

# Influenza Vaccination Distribution and Coverage, United States, 2010-11 and 2011-12 Seasons

Presented by:  
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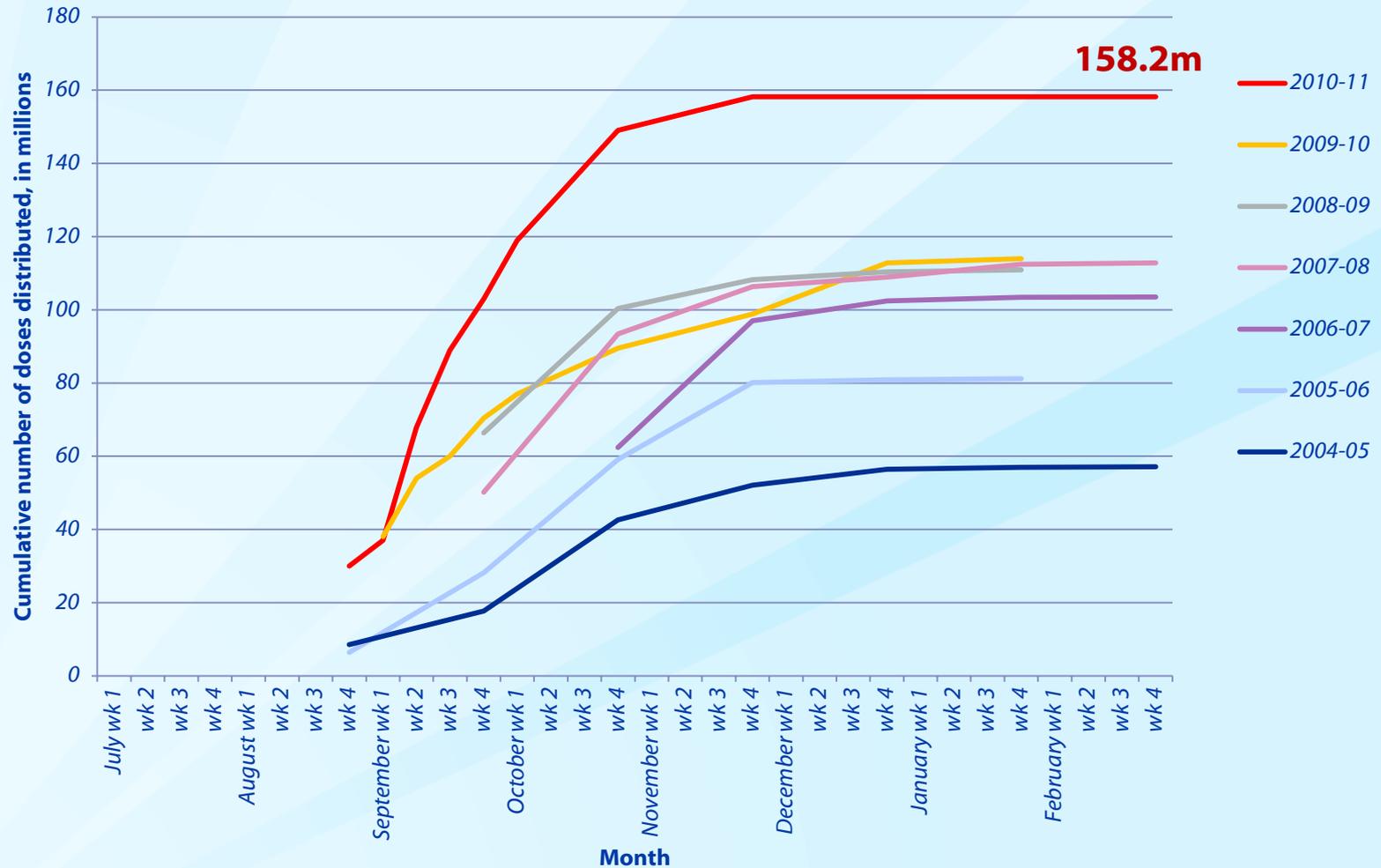
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Meeting of the ACIP  
October 26, 2011

# 2010-11 Influenza Season Challenges

- First “post-pandemic” season
  - High seasonal vaccine coverage in 2009-10 driven by pandemic
  - Public interest in vaccination?
- First season with universal flu vaccination recommendations (added group was 18-49 healthy non household contacts—15% of US population)
- New and/or expanded venues for vaccination—(schools and pharmacies)
- Unprecedented vaccine supply

# Cumulative doses of influenza vaccines distributed by month, 2004-05 -- 2010-11 seasons, U.S.



## 2010-11 Vaccination Data Sources

- National Immunization Survey (NIS) (for children)
- Behavioral Risk Factor Surveillance System (BRFSS) (for adults)
- Internet Panel Surveys for health care personnel and pregnant women, November 2010 and April 2011
- National Flu Survey (NFS), November 2010 and March 2011
- National Health Interview Survey (NHIS)
- Pregnancy Risk Assessment Monitoring System (PRAMS)
- Vaccinations administered in physician offices (claims data)
- CMS Minimum Data Set (nursing home residents)

## 2010-11 Season Vaccination Data Methods

- Final estimates from NIS interviews Sept. 2010-June 2011, (6mo-17yrs, n=116,799) and BRFSS ( $\geq 18$ yrs, n=377,569) ©
  - Online report at: [http://www.cdc.gov/flu/professionals/vaccination/coverage\\_1011estimates.htm](http://www.cdc.gov/flu/professionals/vaccination/coverage_1011estimates.htm)
  - Updates interim estimates from MMWR June 10, 2011 / Vol. 60 / No. 22 / Pg. 737 - 743
  - Trends in adults for BRFSS, 2007-08 through 2010-11 seasons
- April 2011 internet panel surveys
  - Healthcare personnel (n=1,931)
    - MMWR August 19, 2011 / Vol. 60 / No. 32 / Pg. 1073 - 1077
  - Pregnant women (n=1,457)
    - MMWR August 19, 2011 / Vol. 60 / No. 32 / Pg. 1078 - 1082
- Place of flu vaccination data from BRFSS
  - January-March 2011 data from 46 states and District of Columbia
  - MMWR June 17, 2011 / Vol. 60 / No. 23 / Pg. 781-785

