

National Immunization Survey- Teen Results, 2007

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Overview

- Review adolescent vaccination schedule and national objectives for adolescent vaccination
- Describe methods, sample, and response rates of NIS-Teen
- Present results from NIS-Teen
 - Demographic information and place of vaccination
 - Adolescent vaccines, including Td/Tdap, MCV4, HPV4
 - Childhood vaccines, including HepB, MMR, VAR
- Conclusions and recommendations



Adolescent vaccination schedule

Recommended Immunization Schedule for Persons Aged 7–18 Years—UNITED STATES • 2008

Vaccine ▼	Age ▶	7–10 years	11–12 YEARS	13–14 years	15 years	16–18 years
Tetanus, Diphtheria, Pertussis ¹	<i>see footnote 1</i>		Tdap		Tdap	
Human Papillomavirus ²	<i>see footnote 2</i>		HPV (3 doses)		HPV Series	
Meningococcal ³	MPSV4		MCV4		MCV4	
Pneumococcal ⁴		PPV				
Influenza ⁵		Influenza (Yearly)				
Hepatitis A ⁶		HepA Series				
Hepatitis B ⁷		HepB Series				
Inactivated Poliovirus ⁸		IPV Series				
Measles, Mumps, Rubella ⁹		MMR Series				
Varicella ¹⁰		Varicella Series				

Range of recommended ages

Catch-up immunization

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 7–18 years. Additional information is available at <http://www.cdc.gov/nip/recs/child-schedule.htm>. Any dose not administered at the recommended age should be administered at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components

of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.



Healthy People 2010 objectives

- For adolescents age 13-15 years
90% coverage of:
 - 3+ doses of HepB
 - 2+ doses of MMR
 - 1+ dose of Td or Tdap
 - 1+ dose of VAR (among those without prior history of disease)



Methods



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Methods

- **Uses National Immunization Survey (NIS) sample frame methodology**
 - **Random digit dialing telephone survey**
 - **National sample of parents/guardians of adolescents 13-17 years old**
 - **Consent obtained to contact providers**
 - **Immunization history questionnaire sent to providers for immunization histories**
 - **Conducted 4th quarter 2007**



NIS-Teen 2007 sample and response rates

Total sample released	398,683	
Resolved sample	327,674	(82%)
Households identified	85,037	(26%)
Households screened	69,289	(82%)
Eligible households	6,572	(10%)
Completed interviews	5,474	(84%)
Gave consent	4,114	(75%)
Adolescents with provider data	2,947	(54%)*

* Of households with completed interviews



Analysis

- **SUDAAN software used for complex weighting of survey data**
- **Determined point estimates and 95% confidence intervals**
- **Statistical tests :**
 - **Chi-square and t-tests for differences**
 - **p value < 0.05**



Results



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NIS-Teen 2007 demographics (n=2,947)

Characteristic	Wtd %	95% CI
Sex		
Female	48.9	(46.5-51.3)
Race/ethnicity		
Non-Hispanic white	61.7	(59.3-64.0)
Non-Hispanic black	14.5	(12.8-16.5)
Hispanic	17.8	(16.0-19.8)
Other	5.9	(4.8-7.2)
MSA		
Urban	37.4	(35.2-39.7)
Suburban	46.5	(44.2-48.8)
Rural	16.1	(14.6-17.6)



NIS-Teen 2007 demographics (cont.)

Characteristic	Wtd %	95% CI
Poverty status		
Above	82.1	(80.0-84.1)
Maternal education		
< high school	13.9	(12.2-15.8)
High school	28.2	(26.1-30.5)
> high school	57.9	(55.5-60.3)
Insurance status		
Private	64.2	(61.7-66.5)
Public	29.3	(27.0-31.6)
None	6.6	(5.4-7.9)

