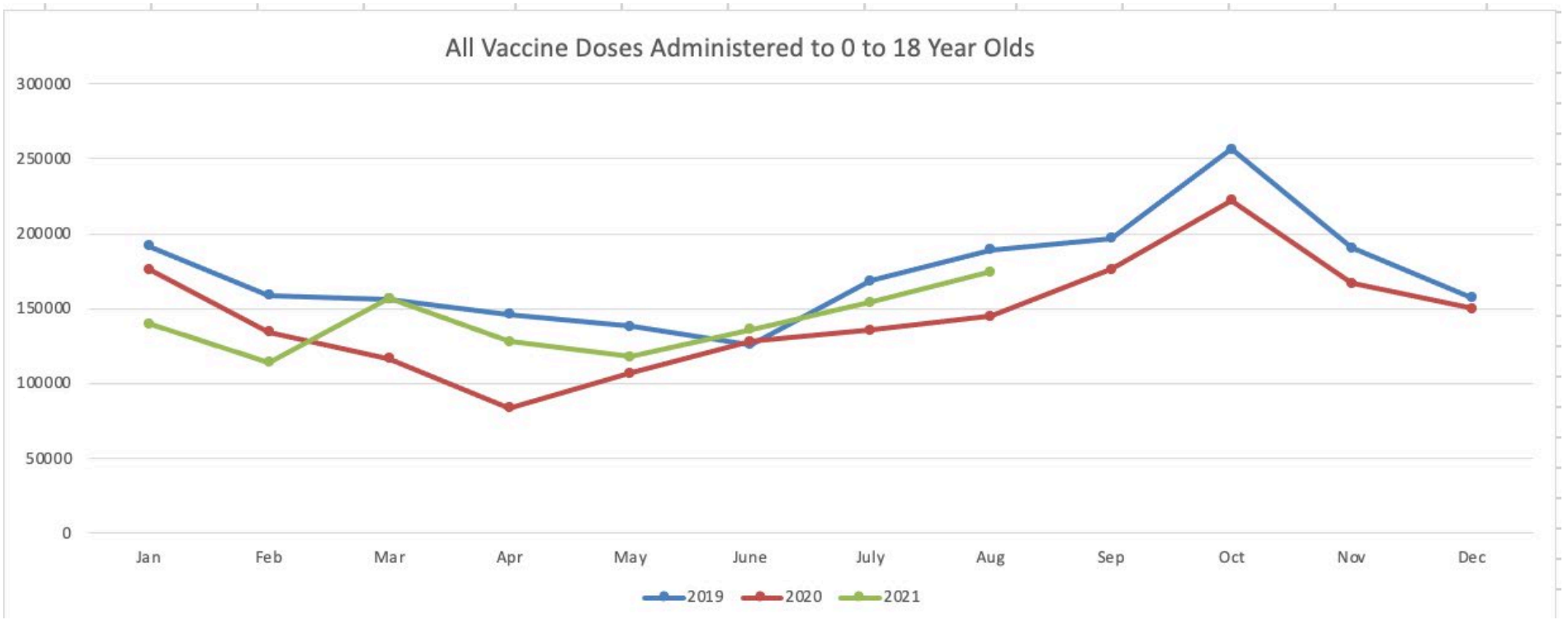


2019

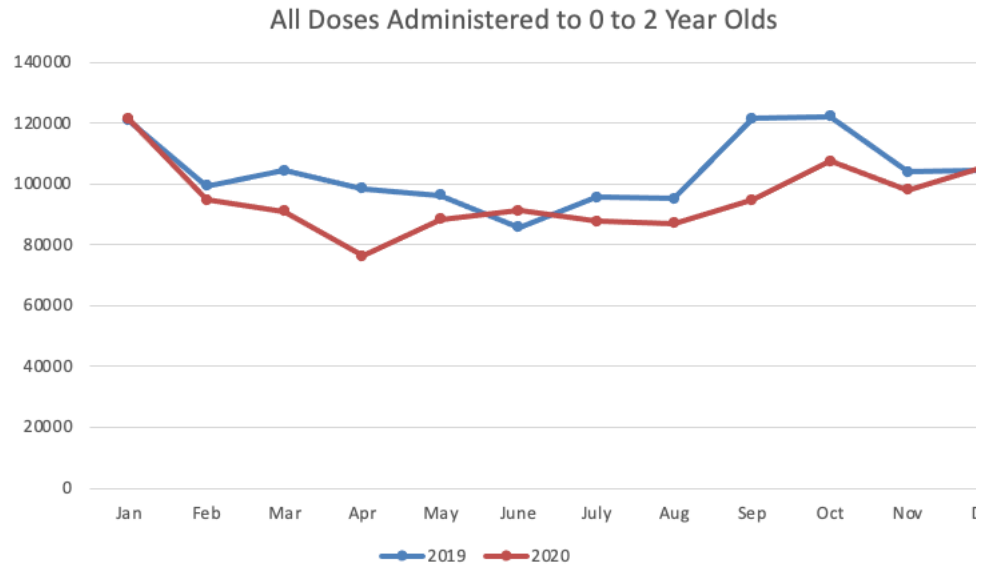
America's Health Rankings analysis of CDC, National Immunization Survey-Child (Birth Cohort), United Health Foundation, AmericasHealthRankings.org, Accessed 2021.

