



Racial and Ethnic Disparities in Adult Immunization

Ram Koppaka, MD, PhD

Immunization Services Division

National Vaccine Advisory Committee

February 8, 2018

Overview of Presentation

- Adult Immunization Schedule
- Adult vaccination coverage
 - Data source
 - Coverage by race/ethnicity
 - Trends in coverage by race/ethnicity
- Limitations
- Factors contributing to disparities
- Strategies for reducing disparities

Figure 1. Recommended immunization schedule for adults aged 19 years or older by age group, United States, 2018

This figure should be reviewed with the accompanying footnotes. This figure and the footnotes describe indications for which vaccines, if not previously administered, should be administered unless noted otherwise.

Vaccine	19–21 years	22–26 years	27–49 years	50–64 years	≥65 years
Influenza ¹	1 dose annually				
Tdap ² or Td ²	1 dose Tdap, then Td booster every 10 yrs				
MMR ³	1 or 2 doses depending on indication (if born in 1957 or later)				
VAR ⁴	2 doses				
RZV ⁵ (preferred) or ZVL ⁵				2 doses RZV (preferred) or 1 dose ZVL	
HPV–Female ⁶	2 or 3 doses depending on age at series initiation				
HPV–Male ⁶	2 or 3 doses depending on age at series initiation				
PCV13 ⁷					1 dose
PPSV23 ⁷	1 or 2 doses depending on indication				1 dose
HepA ⁸	2 or 3 doses depending on vaccine				
HepB ⁹	3 doses				
MenACWY ¹⁰	1 or 2 doses depending on indication, then booster every 5 yrs if risk remains				
MenB ¹⁰	2 or 3 doses depending on vaccine				
Hib ¹¹	1 or 3 doses depending on indication				



Recommended for adults who meet the age requirement, lack documentation of vaccination, or lack evidence of past infection



Recommended for adults with other indications





No recommendation

Figure 2. Recommended immunization schedule for adults aged 19 years or older by medical condition and other indications, United States, 2018


This figure should be reviewed with the accompanying footnotes. This figure and the footnotes describe indications for which vaccines, if not previously administered, should be administered unless noted otherwise.

Vaccine	Pregnancy ^{1,6}	Immuno-compromised (excluding HIV Infection) ^{3-7,11}	HIV infection CD4+ count (cells/ μ L) ^{3-7,9-10}		Asplenia, complement deficiencies ^{7,10,11}	End-stage renal disease, on hemodialysis ^{7,9}	Heart or lung disease, alcoholism ⁷	Chronic liver disease ^{7,9}	Diabetes ^{7,9}	Health care personnel ^{3,4,9}	Men who have sex with men ^{6,8,9}
			<200	\geq 200							
Influenza ¹	1 dose annually										
Tdap ² or Td ²	1 dose Tdap each pregnancy	1 dose Tdap, then Td booster every 10 yrs									
MMR ³	contraindicated		1 or 2 doses depending on indication								
VAR ⁴	contraindicated		2 doses								
RZV ⁵ (preferred)					2 doses RZV at age \geq 50 yrs (preferred)						
or	or										
ZVL ⁵	contraindicated				1 dose ZVL at age \geq 60 yrs						
HPV-Female ⁶		3 doses through age 26 yrs			2 or 3 doses through age 26 yrs						
HPV-Male ⁶		3 doses through age 26 yrs			2 or 3 doses through age 21 yrs						2 or 3 doses through age 26 yrs
PCV13 ⁷		1 dose									
PPSV23 ⁷		1, 2, or 3 doses depending on indication									
HepA ⁸		2 or 3 doses depending on vaccine									
HepB ⁹		3 doses									
MenACWY ¹⁰		1 or 2 doses depending on indication, then booster every 5 yrs if risk remains									
MenB ¹⁰		2 or 3 doses depending on vaccine									
Hib ¹¹		3 doses HSCT recipients only	1 dose								

 Recommended for adults who meet the age requirement, lack documentation of vaccination, or lack evidence of past infection

 Recommended for adults with other indications

 Contraindicated

 No recommendation

2018 Adult Immunization Schedule Updates

- Recommended use of recombinant zoster vaccine
 - Administer 2 doses RZV 2–6 mos apart to adults ≥ 50 y regardless of past herpes zoster or receipt of zoster vaccine live (ZVL)
 - Administer RZV 2–6 mos apart to adults who previously received ZVL at least 2 mos after ZVL
- Updated ACIP recommendations on use of MMR during mumps outbreak
 - Administer 1 dose MMR to persons who previously received ≤ 2 doses mumps-containing vaccine and identified by public health authority to be at increased risk during mumps outbreak