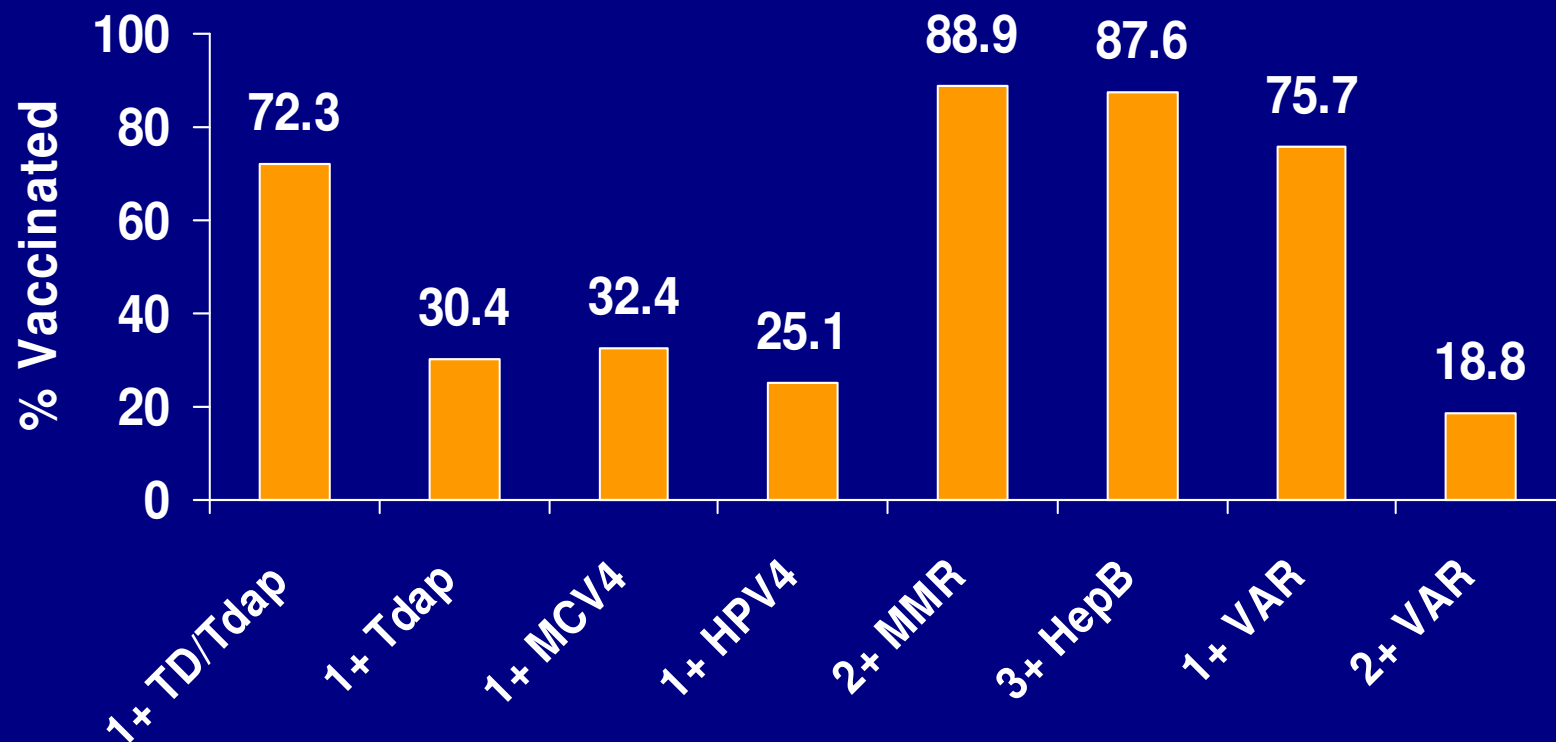


NIS-Teen 2007 vaccine provider facility type

<u>Characteristic</u>	<u>Wtd %</u>	<u>95% CI</u>
Place of vaccination		
Private practice	57.3	(54.9-59.6)
Public clinic/FQHC	21.0	(19.1-23.0)
Mix of facility types	12.0	(10.4-13.7)
Hospital based clinic	7.1	(5.9-8.5)
STD/Teen/School/other	2.7	(1.9-3.8)



Estimated vaccination coverage* among adolescents 13-17 years of age, NIS-Teen, 2007



*Varicella coverage is among teens without a reported history of disease. Td/Tdap is since age 10 years
HPV vaccination is among females only