Impact of Pandemic on Childhood Immunizations, KY

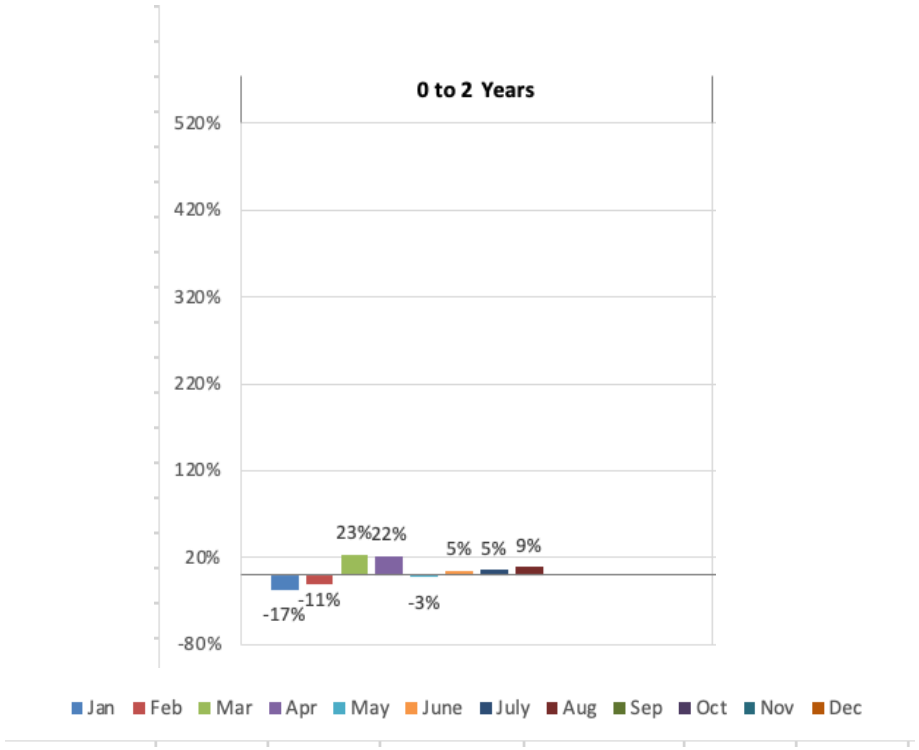


Kentucky Immunization Registry, courtesy of Judith Theriot, MD

Impact of Pandemic on Childhood Immunizations, KY

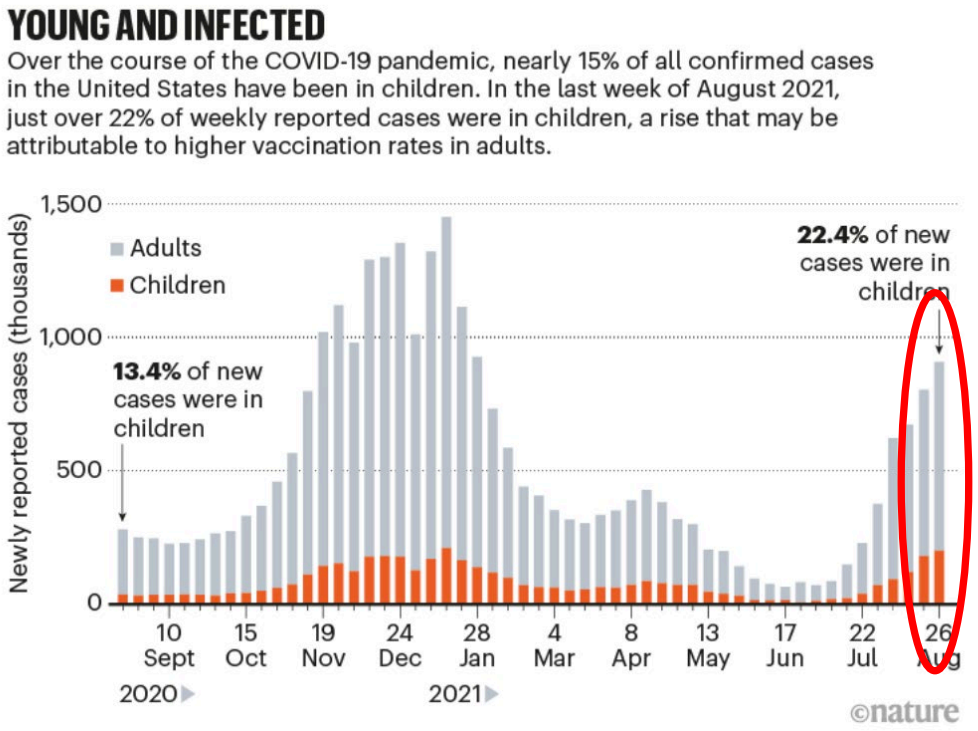


Percent Change 2020 to 2021



Kentucky Immunization Registry, courtesy of Judith Theriot, MD

COVID-19 and Children



~5.3 million cases

49.7/100,000 children hospitalized

470 deaths (provisional data)