Adult Vaccination Coverage Data Source: National Health Interview Survey, 2016

- Annual in-home survey of U.S. non-institutionalized civilian population
- Detailed health survey of one adult per family in each household sampled
- Provides national coverage estimates
- Final sample for estimating adult vaccination coverage:
 - Response rate: 53.4%
 - N = 32,626
- Sample for estimating influenza coverage, 2014-15 season:
 - Response rate: 55.2% (2015); 53.4% (2016)
 - N = 33,348

Adult Vaccination Coverage, NHIS 2016

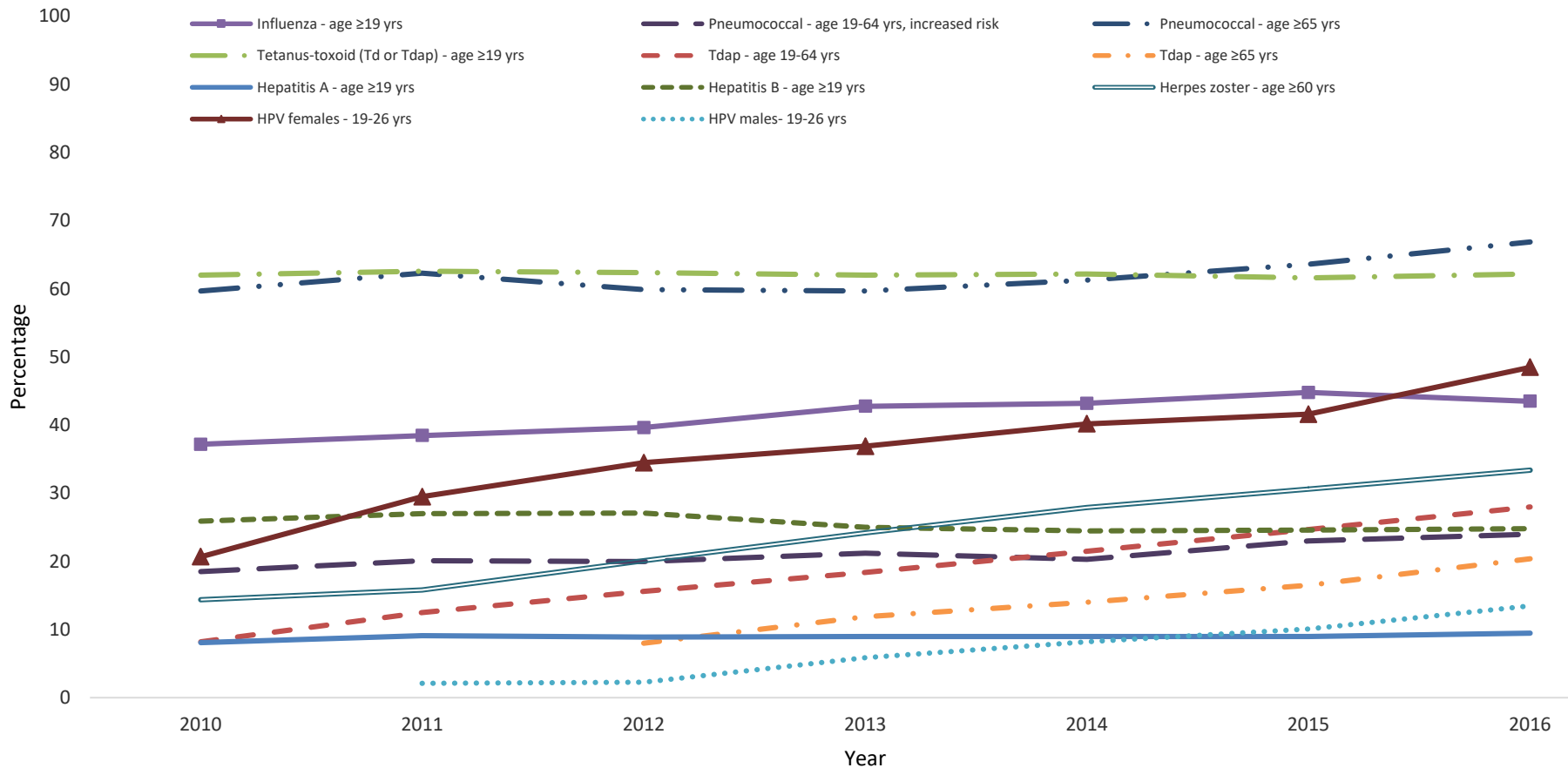
Brief online report to be published February 9, 2018