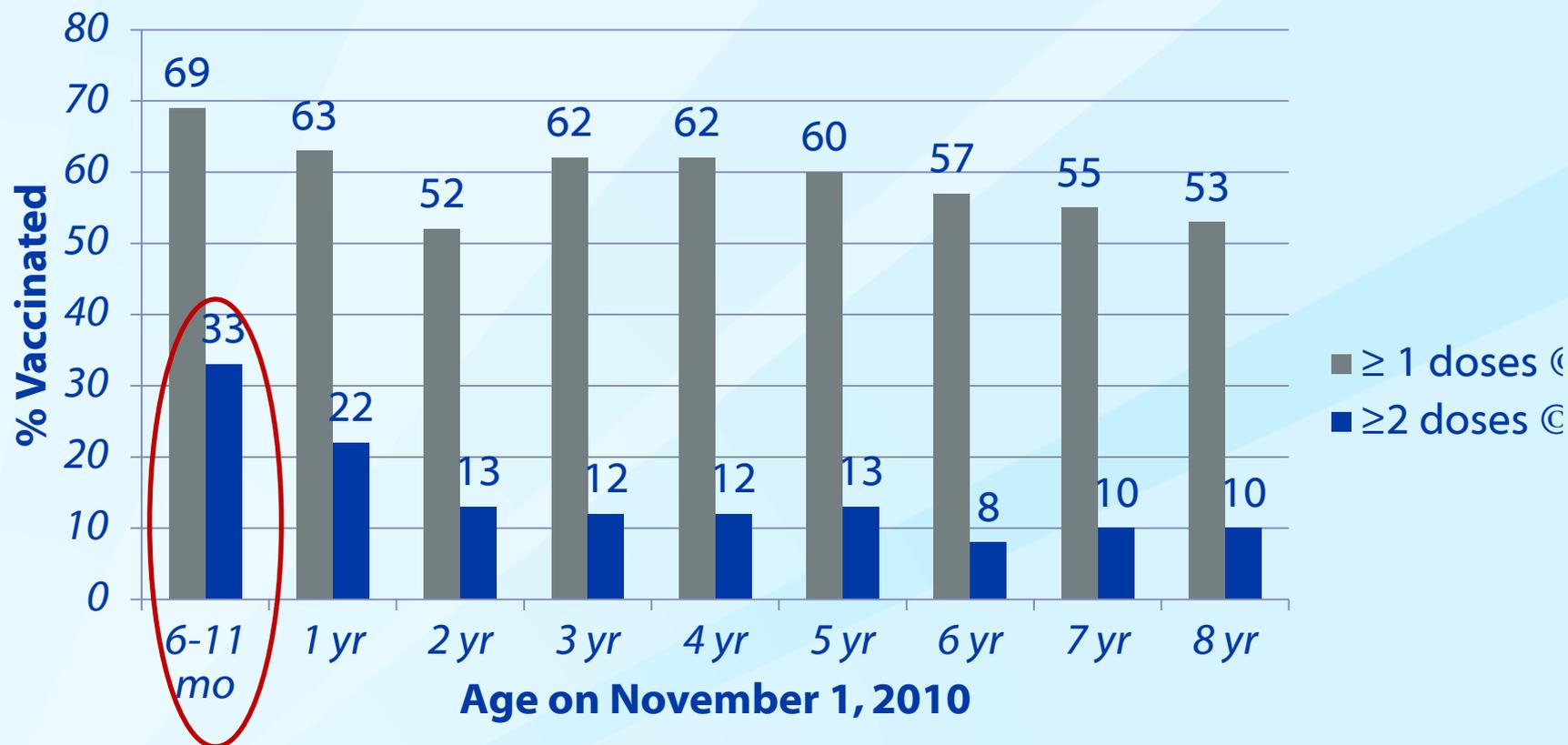


# Influenza Vaccination (trivalent) Coverage by Age: 2008-09 through 2010-11 Seasons

<b>Group</b>	<b>2008-09 (%)<sup>1</sup></b>	<b>2009-10 (%)<sup>2</sup></b>	<b>2010-11 (%)<sup>3</sup></b>
<b>Overall (persons aged <math>\geq</math> 6 mo.)</b>	Not Available	41.2	43.0
<b>Children, 6 mos-17 years</b>	29.1	43.7	51.0
<b>Persons <math>\geq</math> 18 yrs</b>	40.2	40.4	40.5
Persons 18-49 yrs, all	28.2	29.9	30.5
Persons 18-49 yrs, high risk	38.7	38.2	39.0
Persons 50-64 yrs	45.9	45.0	44.5
Persons $\geq$ 65 yrs	73.6	69.6	66.6

1. BRFSS 2008-09 for adults; child estimate from 2009 NHIS, ages 6 mo. – 18 years, online at: <http://www.cdc.gov/vaccines/stats-surv/nhis/2009-nhis.htm>.
2. BRFSS and National 2009 H1N1 Flu Survey (NHFS) estimates, 2009-10. Online at: [http://www.cdc.gov/flu/professionals/vaccination/coverage\\_0910estimates.htm](http://www.cdc.gov/flu/professionals/vaccination/coverage_0910estimates.htm).
3. BRFSS and NIS estimates, 2010-11. Online at: [http://www.cdc.gov/flu/professionals/vaccination/coverage\\_1011estimates.htm](http://www.cdc.gov/flu/professionals/vaccination/coverage_1011estimates.htm)

# Two-dose influenza vaccination coverage for children <9 years, 2010-11 season



Most children 6-11 months on 11/1/2010 need 2 doses to be fully vaccinated.

From the September 2010 – June 2011 National Immunization Survey; receipt of two or more influenza vaccinations by end of May 2011, as reported by parents/guardians without provider confirmation; prior season vaccinations not ascertained.

# Influenza Vaccination (trivalent) Coverage by Race/Ethnicity: 2008-09 through 2010-11 Seasons

<b>Group</b>	<b>2008-09 (%)<sup>1</sup></b>	<b>2009-10 (%)<sup>2</sup></b>	<b>2010-11 (%)<sup>3</sup></b>
<b>Adults by Race/ethnicity</b>			
White, non-Hispanic	43.5	44.1	43.2
Black, non-Hispanic	35.0*	32.8*	34.2*
Hispanic	28.4*	29.3*	32.3*
<b>Children by Race/ethnicity</b>			
White, non-Hispanic	Not Available	43.2	48.5
Black, non-Hispanic	Not Available	37.0*	50.8
Hispanic	Not Available	46.9*	55.1*

\* Statistically significant difference compared to non-Hispanic whites (p<0.05)

1. BRFSS 2008-09 for adults

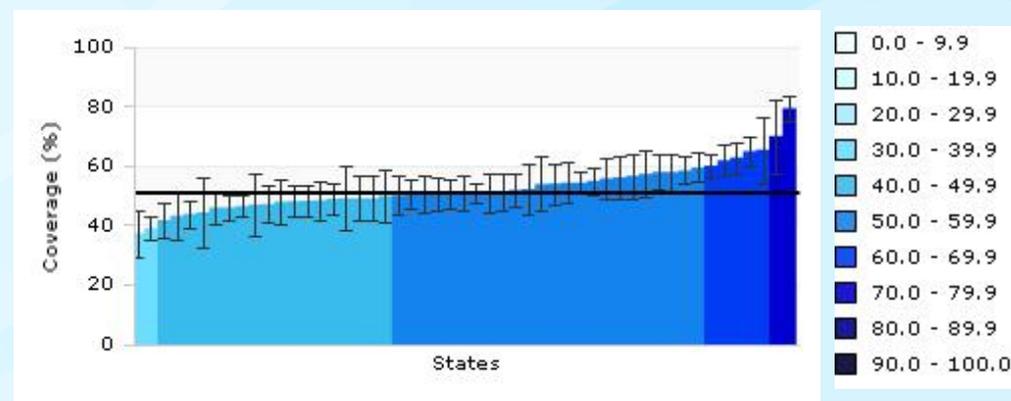
2. BRFSS and National 2009 H1N1 Flu Survey estimates, 2009-10. Online at:  
[http://www.cdc.gov/flu/professionals/vaccination/coverage\\_0910estimates.htm](http://www.cdc.gov/flu/professionals/vaccination/coverage_0910estimates.htm)

3. BRFSS and NIS estimates, 2010-11. Online at:  
[http://www.cdc.gov/flu/professionals/vaccination/coverage\\_1011estimates.htm](http://www.cdc.gov/flu/professionals/vaccination/coverage_1011estimates.htm)