https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/

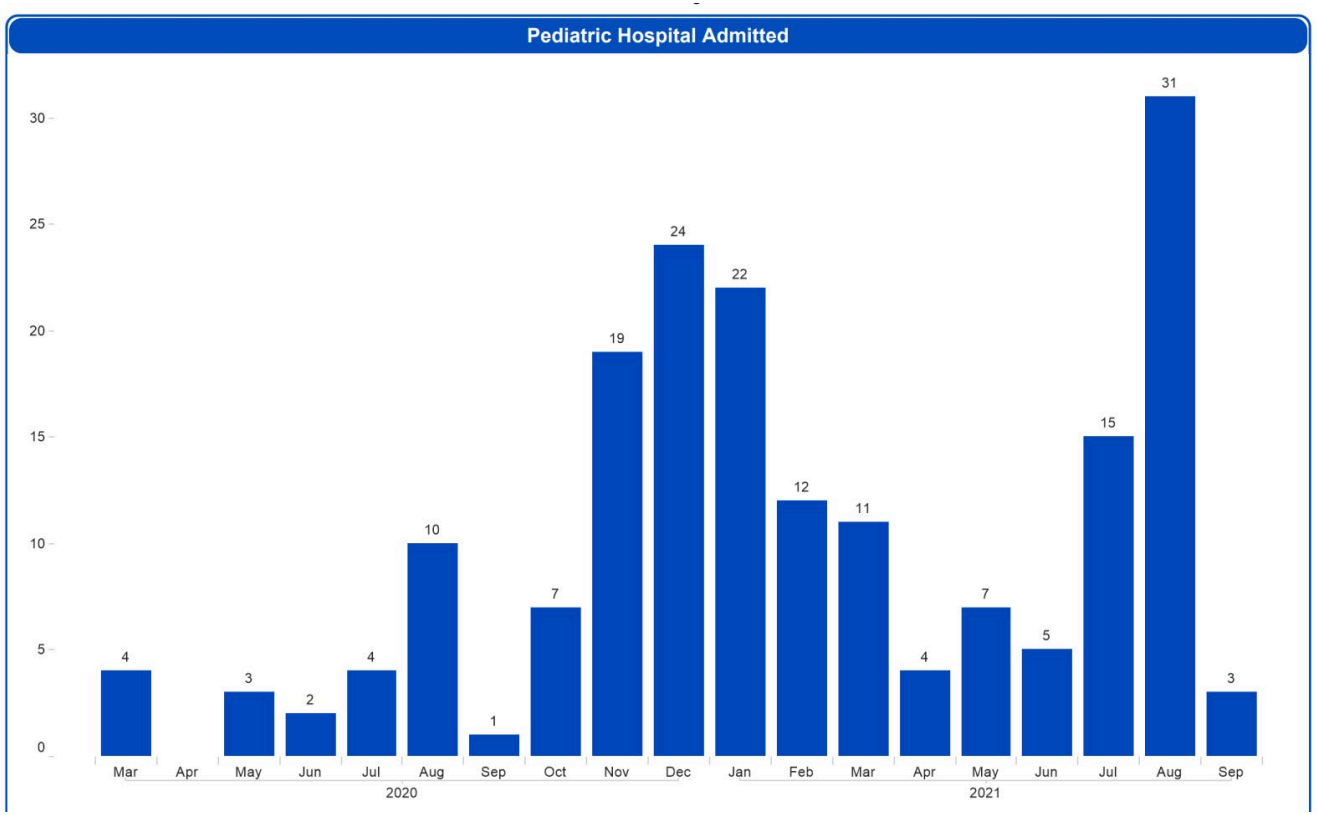
https://www.cdc.gov/mmwr/volumes/70/wr/mm7036e2.htm

