New York City Public Immunization Dashboard

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Outline

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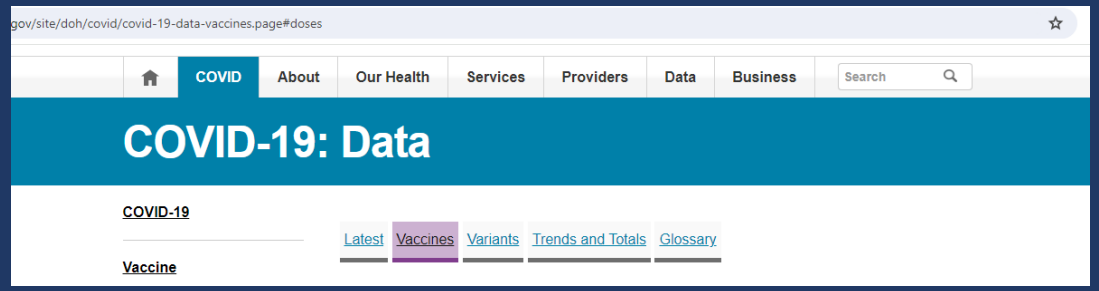
Background

Citywide Immunization Registry (CIR) is the Immunization Information System (IIS) for New York City (NYC)

- Began citywide in 1997
- Contains > 14.8 million patients
- > 170 million immunizations
- Mandatory reporting of immunizations for children < 19 years
- Reporting for adults ≥ 19 years requires consent
- Population-based
  - Load birth certificate data twice weekly

Background (Continued)



People Vaccinated

This table shows how many NYC residents were vaccinated citywide and by borough.

All Ages | Children | Adults | 65 and Older

Total NYC residents vaccinated

Borough	At least 1 dose	% At least 1 dose	Completed primary series	% Completed primary series	Bivalent dose	% Bivalent dose
Citywide	7,574,349	91%	6,761,968	81%	1,356,600	16%
Bronx	1,225,485	86%	1,097,678	77%	153,379	11%
Brooklyn	2,114,084	83%	1,904,079	74%	352,274	14%
Manhattan	1,658,836	99%	1,414,073	87%	473,310	29%
Queens	2,178,863	97%	1,979,401	88%	327,199	15%
Staten Island	397,081	83%	366,737	77%	50,438	11%

Data as of: January 02

- NYC Health Department COVID-19 Vaccine Data Page was launched in May 2021 and maintained until the commercialization of COVID-19 vaccines in September 2023

Objectives

- CIR developed a public-facing immunization dashboard that provides vaccination coverage data for NYC residents