# Influenza Vaccination Coverage by State, Children 6mo-17 years, 2010-11 Season

	States	n	%...▲	CI (\$)
●	Montana	2,044	37.3	(±7.9)
●	Florida	2,896	38.9	(±3.7)
●	Oregon	1,897	41.6	(±5.8)
●	Idaho	2,005	43.1	(±7.8)
●	Indiana	1,996	43.7	(±4.6)
●	Mississippi	1,826	44.3	(±11.7...)
●	Alabama	2,067	45.9	(±5.3)
●	Michigan	2,342	45.9	(±4.3)
●	Texas	8,476	46.4	(±3.6)

	States	n	%...▼	CI (\$)
●	Rhode Island	1,879	79.3	(±4.1)
●	Hawaii	2,032	70.0	(±12.5...)
●	District of Columbia	1,821	65.4	(±11.2...)
●	Massachusetts	1,848	64.9	(±4.7)
●	Maryland	2,922	62.7	(±5.2)
●	Connecticut	2,116	61.8	(±5.1)
●	New Jersey	2,499	60.0	(±4.1)
●	Minnesota	1,874	59.3	(±4.9)
●	Pennsylvania	3,223	58.3	(±4.6)



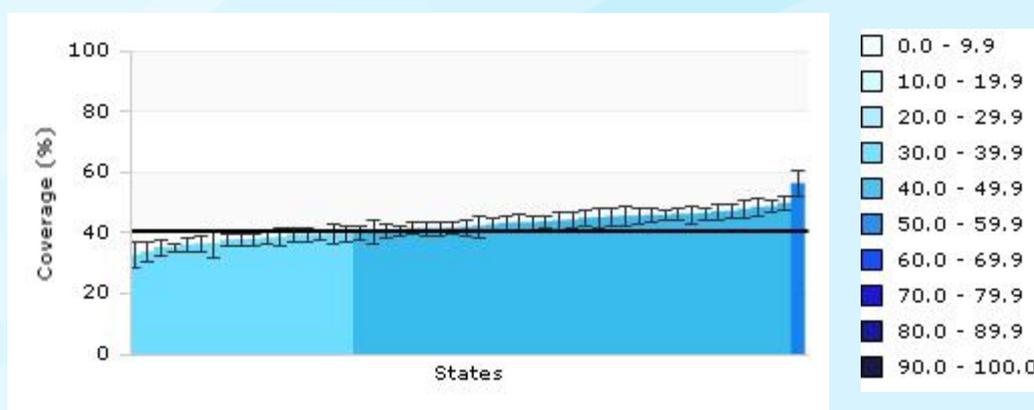
Source: National Immunization Survey, September 2010-June 2011.

Online at: <http://www.cdc.gov/flu/professionals/vaccination/report1011/report/>

# Influenza Vaccination Coverage by State, Adults $\geq 18$ years, 2010-11 Season

	States	n	%...▲	CI (s)
●	Q Nevada	2,616	32.7	(±4.1)
●	Q Alaska	2,366	33.7	(±3.3)
●	Q Idaho	4,659	35.1	(±2.5)
●	Q California	13,904	35.1	(±1.4)
●	Q Florida	20,113	35.9	(±2.2)
●	Q Oregon	4,167	36.3	(±2.5)
●	Q Illinois	4,443	36.4	(±4.5)
●	Q New Jersey	11,388	37.6	(±1.8)
●	Q Montana	6,910	37.7	(±2.0)

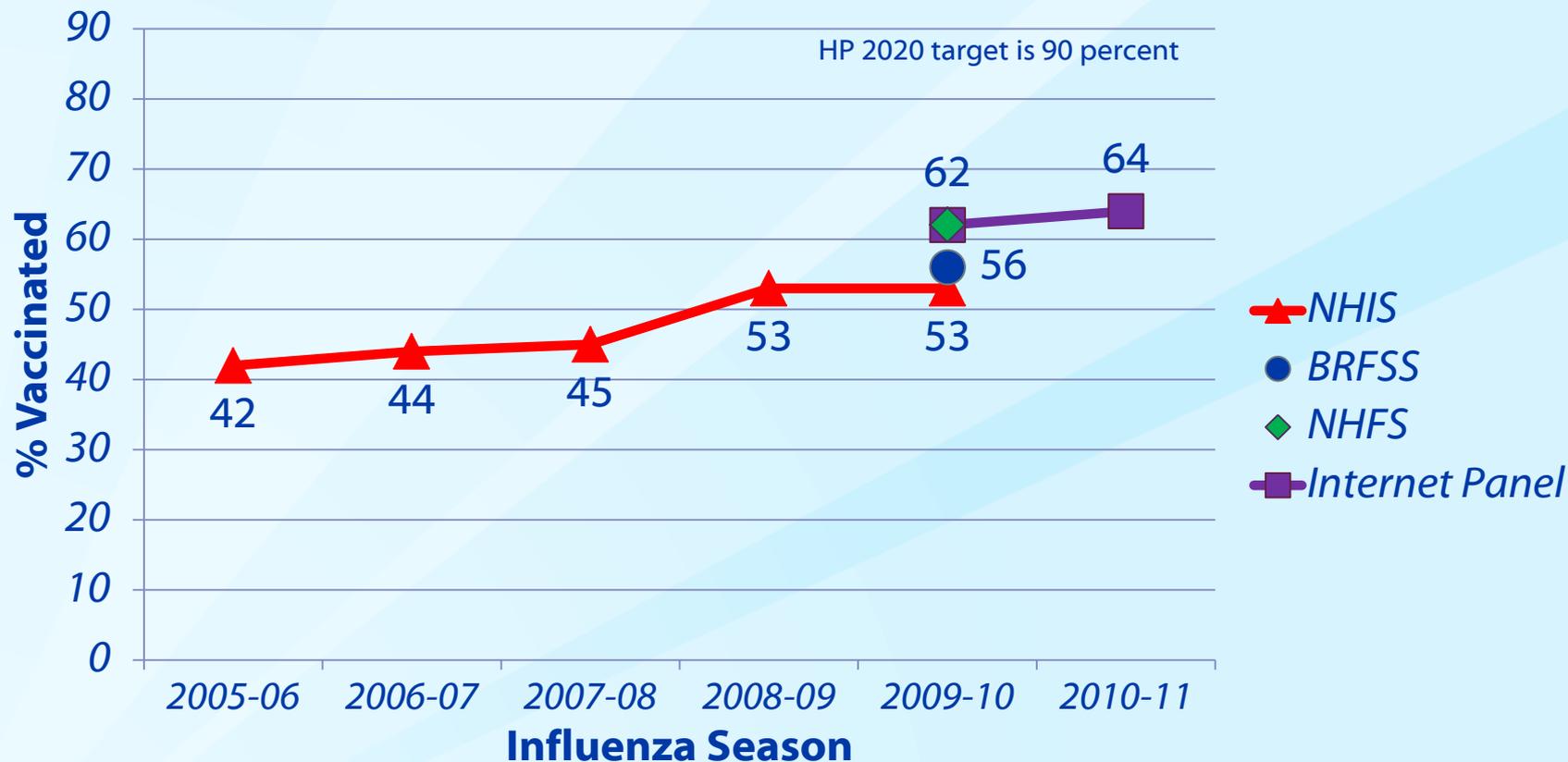
	States	n	%...▼	CI (s)
●	Q South Dakota	5,271	56.2	(±4.1)
●	Q Iowa	5,364	49.7	(±2.5)
●	Q Massachusetts	15,104	48.5	(±2.0)
●	Q Virginia	5,081	48.4	(±2.9)
●	Q West Virginia	3,878	47.7	(±2.9)
●	Q Rhode Island	5,629	47.1	(±2.4)
●	Q Maryland	7,700	46.9	(±2.5)
●	Q Minnesota	8,887	46.4	(±2.0)
●	Q Hawaii	5,191	46.1	(±2.9)



Source: Behavioral Risk Factor Surveillance System, September 2010-June 2011.