- Publication concurrent with release of 2018 Adult Immunization Schedule
- Highlights key findings for all vaccines in this presentation

Adult Vaccination Coverage 2016

- Vaccination coverage in 2016 similar to estimates from 2015
 - Influenza vaccination 2015–2016 season for ≥ 19 yr: 43.5% (-1.3)
 - Pneumococcal vaccination for ≥ 65 yr: **66.9% (3.3)**
 - Tdap vaccination for ≥ 19 yr: **26.6 (3.4)**
 - Hepatitis A vaccination among 19-49yr with chronic liver condition: **23.7% (14.8)**
 - Shingles vaccination for ≥ 60 yr: **33.4 (2.8)**
- Racial and ethnic disparities persisted – lower coverage among blacks, Hispanics, and Asians compared with whites for selected vaccines

Trends in Adult Vaccine Coverage-- NHIS



Racial/Ethnic Vaccination Disparities

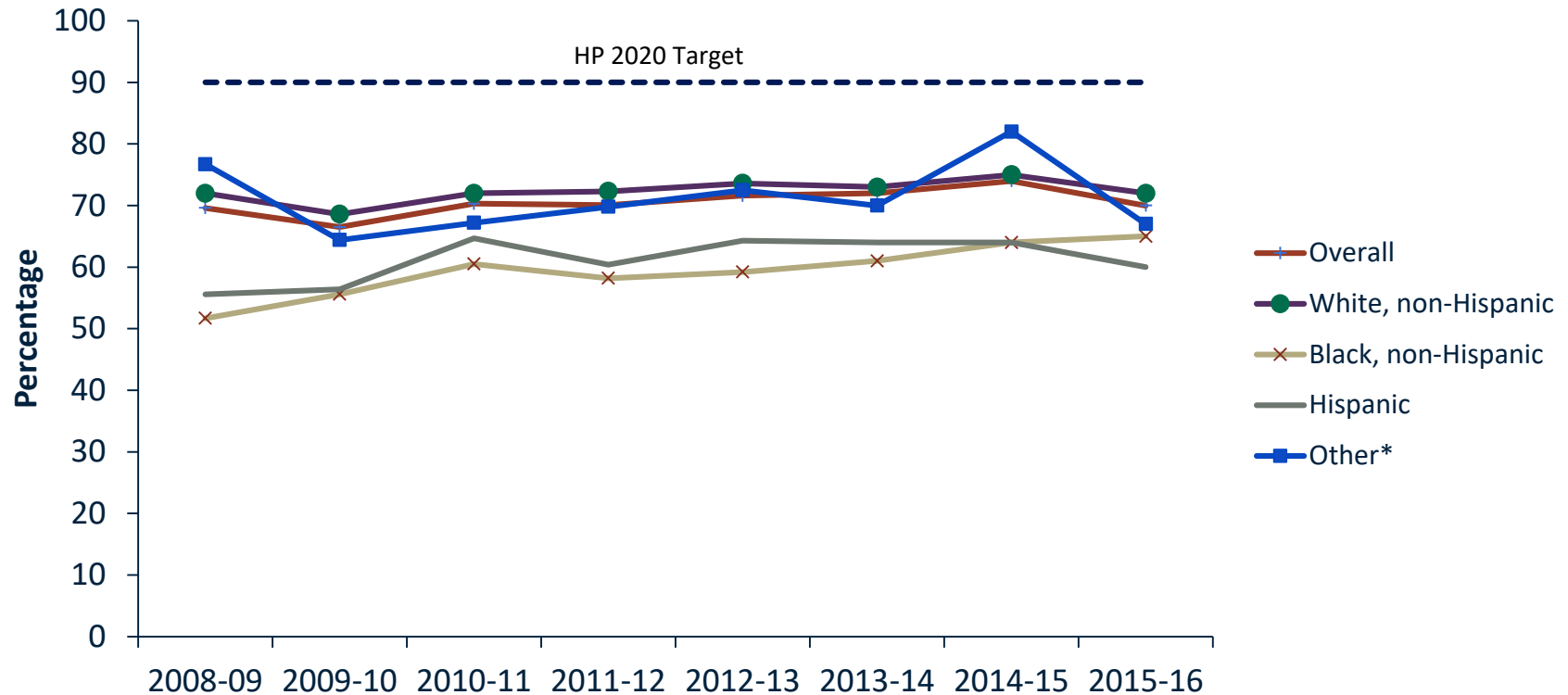
Vaccination Group	% Vaccinated Whites	Disparity, Blacks	Disparity, Hispanics	Disparity, Asians
Influenza, ≥19 yrs	46	-7	-13	+4
Influenza, 19-49 yrs	33	-3	-6	+7
Influenza, 50-64 yrs	47	-2	-7	+10
Influenza, ≥65 yrs	72	-7	-12	+4
Influenza, HCP ≥19 yrs	67	-10	-7	+5