https://data.cdc.gov/NCHS/Deaths-by-Sex-Ages-0-18-years/xa4b-4pzv

Norton Children's

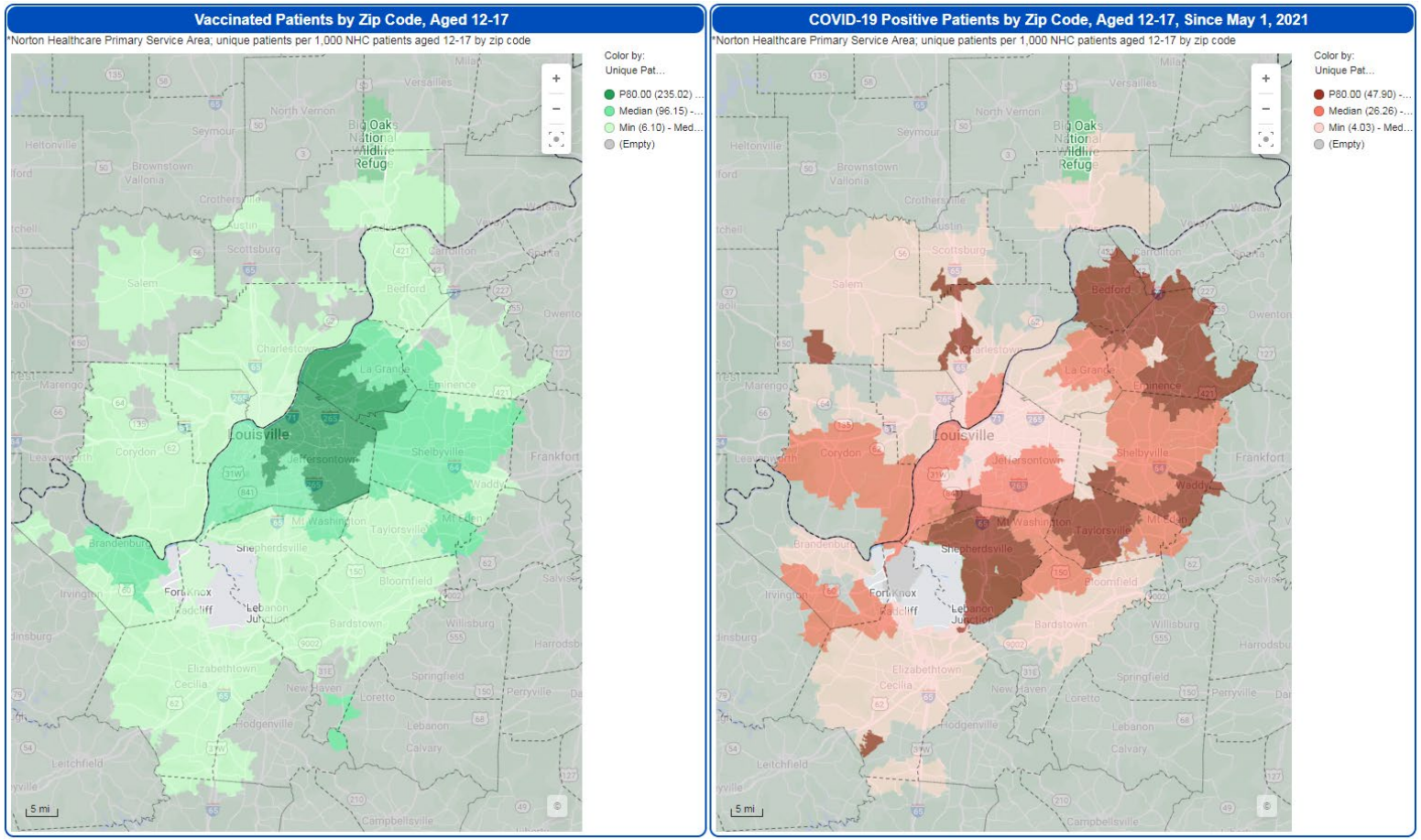
UofL School of Medicine

Norton Children's Hospital Admissions for COVID-19



COVID-19 is a Vaccine-Preventable Disease in Kids 12+

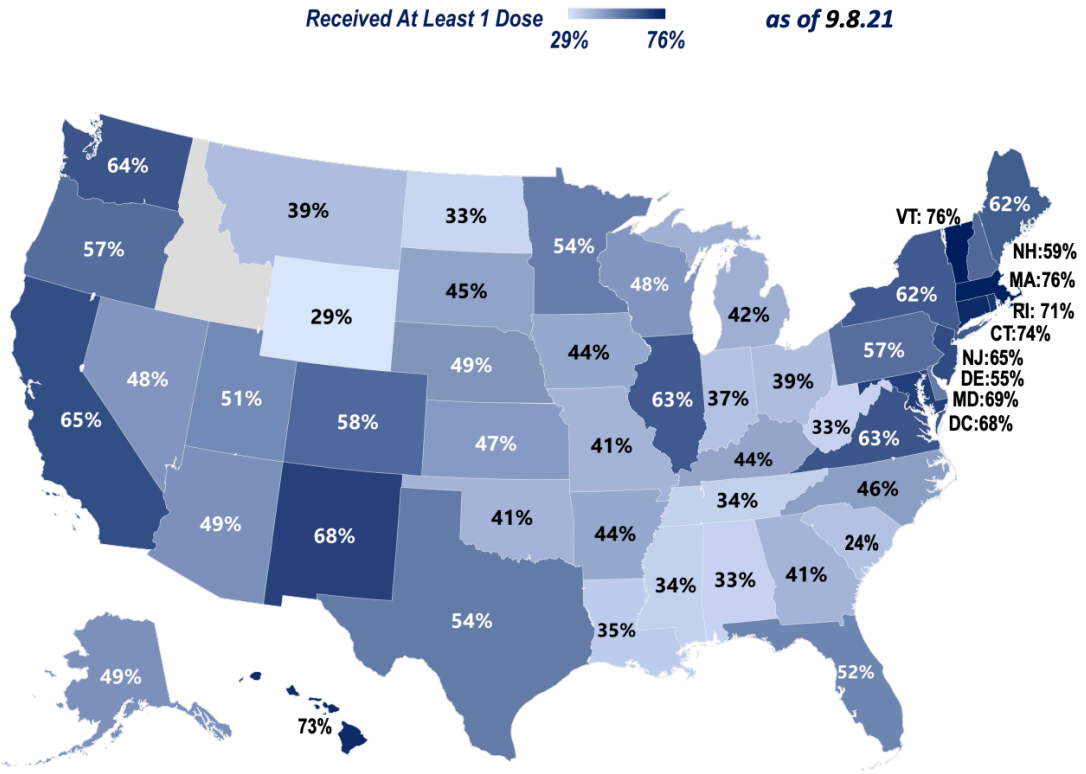
Child COVID Cases Highest in Counties with Fewest Vaccinations



Data courtesy of Jeremy White, Norton Children's Hospital

COVID Vaccines in Children

Proportion of US Children Ages 12 through 17 Who Received At Least One Dose of the COVID-19 Vaccine by State of Residence