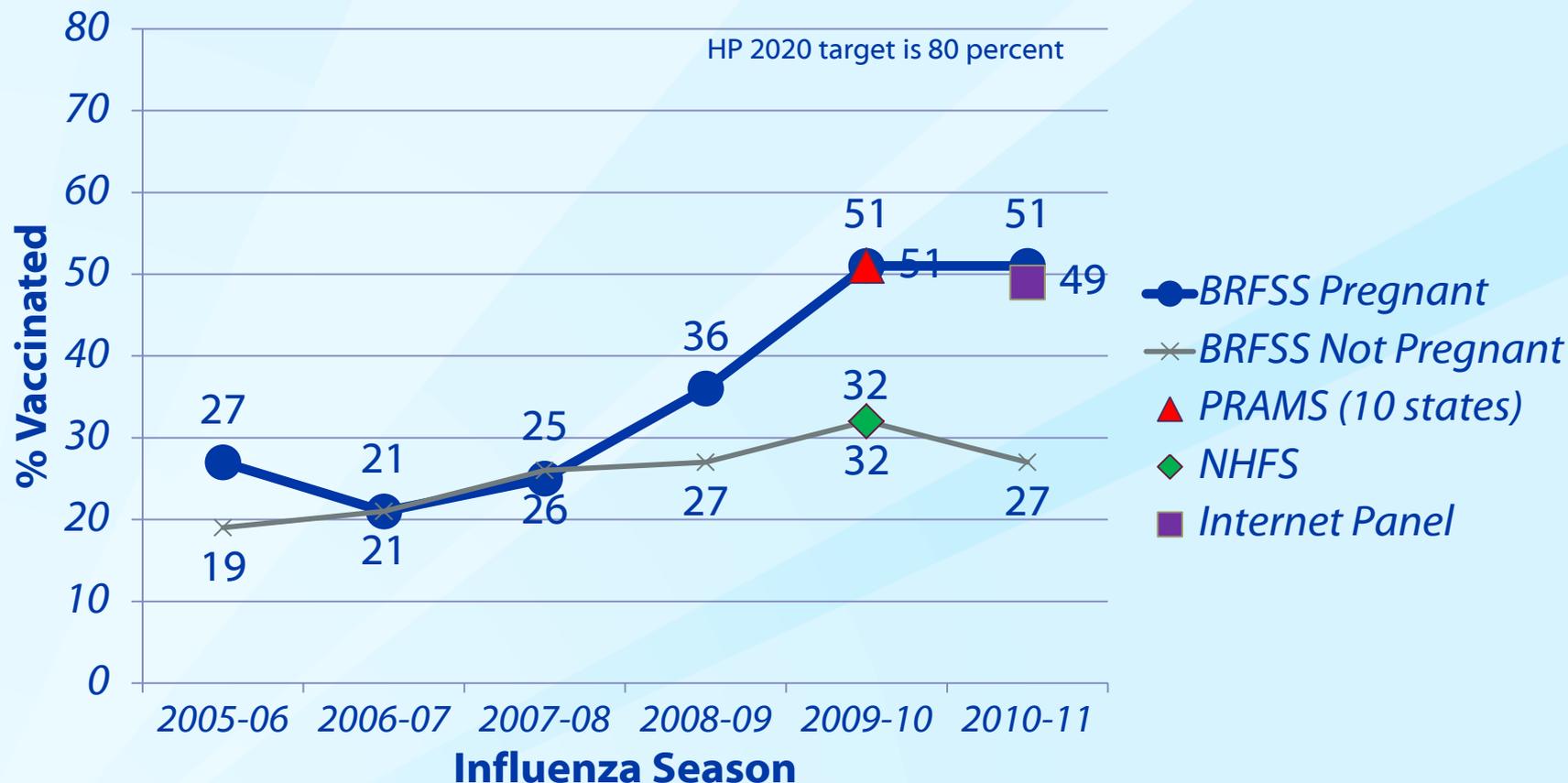
Online at: <http://www.cdc.gov/flu/professionals/vaccination/report1011/report/>

# Estimated Influenza Vaccination (trivalent) Coverage, Healthcare Personnel\*



\* Estimates from the National Health Interview Survey (NHIS), Behavioral Risk Factor Surveillance System (BRFSS), National 2009 H1N1 Flu Survey (NHFS), and internet panel surveys ([MMWR August 19, 2011 / 60\(32\);1073-1077](#)).

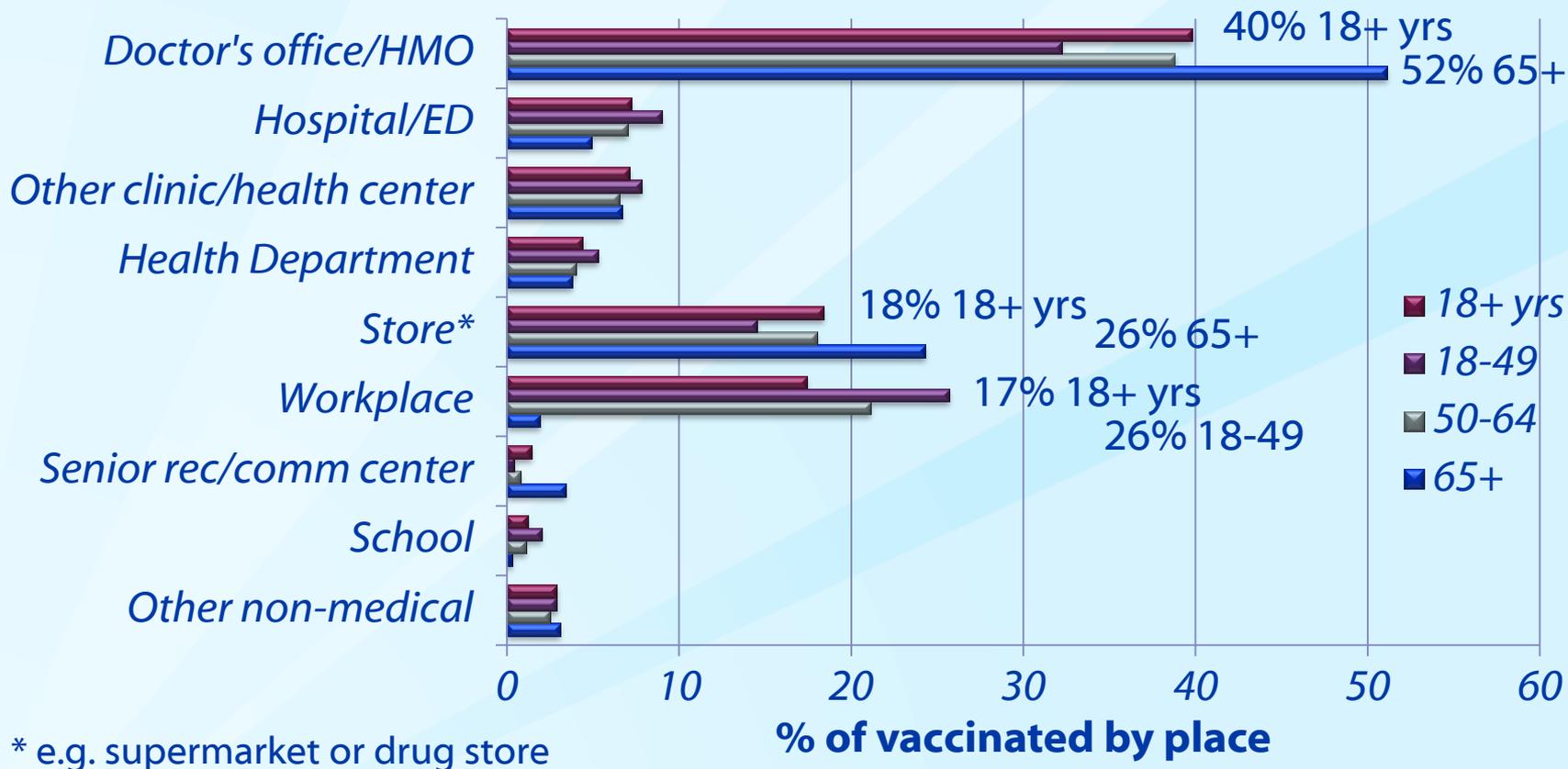
# Estimated Influenza Vaccination (trivalent) Coverage, Pregnant Women\*