Data Source: 2016 NHIS

Racial/Ethnic Vaccination Disparities

Vaccination Group	% Vaccinated Whites	Disparity, Blacks	Disparity, Hispanics	Disparity, Asians
Pneumo., IR 19-64 yrs	25	1	-2	-8
Pneumo., ≥65 yrs	71	-16	-22	18
Tetanus, 19-49 yrs	70	-21	+16	-15
Tetanus, 50-64 yrs	69	-16	-15	-21
Tetanus, ≥65 yrs	61	-17	-13	-18
Tdap, ≥19 yrs	32	-17	-15	-8
Tdap, 19-64 yrs	34	-19	-17	-9
Tdap, ≥65 yrs	23	-14	-9	-8
HepA, 19-49 yrs	14	-4	-2	2
HepB, 19-49 yrs	36	-9	-10	-2
Herpes Zoster, ≥60 yrs	38	-22	-16	-16
HPV, Females 19-26 yrs	52	-11	-8	-10
Tdap, HCP ≥19 yrs	53	-26	-11	11
HepB, HCP ≥19 yrs	65	-17	-10	3

Trends in Influenza Vaccination, ≥ 65 years, by Race/Ethnicity: 2008-09 – 2015-16 Seasons, NHIS, United States



* Other includes Asian, American Indian/Alaska Native, and multiple race.

Average Change in Racial/Ethnic Vaccination Disparities 2010-2016

Vaccination Group	Average Change in % Vaccination Coverage Differences Compared with Whites			
	Black	Hispanic	Asian	Other
Pneumo., IR 19-64 yrs	-0.2	0	0.2	-0.5
Pneumo., ≥65 yrs	0.3	0	0.5	0.5
Tetanus, ≥19 yrs	-0.8	-0.4	0.3	-0.2
Tetanus, 19-49 yrs	-0.9	-0.5	0.5	-0.4
Tetanus, 50-64 yrs	-0.5	0.2	-0.2	0.9
Tetanus, ≥65 yrs	-0.4	0.3	0.6	-0.3
Tdap, ≥19 yrs	-2.7	-1.8	-1.8	-1.1
Tdap, 19-64 yrs	-2.8	-2.2	-1.9	-0.1
Tdap, ≥65 yrs	-2.5	-1.2	-0.2	-1.7
HepA, 19-49 yrs	-0.5	-0.4	-0.6	-0.9
HepB, 19-49 yrs	-1.0	-0.7	-0.4	-0.5
HepB, HCP ≥19 yrs	-1.7	-0.9	-1.4	-2.2
Herpes Zoster, ≥60 yrs	-2.0	-1.4	-2.1	0

Limitations of Findings

- NHIS excludes persons in the military and those residing in institutions – results apply to the civilian, non-institutionalized population
- Response rate 53.4% -- low response rate can result in selection bias if the nonresponse is unequal among participants regarding vaccination
- Reported vaccination status and high-risk/increased-risk conditions not validated by medical records
- Self-report of vaccination subject to recall bias
- Tdap estimates: potential bias due to exclusions

Factors Contributing to Racial and Ethnic Disparities in Vaccination Among Adults

- No single factor explains all of these disparities
- Among those factors that contribute are differences in:
 - Access to care, including insurance coverage
 - Likelihood that providers recommend vaccination
 - Quality of care received
 - Attitudes toward vaccination and preventive care
 - Concerns about vaccination, including vaccine safety
 - Propensity to seek and accept vaccination

Strategies for Reducing Racial and Ethnic Disparities in Vaccination Among Adults

- No single intervention will eliminate these disparities
- Partnerships are essential
- Good surveillance is required for development and evaluation
- Focus on the use of targeted, evidence-based interventions
 - Reminder/recall systems for patients and providers
 - Standing orders
 - Implementation of adult vaccination standards
 - Regular assessments of vaccination coverage within practices
 - Improved provider and patient awareness of adult vaccination
 - Messaging targeted to groups affected by disparities



For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

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.