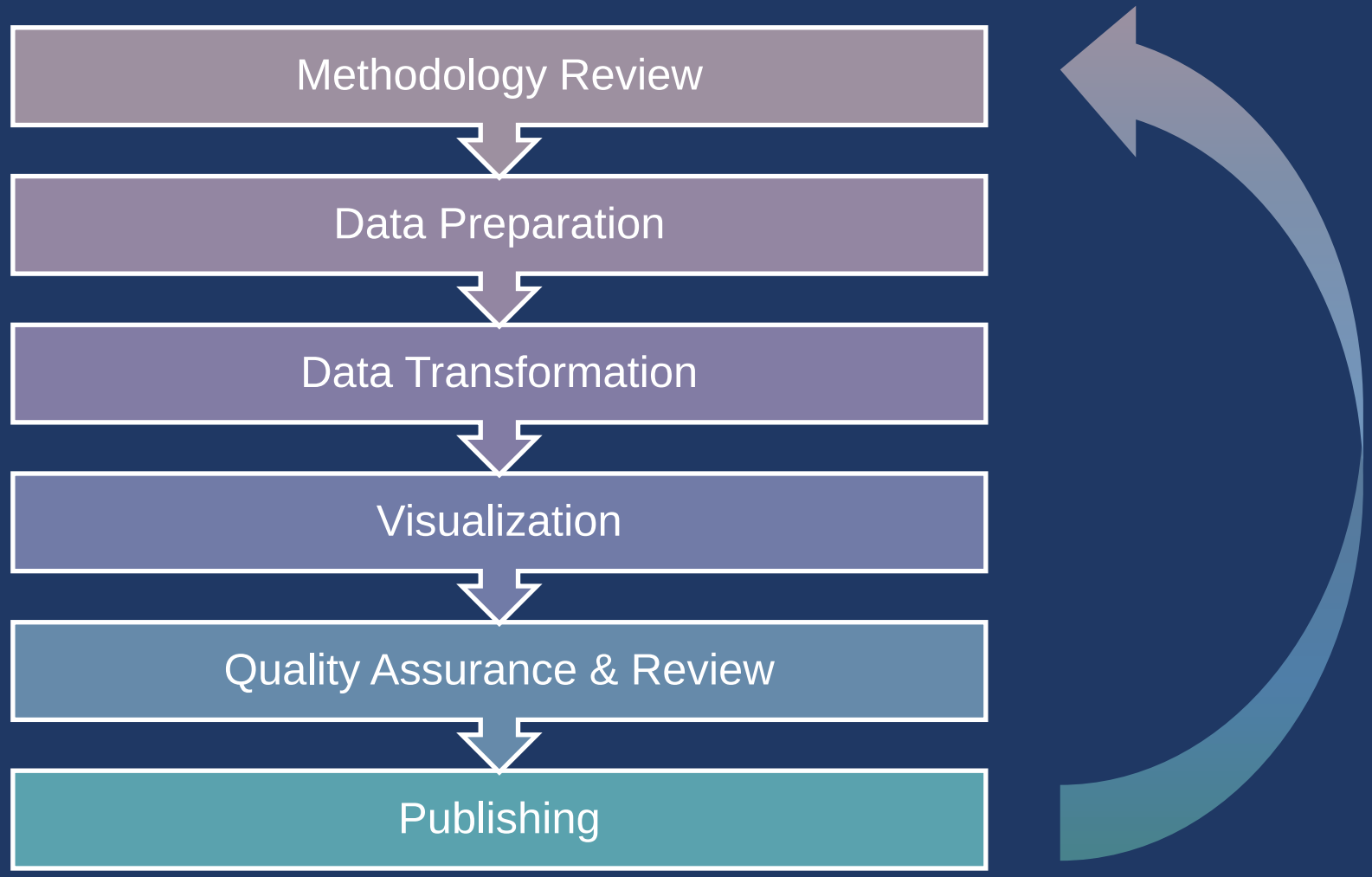
Display immunization coverage data

Make data accessible to the public with interactive features

Provide data for on-demand internal and external requests

Create a central repository with version control

Dashboard Development Cycle



- Development cycle occurs twice a year
- Data cutoff:

  June & December
- Data update:

  August & February

Phase 1
Methodology: Initial Considerations

- Rank/prioritize vaccines
- Review and learn from National Immunization Survey (NIS) and other jurisdictions
- Determine
  - Denominators (population estimates)
  - Vaccine groups
  - Age cohorts and other demographics
  - Visualization types

Methodology: Vaccine Group Selection

- Initial release contains 8 vaccine groups for children, 2 vaccine groups for adolescents and the influenza vaccine
- Age cohorts align with NIS

Methodology: Vaccine Groups for Children

- 2 year-olds
  - DTaP
  - Polio
  - MMR
  - Hep B
  - Hib
  - Varicella
  - PCV
  - Combined 7-series

Methodology: Vaccine Groups for Adolescents

- 13 to 17 year-olds
  - HPV
  - Tdap* (ANIMATION)
  - MenACWY*
  - Combined 1:1:3 series*
- 13 year-olds
  - HPV

*Expected to be added in future releases

Methodology: Influenza Vaccine

- 6 months to 17 year-olds
  - 6 months to 4 year-olds
  - 5 to 12 year-olds
  - 13 to 17 year-olds

Methodology (Continued)

