

Why Adult Immunization Matters



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Outline

- CDC Recommended Adult Vaccines
- Burden of U.S. adult vaccine-preventable disease
- Vaccine effectiveness in adults
- Adult immunization coverage rates
- Ramifications of failing to vaccinate
- Resources
- Q&As

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Why Do We Vaccinate?

- Important for optimizing health, protecting persons vaccinated, and others
 - Example: Vaccination against influenza and pertussis reduces the risk for the person vaccinated and also prevents the person from spreading these diseases

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Recommended Adult Vaccines: Age-Based



www.cdc.gov/vaccines/schedules/hcp/adult.htm

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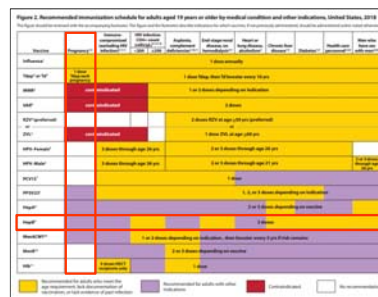
Recommended Adult Vaccines: Footnotes

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www.cdc.gov/vaccines/schedules/hcp/adult.htm



Recommended Adult Vaccines: Risk-Based



www.cdc.gov/vaccines/schedules/hcp/adult.htm

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Burden of Vaccine-preventable Diseases Among U.S. Adults



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Burden of Vaccine-preventable Diseases among U.S. Adults

- Influenza
 - 3,000 to 49,000 total influenza-related deaths per year
 - 71%–85% of deaths among adults 65 years and older
 - 226,000 (mean) influenza associated hospitalizations

www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/downloads/ACIP-recs-2017-18-bkgd.pdf



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Influenza Costs Lives and Money

- Direct medical costs in U.S.: ~\$10.4 billion
- Add in loss of work and life: ~\$87 billion
- Vaccination (41% in 2013–2014) prevented:
 - 7 million+ illnesses
 - 3 million+ medically-attended illnesses
 - 90,000+ hospitalizations

Molinari, et al. The annual impact of seasonal influenza in the US: Measuring disease burden and costs. *Vaccine* 2007;25 :5086–5096.
Reed, et al. Estimated Influenza Illnesses and Hospitalizations Averted by Vaccination — United States, 2013–14 Influenza Season. *MMWR* 2014;63(49):1151–1154.



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Burden of Vaccine-preventable Diseases among U.S. Adults (cont.)

- Invasive pneumococcal disease (IPD)
 - 29,500 total cases/ 3,350 total deaths (in 2015)
 - 90% of IPD and nearly all IPD deaths among adults 65 years and older

CDC. 2015. Active Bacterial Core Surveillance Report, Emerging Infections Program Network, *Streptococcus pneumoniae*, 2015



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Burden of Vaccine-preventable Diseases among U.S. Adults (cont.)

- Pertussis in 2015
 - 20,762 cases
 - >4,650 among adults 20 years of age and older

CDC. 2015. Final pertussis surveillance report.
www.cdc.gov/pertussis/downloads/pertuss-surv-report-2015.pdf



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Burden of Vaccine-preventable Diseases among U.S. Adults (cont.)

- Hepatitis B
 - 2,791 acute cases reported in 2014
 - ~18,100 estimated new infections in 2014

www.cdc.gov/hepatitis/statistica/2013surveillance-commentary.htm#hepatitisB



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Burden of Vaccine-preventable Diseases among U.S. Adults (cont.)

- Zoster
 - ~1 million cases annually in U.S.

CDC. Prevention of Herpes Zoster. *MMWR* 2008. 57(RR-5):1-30



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Cost Burden of 4 Adult Vaccine-preventable Diseases to the U.S (65 yrs and older), 2013

Vaccine-Preventable Disease	Estimated # of CASES	Estimated COSTS (Medical & Indirect) (in millions)
Influenza	4,019,759	8,312.8
Pneumococcal	440,187	3,787.1
Zoster	555,989	3,017.4
Pertussis	207,241	212.5
TOTAL	5,223,176	\$15,329.8

~\$11 billion more annually if population 50–64 yrs of age included

McLaughlin, JM., Tan, L., et al. 2015 *J Prim Prev*. 2015 Aug;36(4):259–73.