Vaccine

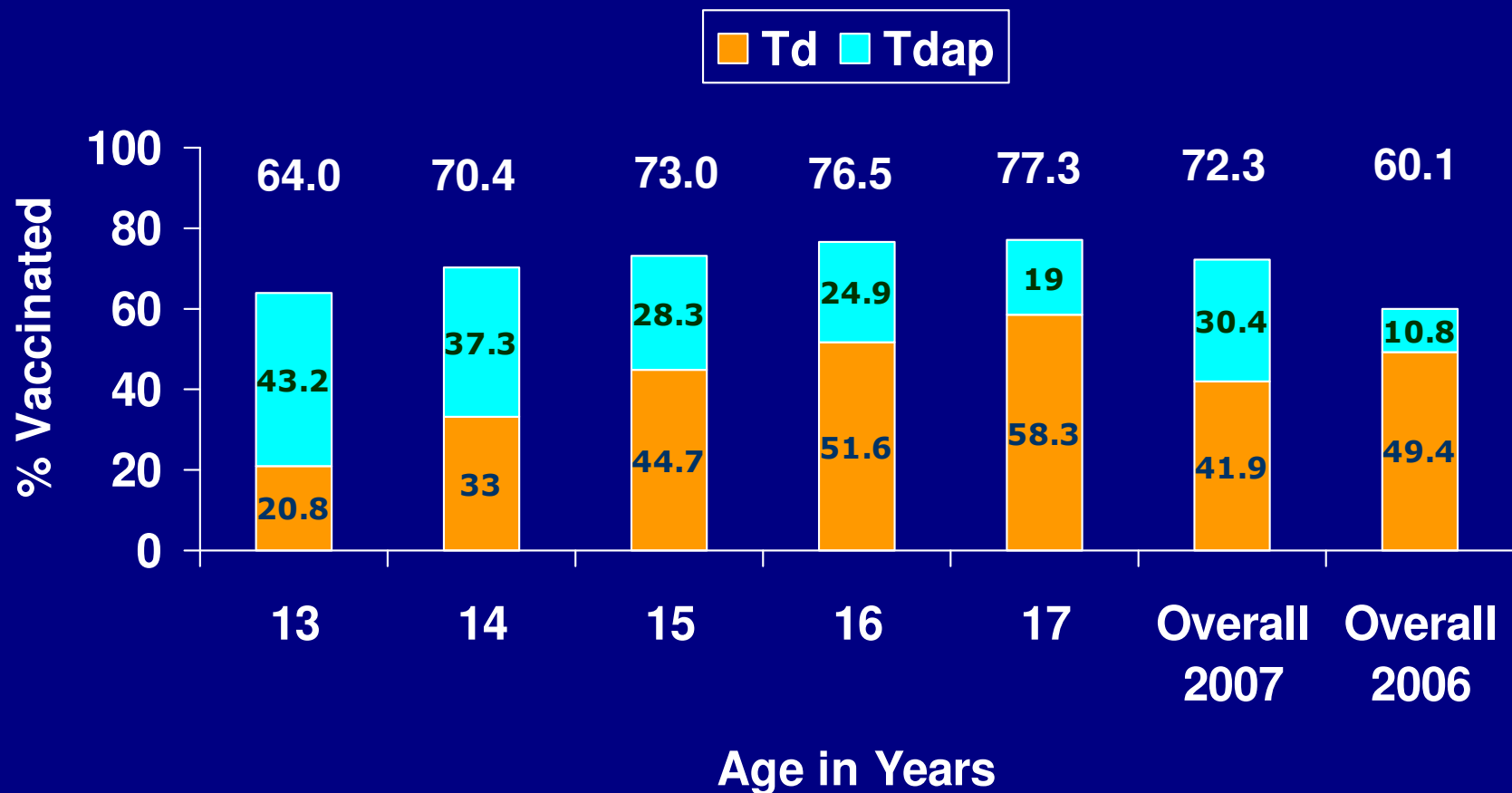


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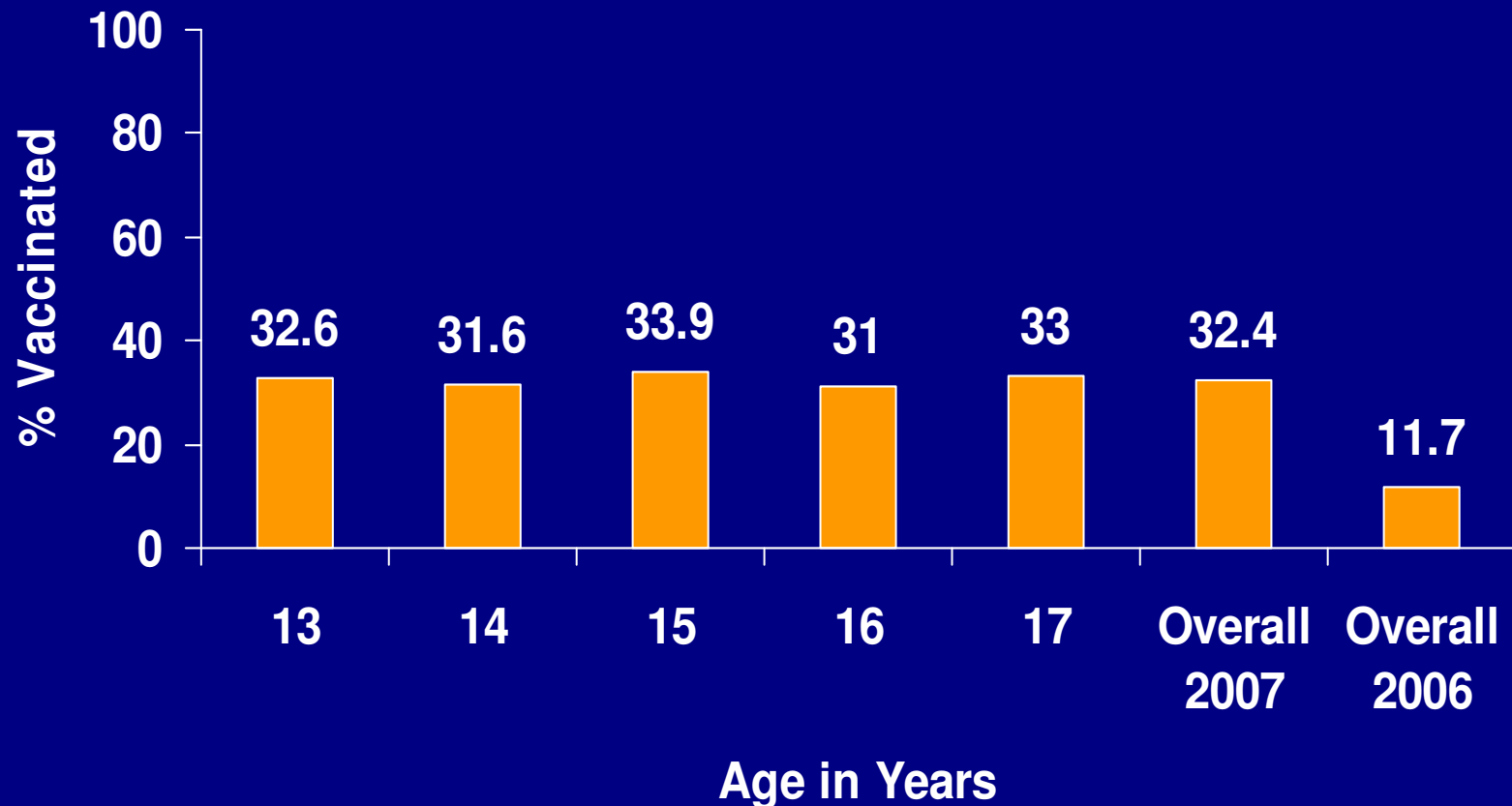