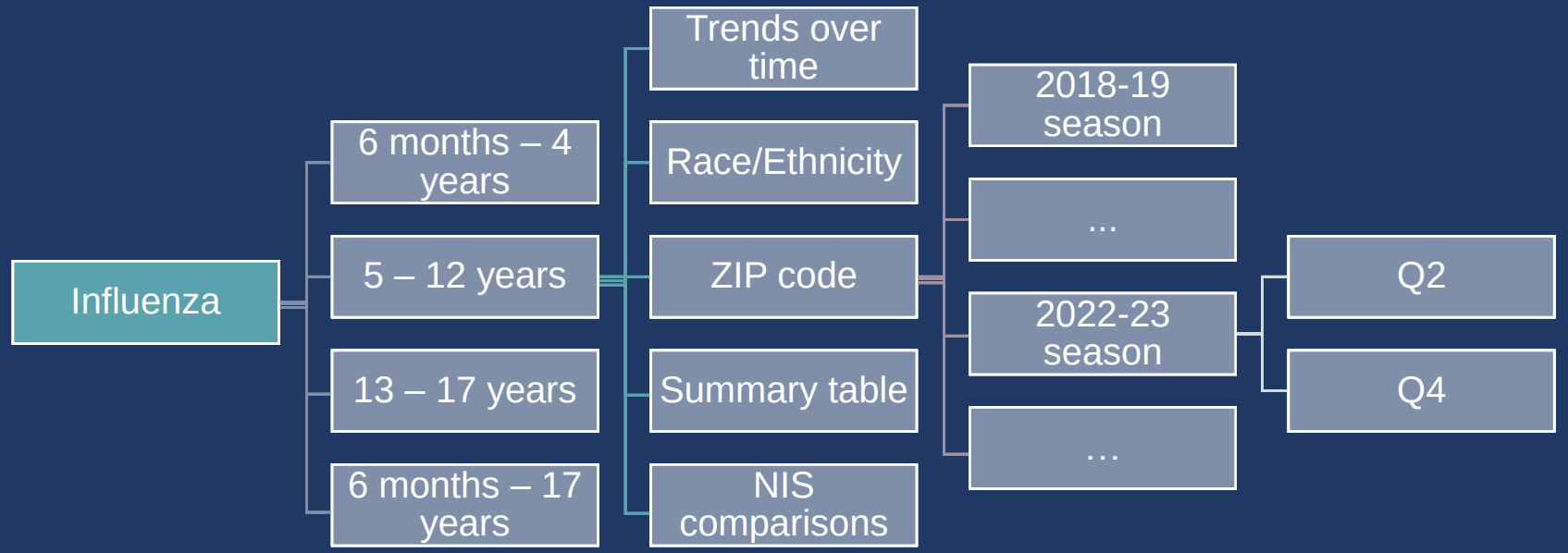
- Citywide coverage and stratified by borough, race/ethnicity, ZIP code
- Point estimates displayed retrospectively for at least 5 years, showing coverage as of June 30 and December 31 of each year
- Future releases will include updated coverage rates as new population estimates become available