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Recent Burden of Other Diseases Among U.S. Adults

- Ebola – 4 cases
- Avian Influenza – none
- E. coli H7:0157 from eating at Chipotle: <100 cases
- Zika virus (2015–2017): 5,190 cases (travel associated)



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The Vaccines Are Effective



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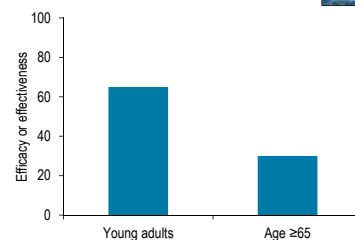
Vaccine Effectiveness in Adults

- Vaccine effectiveness (VE) varies by vaccine type, the disease outcome, and the age or health of the person vaccinated
 - What outcome are you measuring? Prevention of:
 - Death
 - Hospitalization
 - Visits to the doctor or emergency room
 - Disease symptoms
 - What population are you studying? Most vaccines work less well in the very old or very young.

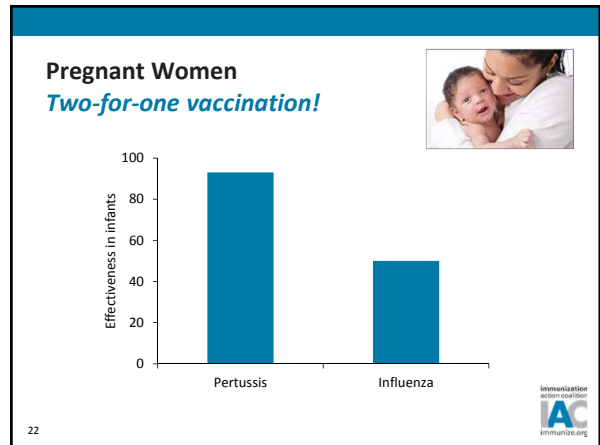
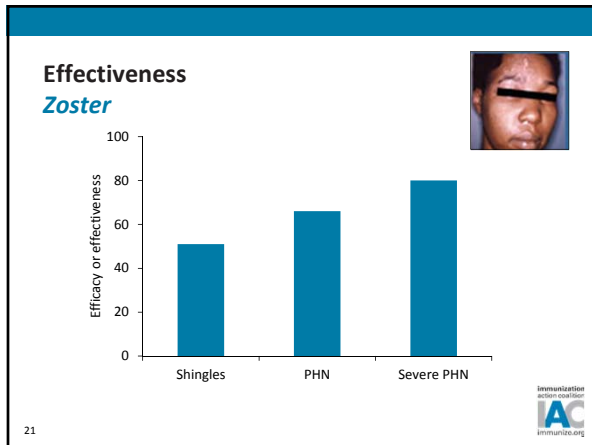
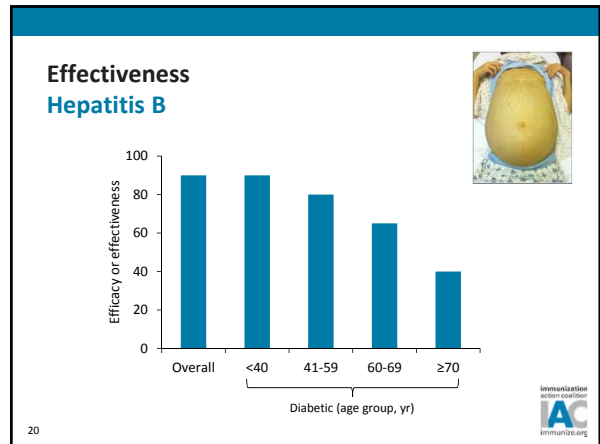
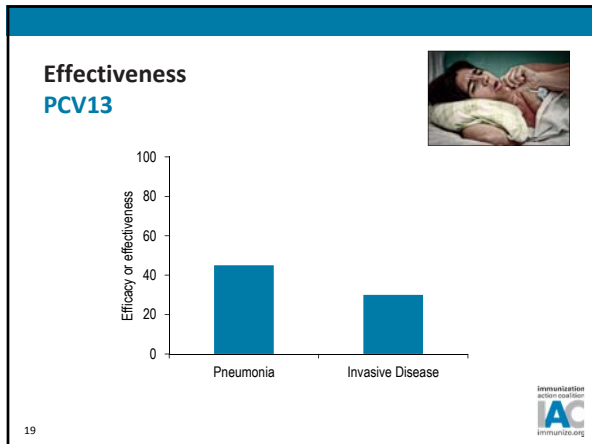