\* Behavioral Risk Factor Surveillance (BRFSS) data from December interviews only, for women 18-44 years pregnant or not pregnant when interviewed. Differences in influenza vaccination coverage between pregnant and not pregnant women were statistically significant ( $p < 0.05$ ) only for the 2009-10 and 2010-11 seasons. Other estimates for pregnant women from PRAMS ([MMWR December 3, 2010 / 59\(47\);1541-1545](#)); NHFS (Ding et al. Am. J. Obstetrics & Gynecology, June 2011 Supplement); and an internet panel survey ([MMWR August 19, 2011 / 60\(32\);1078-1082](#)).

# Place of Influenza Vaccination Among Adults – United States, 2010-11 Season

MMWR June 17, 2011;60(23):781-785



BRFSS, January-March 2011 data from 46 states and District of Columbia

# Place of Influenza Vaccination Among Adults – « United States, 2010-11 Season

*MMWR June 17, 2011*

- ❑ **Doctor's office is most important medical setting**
- ❑ **Workplace and store important non-medical settings**
- ❑ **Increase in store vaccination (18.4%) compared to 1998-99 (5%) and 2006-07 (7%)**
- ❑ **Increases in persons vaccinated since 2006-07**
  - Doctor's office: 28 million (2006-07) to 37 million (2010-11)
  - Store: 6 million (2006-07) to 17 million (2010-11)
- ❑ **% vaccinated in non-medical settings higher for:**
  - whites (44%) vs. blacks (29%), Hispanics (34%)
  - Attended college (47%) vs. < high school education (28%)

# Summary

- ❑ **44 million more seasonal (trivalent) influenza vaccine doses distributed than in 2009-10**
  - Coverage levels by census population estimates can provide estimates of doses administered in the civilian, non-institutionalized population
- ❑ **Moderate increase in children's coverage since 2009; large increases since 2008**
- ❑ **Similar coverage for adults as for 2009-10 trivalent**
  - Coverage among adults  $\geq 65$  years declining past two seasons
- ❑ **Racial/ethnic disparities among all adults persist**
  - Non-Hispanic white adults significantly higher levels
- ❑ **Children: nH-whites did not have higher coverage vs. other racial/ethnic groups in 2010-11**
- ❑ **Wide variations among states**
- ❑ **Maintained last season's increases for pregnant women and healthcare personnel**

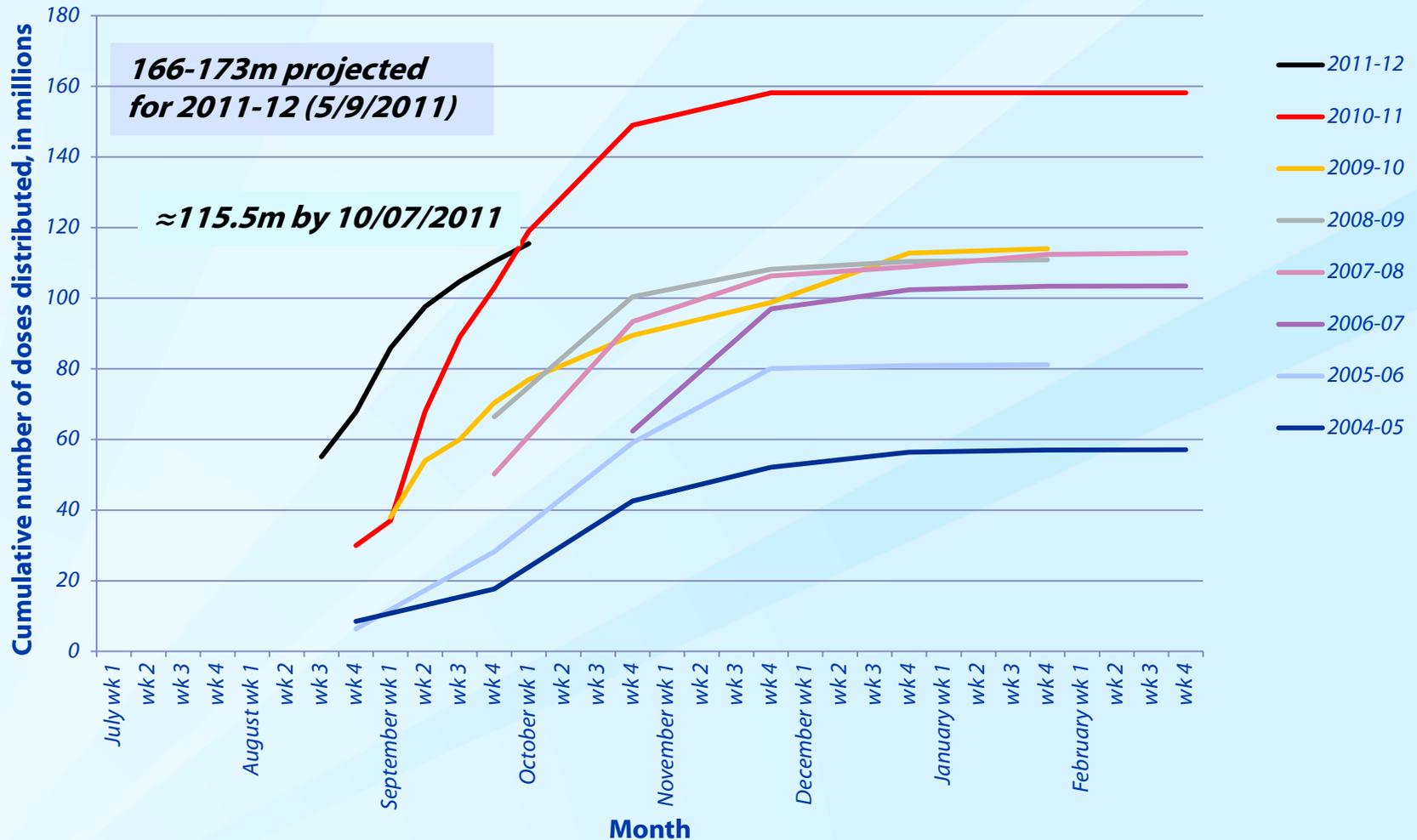
# Limitations

- ❑ **Self-reported vaccination, not validated by medical records**
- ❑ **Survey estimates may not be representative**
  - BRFSS does not reach households with only cell phones (will do so next year)
  - Telephone survey response rates low
  - Representativeness of internet panel survey estimates needs further evaluation
- ❑ **Tracking trends by season complicated by multiple data sources with different timeliness and possibly validity**
- ❑ **Comparisons to 2009-10 season estimates complicated by unique circumstances of pandemic and persons could have received either 2009 H1N1 vaccine only, seasonal vaccine only, or both**