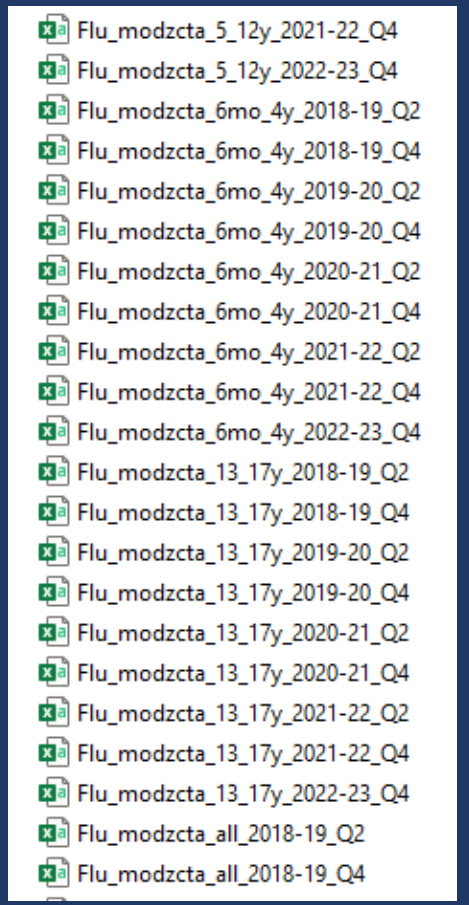
Phase 2
Data Preparation - *R*

- Extract data from CIR database
- Use an internal application to ensure patient vaccination data are up to date
- Create aggregated dataset for each vaccine group
- Compare and validate with data in previous years
- Combine all datasets into one clean master file
- Compare the master file with previous file in GitHub
- Save the master file to agency drive
- Upload the master file to GitHub for public sharing