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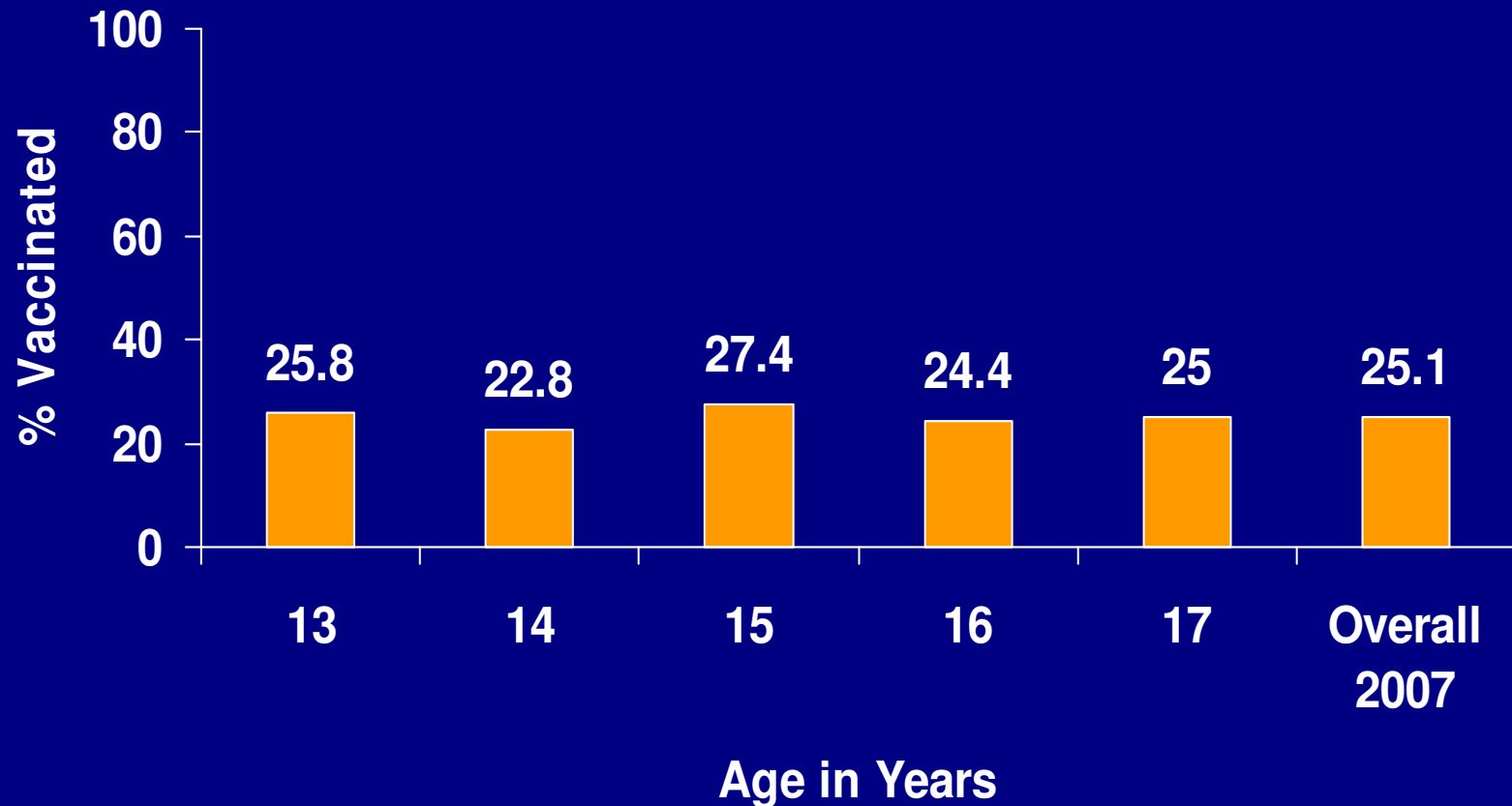
Estimated vaccination coverage of 1+ Td or Tdap since 10 yrs by age, NIS-Teen 2007



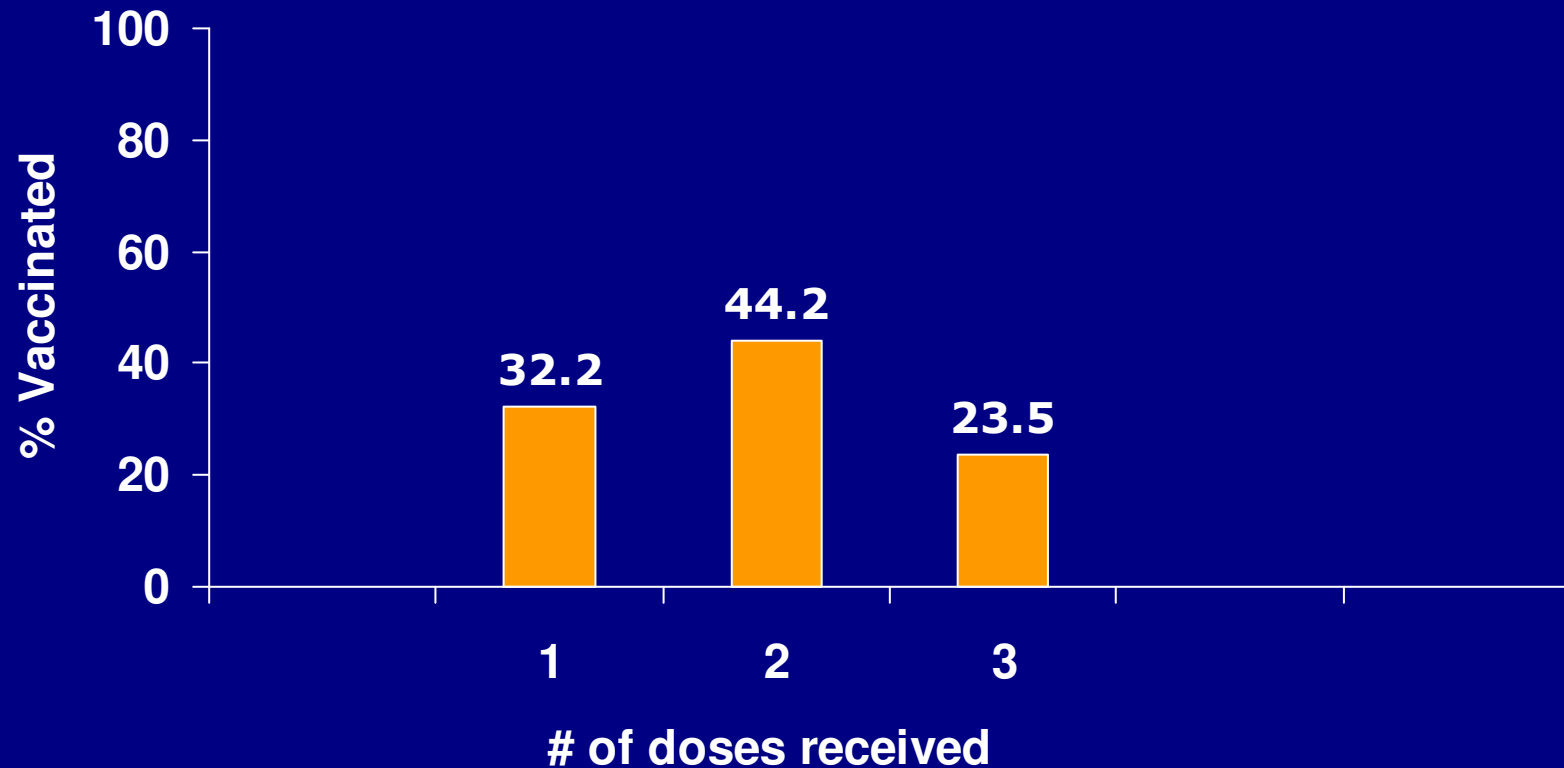
Estimated vaccination coverage of meningococcal conjugate vaccine (MCV4) by age, NIS-Teen 2007