# Vaccination in the 2010-11 Influenza Season: What did the US achieve?

- Despite the expected challenge of “flu fatigue”, overall vaccine coverage maintained last season’s increases
  - Significant increases in Hispanic and non-Hispanic black children
- Multiple venues were accessed for vaccination
- Challenges for the coming season
  - Maintain the gains
  - Improve vaccination coverage among adults with risk conditions and older adults
  - Improve full vaccination of children recommended for two doses

# Cumulative doses of influenza vaccines distributed by month, 2004-05 -- 2011-12 seasons, U.S.



## 2011-12 Vaccination Data Sources

- National Immunization Survey (NIS) (for children)
- Behavioral Risk Factor Surveillance System (BRFSS) (for adults)
- Internet Panel Surveys for health care personnel and pregnant women, November 2011 and March or April 2012
- National Flu Survey (NFS), November 2011 and March 2012
- National Health Interview Survey (NHIS)
- Pregnancy Risk Assessment Monitoring System (PRAMS)
- Vaccinations administered in physician offices (claims data)
- CMS Minimum Data Set (nursing home residents)

# Preliminary Influenza Vaccination Coverage in Children 6mo-17yrs, 2011-12 Season

- ❑ **Estimated coverage by October 15, 2011: 22-32%**
    - Higher than 17-20% by this date last season
  
  - ❑ **Intended vaccination for children**
    - 44% to 56% already have or “definitely will” be vaccinated
      - Consistent with 2010-11 coverage by end of May 2011 (51%)
- 
- Adult estimates not yet available from the Behavioral Risk Factor Surveillance System (BRFSS).
  - Child estimates from the National Immunization Survey with vaccinations reported by parents/guardians without provider confirmation. Estimated coverage based on interviews conducted 9/1/2011-10/8/2011. Projected coverage including “definite intent” based on interviews conducted 10/1/2011-10/8/2011 (n=2,135).

# Upcoming Data Releases

- National Influenza Vaccination Week (NIVW), December 4-10, 2011
  - CDC media briefing Dec. 5
    - Results from November 2011
      - National Flu Survey
      - Panel surveys
        - » Pregnant women
        - » Health Care Personnel
- Monthly estimates for children and adults from NIS and BRFSS (schedule to be determined)



# FluVaxView

## CDC Source for Influenza Vaccination Coverage Data

CDC - Seasonal Influenza (Flu) - Windows Internet Explorer provided by ITSO

http://www.cdc.gov/flu/

File Edit View Favorites Tools Help

Favorites CDC - Seasonal Influen...

CDC - Seasonal Influenza (Flu)

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A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

### Seasonal Influenza (Flu)

Flu activity is low across most of the country; however, CDC continues to recommend flu vaccination for certain people. For example, children who need two doses of vaccine, but who have only gotten one dose so far this season should get their second dose; and unvaccinated people traveling to parts of the world which may be experiencing flu activity should get a flu vaccine. This season's flu vaccine expires in June.

Flu Vaccination Coverage  
What gets measured gets done GO»

FluVaxView »  
Flu Vaccine  
FluView

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#### Influenza (Flu) Topics

- Flu Basics**  
Symptoms, How Flu Spreads, Higher Risk Groups, 2010-2011 Flu Season, 2011-2012 Flu Season...
- Prevention**  
Flu Vaccine Information, Vaccine Safety Information, NIVW, Infection Control...
- Treatment/Antiviral Drugs**
- Health Professionals**  
Vaccination, Antiviral Drugs, Infection Control, Diagnostic Testing, Patient Education, Clinician Communications and Training...
- Free Resources**  
Printable Materials, Photos, Podcasts, Videos, PSAs, eCards, Badges & Buttons, Articles...
- What's New & Updated!**

#### Flu Activity & Surveillance

A Weekly Influenza Surveillance Report Prepared by the Influenza Division  
Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists\*  
Week Ending Nov 21, 2011 Week 48

CDC collects, compiles and analyzes information on influenza activity year round in the United States.

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<http://www.cdc.gov/flu/professionals/vaccination/vaccinecoverage.htm>

# Thank You

**For more information please contact Centers for Disease Control and Prevention**

1600 Clifton Road NE, Atlanta, GA 30333

Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov) Web: [www.cdc.gov](http://www.cdc.gov)