One *R* program

Phase 3
Data Transformation - *R*



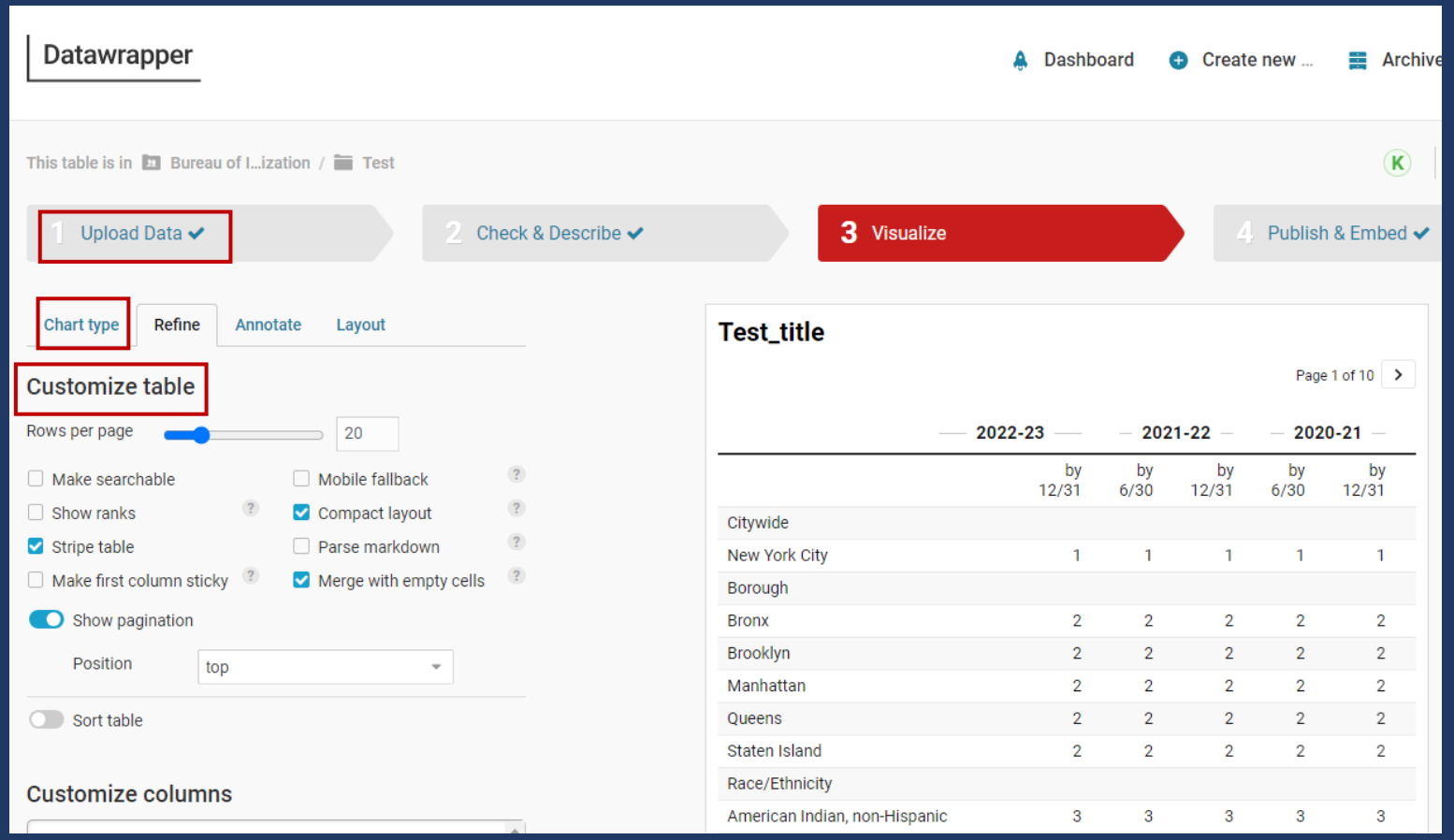


- Read in the master file generated in the previous step
- Split and transform the combined dataset into individual files for each visualization
- Save the files to the agency drive and upload to GitHub for public access

Phase 4
Visualization - *Datawrapper*

- Datawrapper
  - Straightforward and easy to use
  - Optimized for mobile devices
  - Limited data processing capabilities

- Link to datasets in GitHub as data source and build the visuals in Datawrapper
- Develop HTML webpage and embed the visuals



Phase 5
Quality Assurance and Review

Quality Assurance

- Log review in R
- Data validation
- Checklist

Review

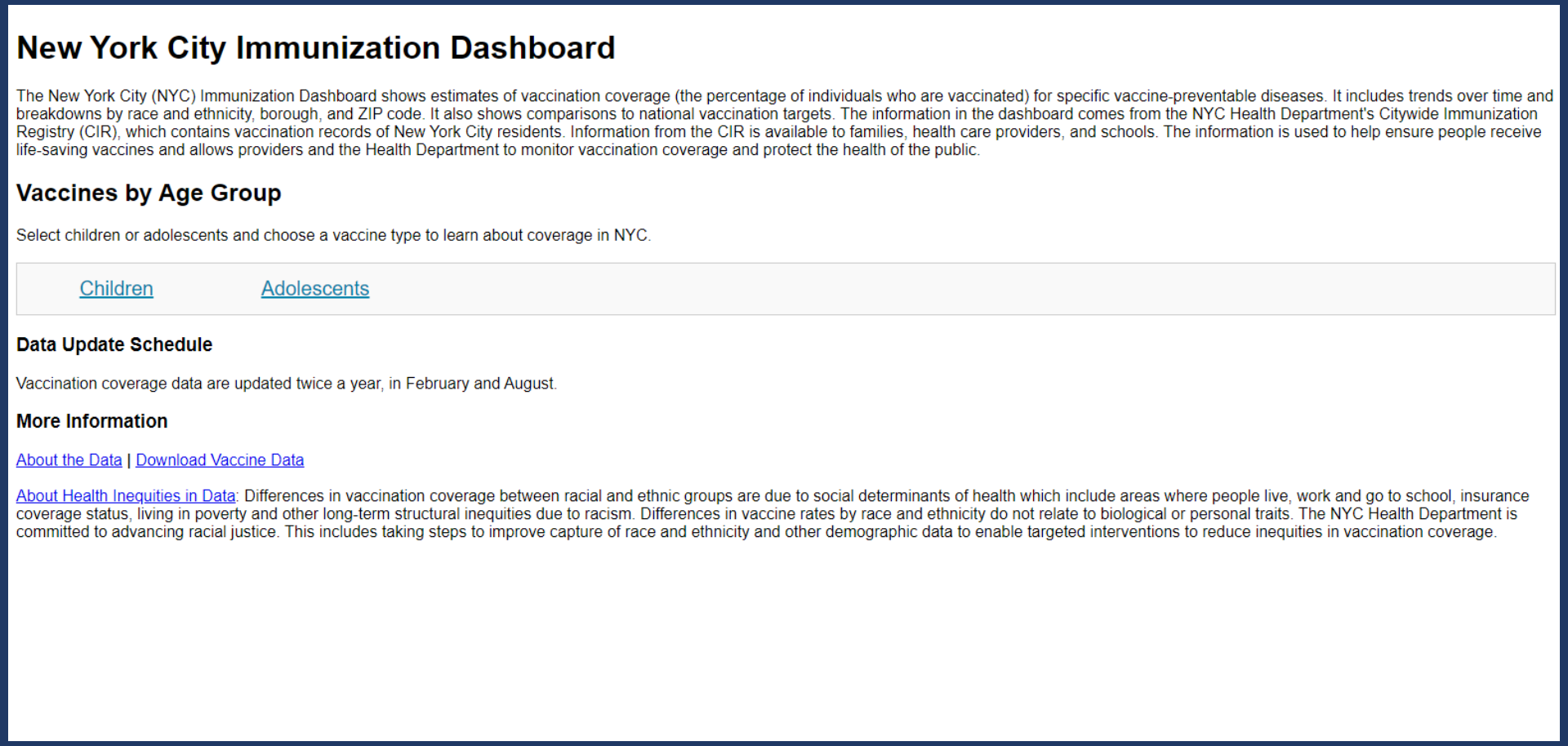
- CIR team
- External reviewers
- Bureau of Immunization leadership
- Agency Communications
- Agency leadership