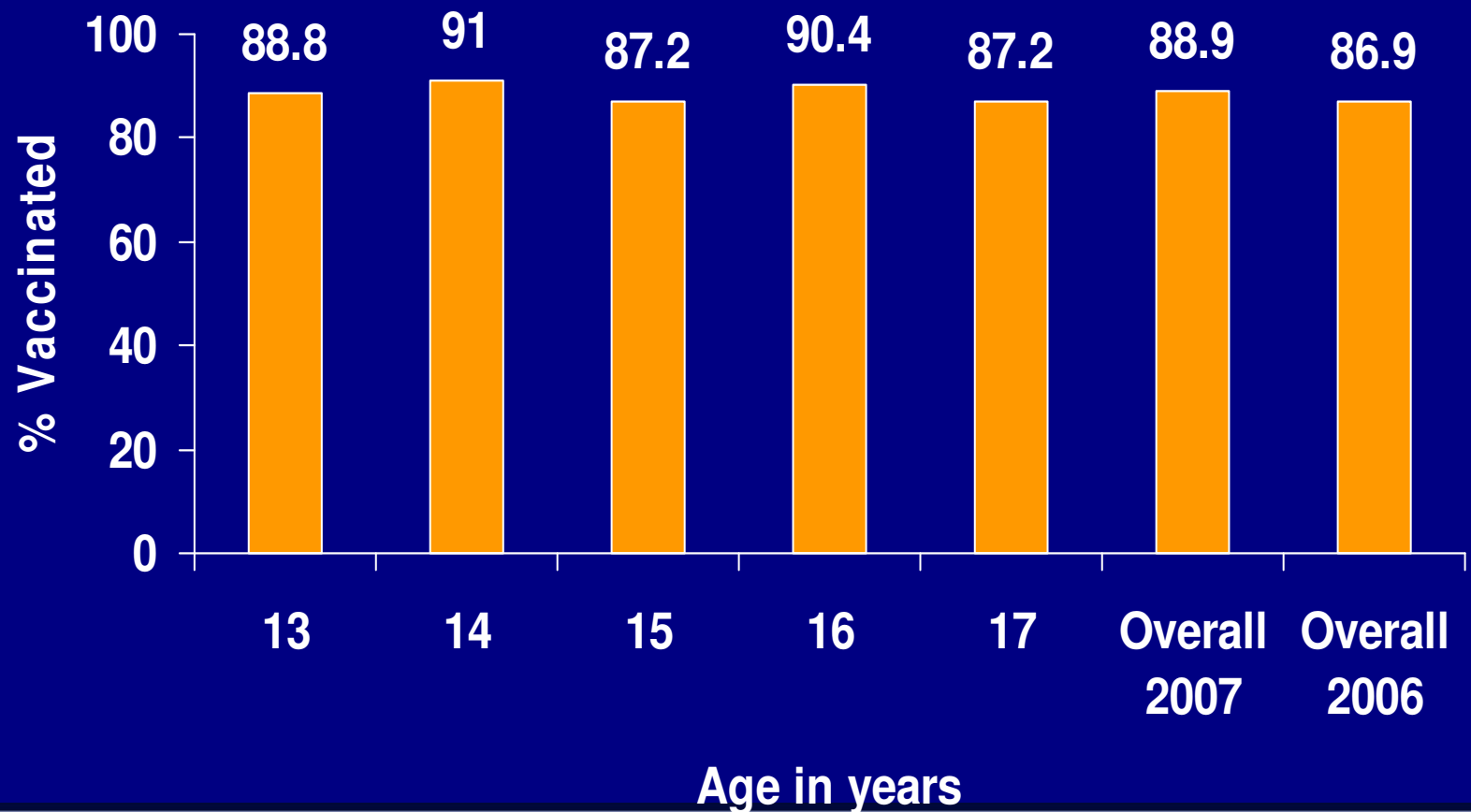
Estimated vaccination coverage of ≥ 1 dose of quadrivalent human papillomavirus vaccine (HPV4) among female adolescents by age, NIS-Teen 2007