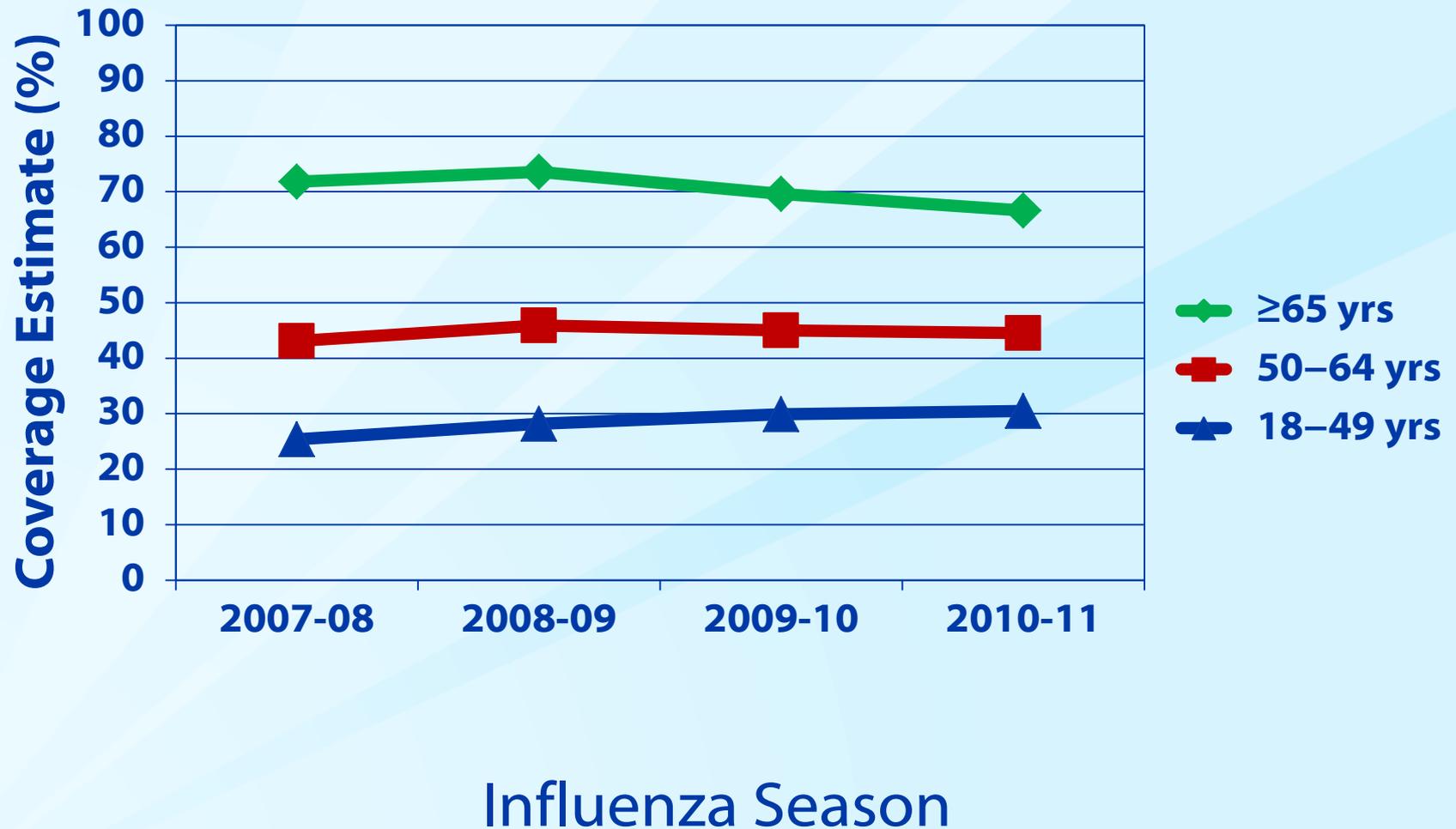


## Two-dose influenza vaccination coverage for children <9 years, 2010-11 season

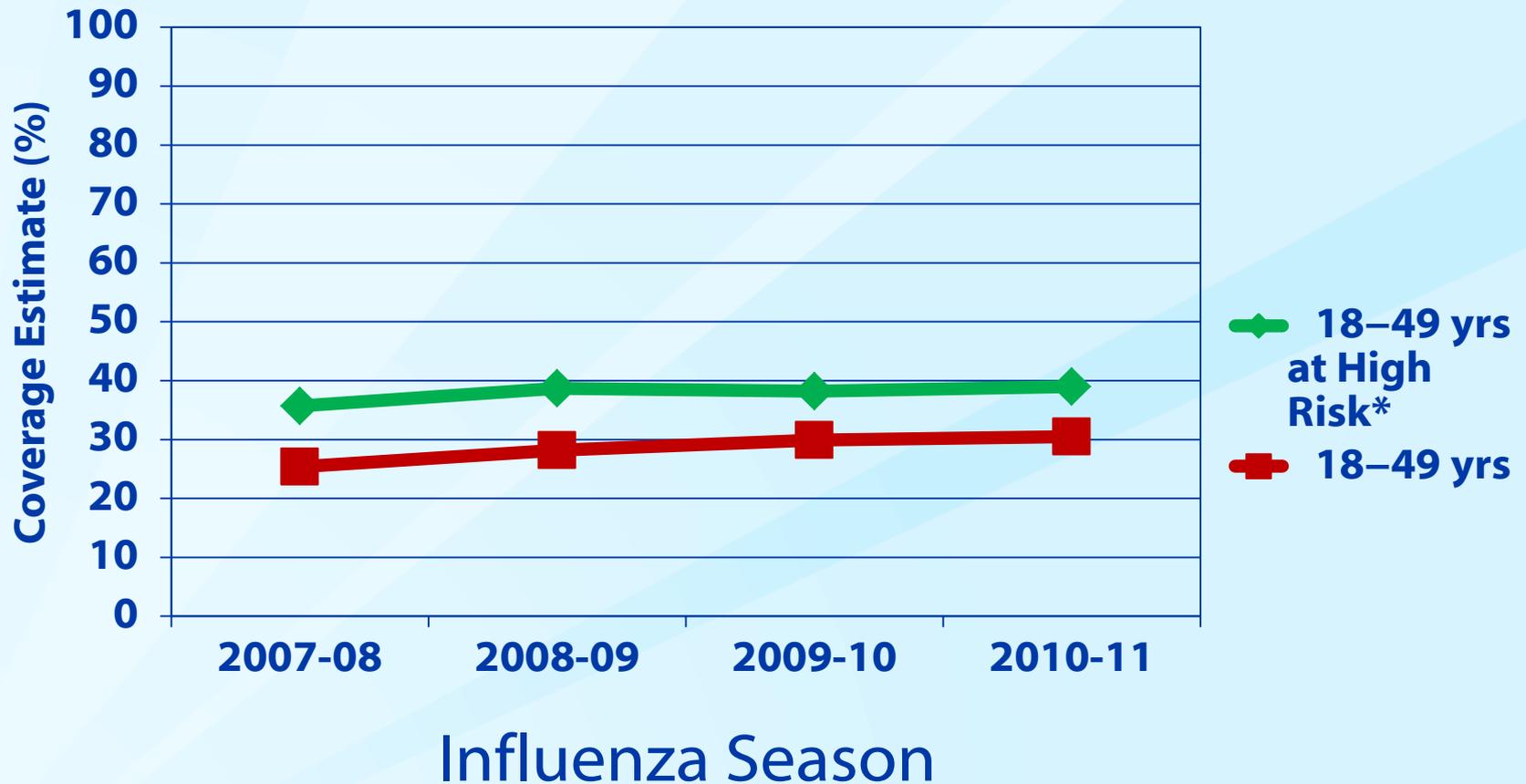
Age on 11/1/2010	6-11 mo	1 yr	2 yr	3 yr	4 yr	5 yr	6 yr	7 yr	8 yr
% with ≥1 dose	<b>69.0</b>	<b>62.8</b>	51.8	62.2	61.5	60.2	57.0	54.8	53.3
% with ≥2 doses, overall	<b>32.8</b>	<b>21.7</b>	12.8	12.1	11.6	12.5	7.9	10.3	9.6
% with ≥2 doses, among those with ≥1 dose	<b>47.5</b>	<b>34.5</b>	24.6	19.4	18.9	20.7	13.9	18.9	18.0

- From the September 2010 – June 2011 National Immunization Survey; receipt of two or more influenza vaccinations by end of May 2011, as reported by parents/guardians without provider confirmation; prior season vaccinations not ascertained.
- Coverage with two or more doses will underestimate fully vaccinated coverage, because some older children may have received influenza vaccinations in prior seasons and need only one 2010-11 season vaccination to be fully vaccinated. Of children 6-11 months as of 11/1/2010, none were age-eligible for influenza vaccination as of 3/1/2010 for prior season vaccination; of children 12-23 months as of 11/1/2010, ≈ 7 out of 12 were ≥6 months old as of 12/1/2009.