Phase 6
Publishing

- In addition to publishing the dashboard online, several preparatory steps are necessary
  - Set up GitHub repository and documentation (read.me file)
  - Compile Frequently Asked Questions (FAQs)
  - Prepare press release materials
  - Archive all files

- Data updates are scheduled twice per year to include June and December coverage rates

New York City Immunization Dashboard (beta)



New York City Immunization Dashboard

The New York City (NYC) Immunization Dashboard shows estimates of vaccination coverage (the percentage of individuals who are vaccinated) for specific vaccine-preventable diseases. It includes trends over time and breakdowns by race and ethnicity, borough, and ZIP code. It also shows comparisons to national vaccination targets. The information in the dashboard comes from the NYC Health Department's Citywide Immunization Registry (CIR), which contains vaccination records of New York City residents. Information from the CIR is available to families, health care providers, and schools. The information is used to help ensure people receive life-saving vaccines and allows providers and the Health Department to monitor vaccination coverage and protect the health of the public.

Vaccines by Age Group

Select children or adolescents and choose a vaccine type to learn about coverage in NYC.

Children Adolescents

Data Update Schedule

Vaccination coverage data are updated twice a year, in February and August.

More Information

About the Data | Download Vaccine Data

About Health Inequities in Data: Differences in vaccination coverage between racial and ethnic groups are due to social determinants of health which include areas where people live, work and go to school, insurance coverage status, living in poverty and other long-term structural inequities due to racism. Differences in vaccine rates by race and ethnicity do not relate to biological or personal traits. The NYC Health Department is committed to advancing racial justice. This includes taking steps to improve capture of race and ethnicity and other demographic data to enable targeted interventions to reduce inequities in vaccination coverage.

Conclusion

- NYC used a six-phase iterative process to develop its first-ever immunization dashboard for routine vaccines
- The NYC Immunization Dashboard will provide a timely, interactive visualization of NYC vaccination coverage rates
- The dashboard will serve as an important public health resource

Challenges

- Selecting the most applicable population estimates as denominators
- Vaccination coverages displayed are not always consistent with NIS rates due to different methodologies
- Agency review and approval is a lengthy and iterative process
- Choosing appropriate software/tools approved by agency for data analysis and visualization

Next steps

- Finalize and publish the dashboard
  - Present to agency partners
  - Present to provider groups and community-based organizations
- Collect public feedback
  - Track page views
- Expand the dashboard to include all recommended vaccines for children and adolescents
  - Incomplete adult data

Acknowledgements

- Bureau of Immunization
- Office of External Affairs

Thank You

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