INFLUENZA VACCINATION COVERAGE ESTIMATES FOR THE 2018–19 SEASON: Summary of Online Report

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Data Sources and Methods

- **National Immunization Survey-Flu (NIS-Flu)**
  - On-going, national list-assisted random-digit-dial cellular telephone survey of households with children
  - NIS-Child (19–35 months), NIS Teen (13–17 years), and NIS-Child Influenza Module (6–18 months and 3–12 years)
  - Parental report: Has child received flu vaccination since July 1, 2018? (month, year)
  - NIS-Flu interviews conducted October 2018–June 2019
Data Sources and Methods (2)

- Behavioral Risk Factor Surveillance System (BRFSS)
  - On-going state-based telephone survey of randomly selected persons ≥18 years among the non-institutionalized, U.S. population on health conditions and risk behaviors
  - Self report: Flu vaccination in the past 12 months (month, year)
  - Used interviews conducted September 2018–June 2019
Data Sources and Methods (3)

- **Analysis**
  - Kaplan-Meier survival analysis to determine cumulative monthly influenza vaccination coverage of one or more doses received from July 2018–May 2019
  - Coverage estimates calculated for children (6 mos.–17 yrs.) from NIS-Flu and for adults (≥18 yrs.) from BRFSS
  - Imputed month of vaccination if it was missing
  - Weighted estimates calculated in SUDAAN to account for complex survey design
  - T-tests (p<0.05) to determine differences between groups and between the 2018–19 and 2017–18 seasons
Figure 1. Flu Vaccination Coverage of Children 6 months—17 years, United States, 2010–2019

Error bars represent 95% confidence intervals around the estimates.
Figure 2. Flu Vaccination Coverage by State, Children 6 Months—17 Years, United States, 2018–19 Season
Figure 3. Flu Vaccination Coverage of Adults 18 years and older, United States, 2010–2019

Error bars represent 95% confidence intervals around the estimates.
Figure 4. Flu Vaccination Coverage by State, Adults, United States, 2018–19 Season
Correlation Between by State Child and Adult Flu Vaccination Coverage Estimates, United States, 2018–19 Season

\[ y = 0.5x + 14.9 \]

Correlation Coefficient \( (r) = 0.77 \)
A Group of States Ranked the Highest Among All States for Flu Vaccination Coverage of Both Children and Adults, 2018-19 Flu Season

Estimates for children are derived from National Immunization Survey-Flu (NIS-Flu) data and estimates for adults are derived from Behavioral Risk Factor Surveillance Survey (BRFSS) data. The state-level estimates were published at https://www.cdc.gov/flu/fluvaxview/index.htm

NJ and DC are not represented in this map because estimates for adults could not be calculated due to BRFSS not being conducted from September 2018-June 2019.

Not all states could be green or red because states were ranked. Q=quartile

Flu Vaccination Coverage
Top ¼ of states ranged from:
Children: 66.0%-81.1%
Adults: 49.8%-56.3%

Bottom ¼ of states ranged from:
Children: 46.0%-56.0%
Adults: 33.9%-42.9%
The 2018–19 NHIS estimates are projected estimates of coverage through May 2019 based on estimated vaccinations received July–November 2018 using NHIS interviews conducted August–December 2018 and 2017–18 NHIS estimates by month.
Limitations

- Most of these vaccination coverage data rely upon self-report and are not validated with medical records
  - Validity studies have shown that parental report (for children) may overestimate influenza vaccination coverage
  - Published studies of validity of self-report of adult influenza vaccination have shown mixed results
- Bias might remain after weighting adjustments
  - NIS-Flu and BRFSS are telephone surveys excluding households with no telephone service
  - Possible selection or nonresponse bias given low response rates
Additional Information Available:

- More details of the methods and limitations can be found in the report at: https://www.cdc.gov/flu/fluvakview/coverage-1819estimates.htm
- Estimates of influenza vaccination coverage by the following groups are also available in the report or in the interactive application:
  - By race/ethnicity
  - By age group and race/ethnicity
  - By sex
  - Estimates for selected local areas and territories
  - Place of influenza vaccination for children
  - State-level estimates
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.