# Seasonal (Trivalent) Influenza Vaccination Trends by Age Group, BRFSS and NHFS (2009-10)

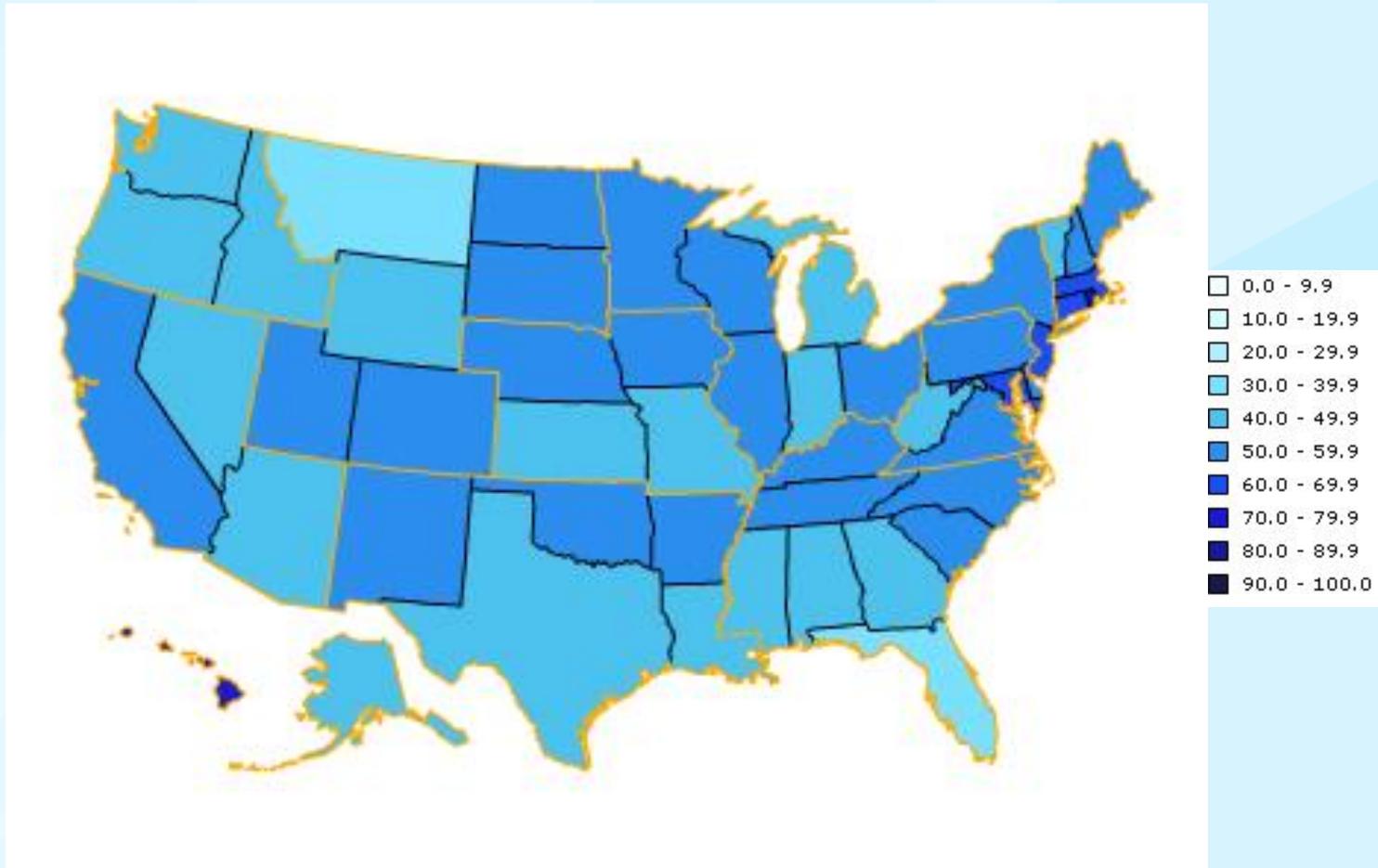


# Seasonal (Trivalent) Influenza Vaccination Trends for Persons 18-49 yrs, BRFSS and NHFS (2009-10)



\*Selected high-risk conditions limited to people with asthma, diabetes or heart disease.

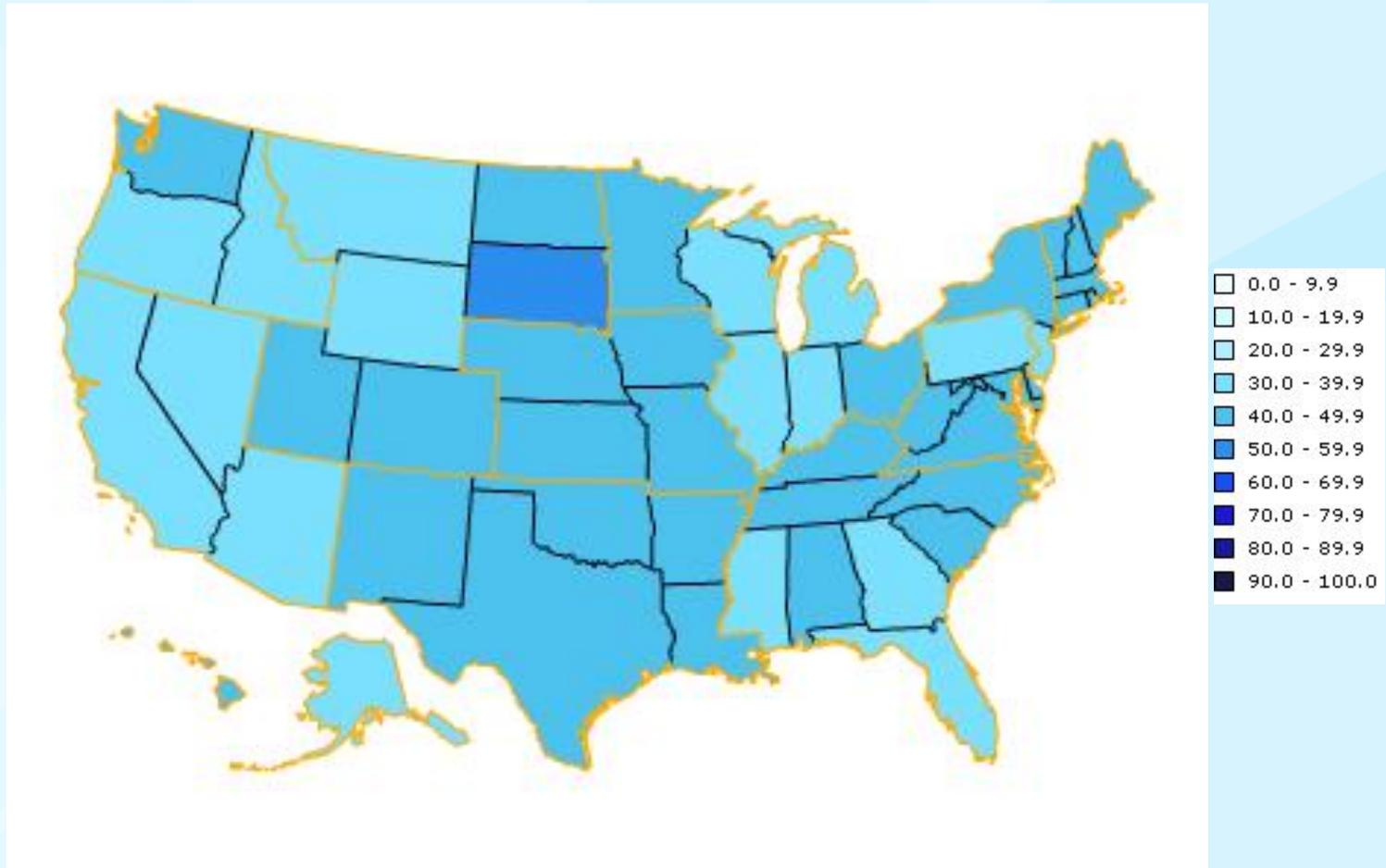
# Influenza Vaccination Coverage by State, Children 6mo-17 years, 2010-11 Season



Source: National Immunization Survey, September 2010-June 2011.

Online at: <http://www.cdc.gov/flu/professionals/vaccination/report1011/report/>

# Influenza Vaccination Coverage by State, Adults $\geq 18$ years, 2010-11 Season



Source: Behavioral Risk Factor Surveillance System, September 2010-June 2011.

Online at: <http://www.cdc.gov/flu/professionals/vaccination/report1011/report/>

## Influenza vaccination coverage for adults aged $\geq 65$ years, by race/ethnicity---Behavioral Risk Factor Surveillance System (BRFSS), United States, 2000--2010\* (MMWR Supplement January 14, 2011 /60(01);38-41)