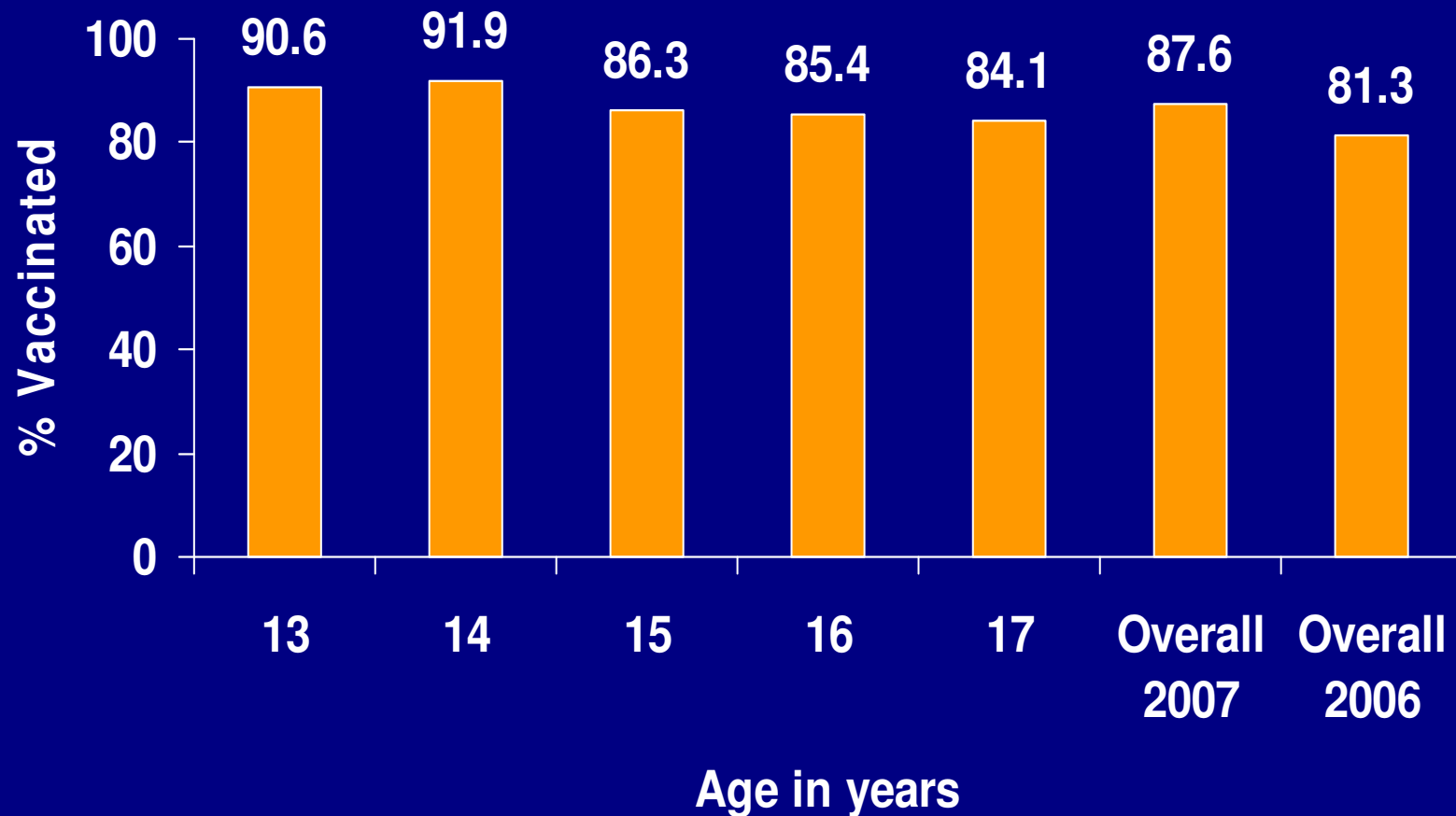
Doses of HPV4 vaccine received among female adolescents who initiated HPV4 vaccination, NIS-Teen 2007