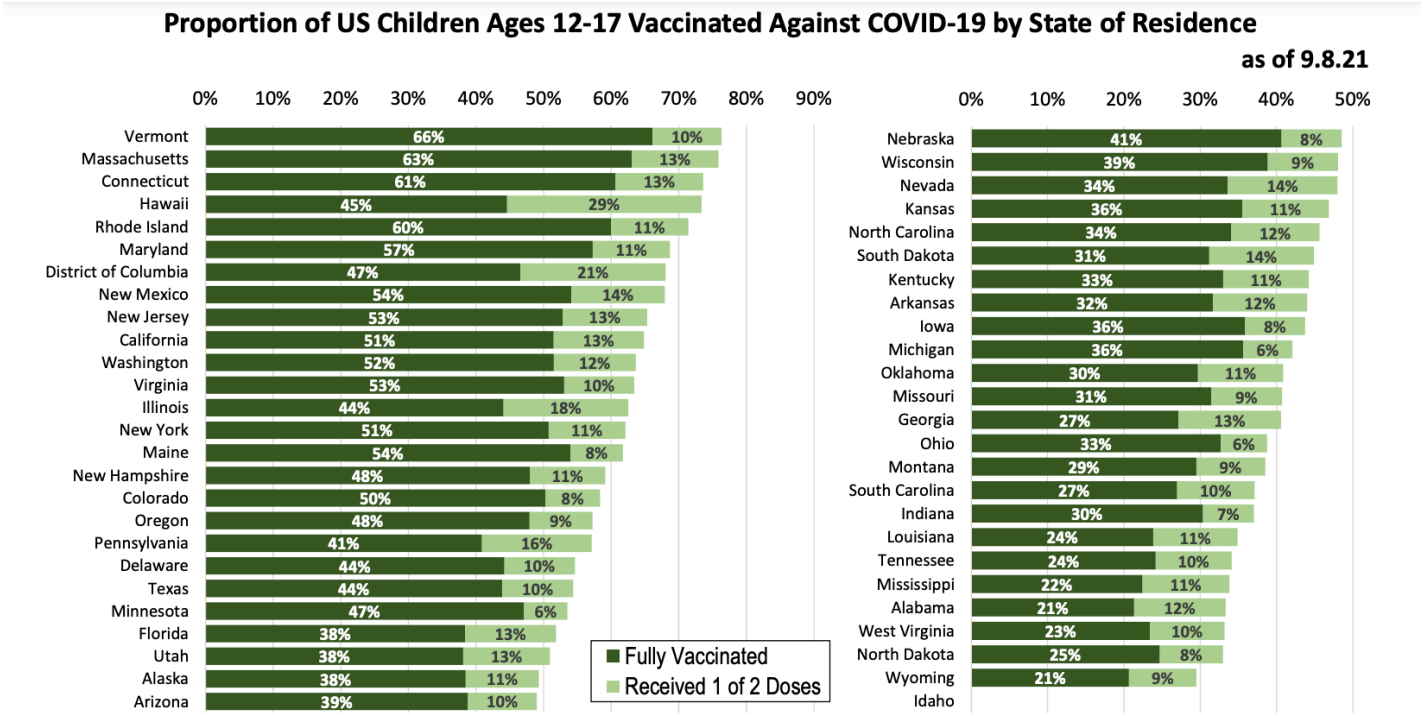


Source: AAP analysis of data series titled 'COVID -19 Vaccinations in the United States, Jurisdiction'. CDC COVID -19 Data Tracker (URL: https://data.cdc.gov/Vaccinations/COVID-19-Vaccinations-in-the-United-States-Jurisdi/unsk-b7fc). Idaho information not available. Check state's web sites for additional or more recent information

https://downloads.aap.org/AAP/PDF/Child%20Vaccinations%20Report%20US%20and%20by%20State%20Sept%208%20updated%202.pdf

COVID Vaccine in Children

Kentucky Ranks in the Bottom Half



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Vaccinate with Confidence

CDC's Strategy to Reinforce Confidence in COVID-19 Vaccines

Build Trust

Objective: Share clear, complete, and accurate messages about COVID-19 vaccines and take visible actions to build trust in the vaccine, the vaccinator, and the system in coordination with federal, state, and local agencies and partners.

- ✓ Communicate transparently about the process for authorizing, approving, making recommendations for, monitoring the safety of, distributing, and administering COVID-19 vaccines, including data handling.
- ✓ Provide regular updates on benefits, safety, side effects and effectiveness; clearly communicate what is not known.
- ✓ Proactively address and mitigate the spread and harm of misinformation via social media platforms, partners, and trusted messengers.

Empower Healthcare Personnel

Objective: Promote confidence among healthcare personnel* in their decision to get vaccinated and to recommend vaccination to their patients.

- ✓ Engage national professional associations, health systems, and healthcare personnel often and early to ensure a clear understanding of the vaccine development and approval process, new vaccine technologies, and the benefits of vaccination.
- ✓ Ensure healthcare systems and medical practices are equipped to create a culture that builds confidence in COVID-19 vaccination.
- ✓ Strengthen the capacity of healthcare professionals to have empathetic vaccine conversations, address myths and common questions, provide tailored vaccine information to patients, and use motivational interviewing techniques when needed.

Engage Communities & Individuals

Objective: Engage communities in a sustainable, equitable and inclusive way—using two-way communication to listen, build trust, and increase collaboration.

- ✓ Empower vaccine recipients to share their personal stories and reasons for vaccination within their circles of influence.
- ✓ Work with health departments and national partners to engage communities around vaccine confidence and service delivery strategies, including adaptation of vaccination sites to meet community needs.
- ✓ Collaborate with trusted messengers—such as faith-based and community leaders—to tailor and share culturally relevant messages and materials with diverse communities.

*Personnel = All staff working in healthcare settings, including physicians, PAs/NPs, nurses, allied health professionals, pharmacists, social workers, support staff, and community health workers