Estimated vaccination coverage for 2+ MMR by age, NIS-Teen 2007



Estimated vaccination coverage for 3+ HepB by age, NIS-Teen 2007

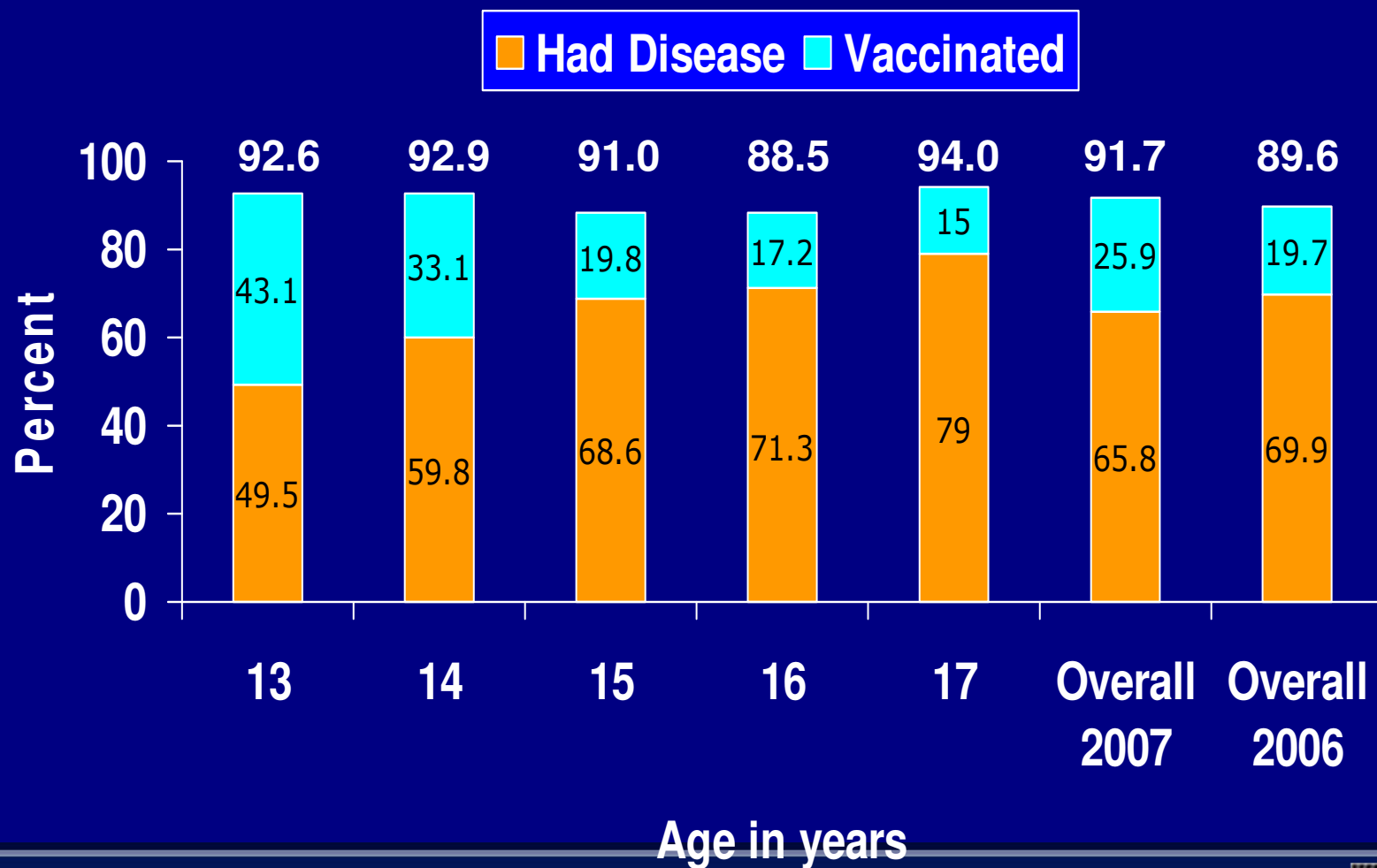


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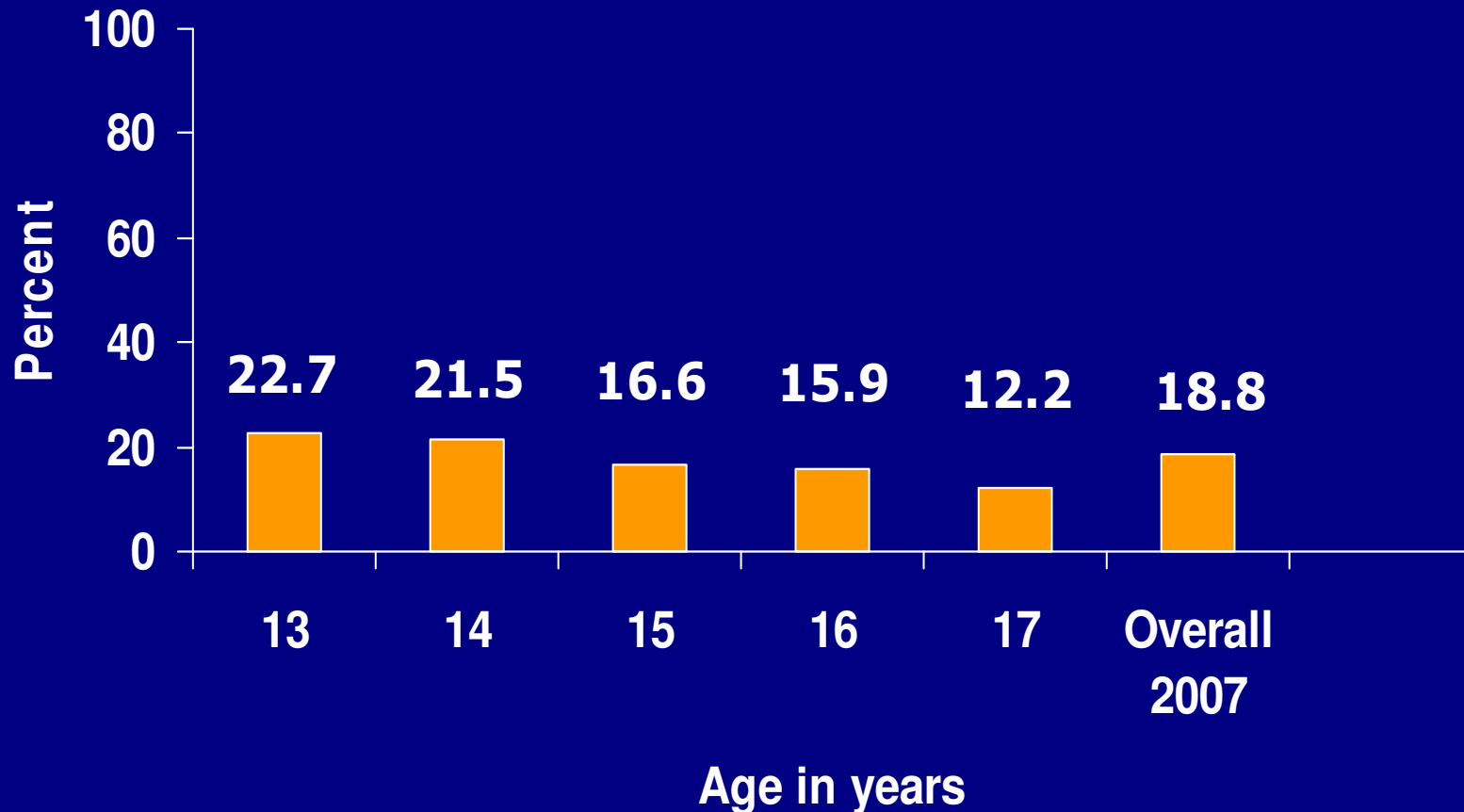


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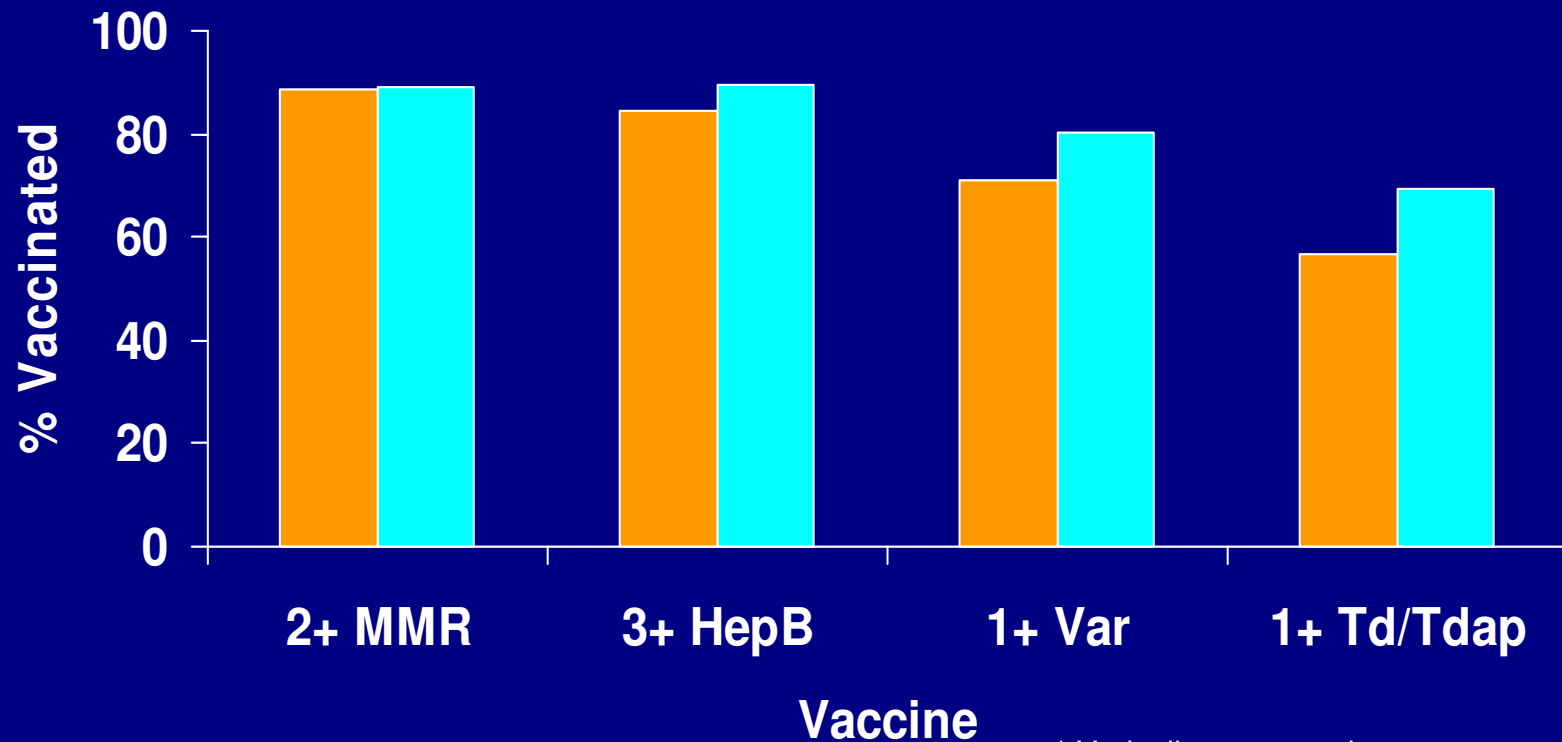
Estimated varicella protection (by disease or 1+ vaccine) by age, NIS-Teen 2007



Estimated VAR coverage 2+ doses (among those without prior disease) by age, NIS-Teen 2007



Progress toward HP2010 objectives among adolescents aged 13-15 years, NIS-Teen 2006-2007



2006

2007

* Varicella coverage is among teens without a reported history of disease.
1+Td/Tdap is since age 10 years



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Limitations

- **Bias may remain due to non-response and missing households without landline phones**
 - **Estimated <10% of teens live in these households**
- **Assumes coverage among adolescents with adequate provider data is the same among adolescents without adequate provider data**
- **May have missed some vaccinations if provider records are not complete (i.e. non-traditional settings)**
- **Low response rates for overall households and returned provider records**



Conclusions

Increase in coverage of most vaccinations

- **Good uptake of new adolescent vaccines (Tdap, MCV4, and HPV4)**
 - Some 13-14 year olds received Td vaccine and not Tdap
 - Some older teens can now receive Tdap- interval between Td and Tdap can be shortened
 - Ensure receipt of 3 doses of HPV4 among initiators
- **“Childhood” vaccination coverage high**
 - 15% of teens not protected against hepatitis B infection
 - Low coverage with 2 dose varicella vaccination



Recommendations

- **Emphasize to parents and providers the pre-teen visit at age 11-12 years for preventive services, including vaccinations**
- **Encourage providers to review adolescent immunization records and administer missing vaccinations at all health care visits**
 - **Encourage simultaneous administration of vaccinations at same visit**
 - **Implement systems to remind providers and parents when vaccines are due for adolescents**



Plans for monitoring adolescent vaccination coverage

- **NIS-Teen 2008: national and state-specific estimates**
 - Examine coverage by race/ethnicity, socio-economic status and geographic area
 - Data available July 2009
- **Evaluate potential bias in NIS-Teen due to exclusion of cell-phone-only households and non-response**
 - NHIS provider record check starting 4th quarter 2008
- **Develop different sampling strategies to ensure representativeness**
 - address-based sample frame
 - cellular phone sample frame



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