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Effectiveness Influenza vaccine



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Pregnant Women *Two-for-one vaccination!*

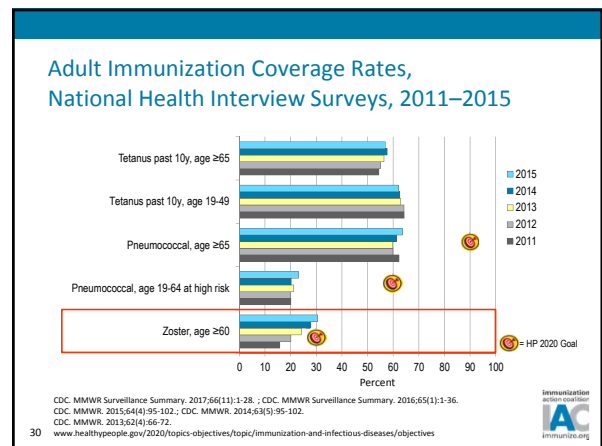
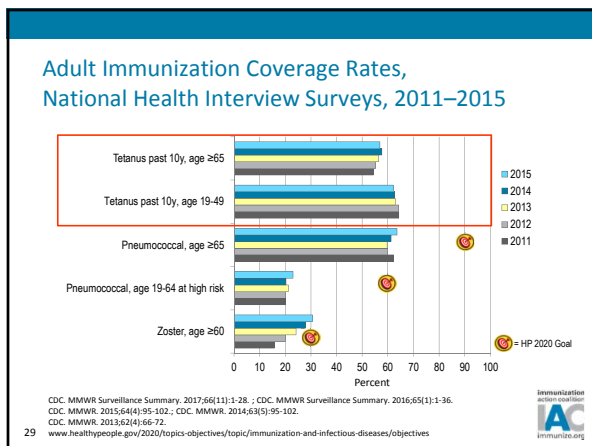
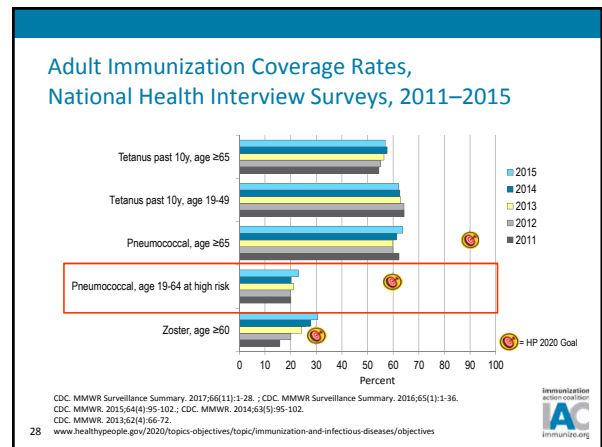
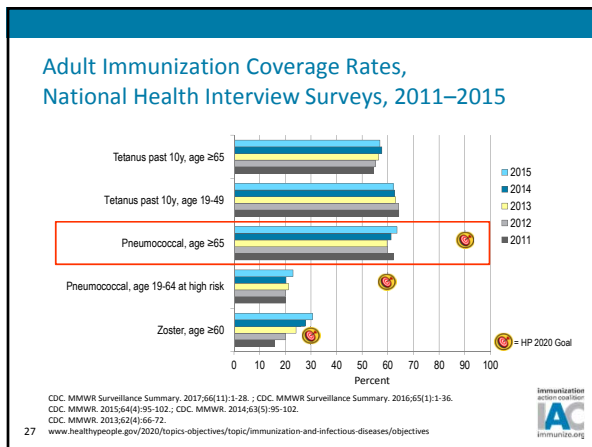
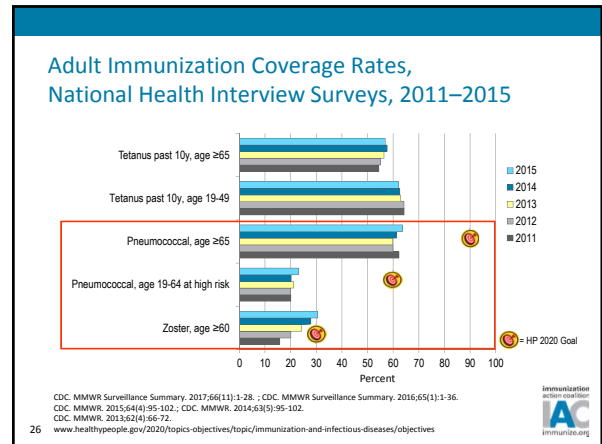
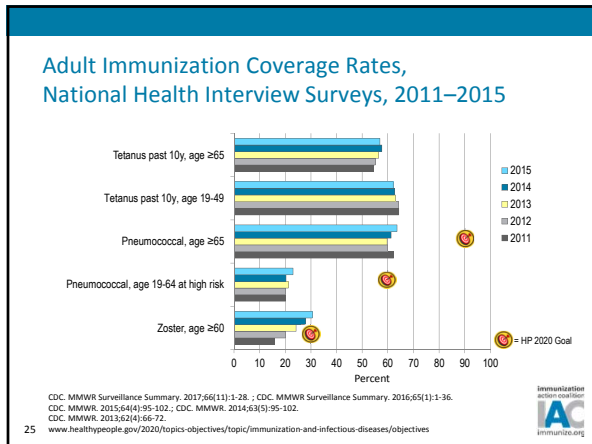
- Influenza vaccination of pregnant women
- Reduce risk of influenza illness in pregnant women
- Reduce risk of influenza illness, fevers and influenza hospitalizations in infants during first 6 months of life
- Vaccinate with inactivated flu vaccine (not live vaccine) during pregnancy

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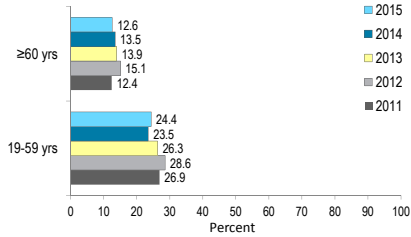
Adult Immunization Coverage Rates

WE ARE FAILING TO VACCINATE OUR ADULT POPULATION!!!

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Adults with Diabetes Who Received ≥3 Doses Hepatitis B Vaccine, by Age, National Health Interview Surveys, 2011–2014



CDC. MMWR Surveillance Summary. 2017;66(11):1-28.
 CDC. MMWR Surveillance Summary. 2016;65(1):1-36.
 CDC. MMWR. 2015;64(4):95-102.
 CDC. MMWR. 2014;63(5):95-102.
 CDC. MMWR. 2013;62(4):66-72.



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Influenza Vaccination Coverage Among U.S. Adults, Past Four Seasons

Group	2013–14 (%)	2014–15 (%)	2015–16 (%)	2016–17 (%)
Persons ≥ 18 yrs	42.4	43.6	41.7*	43.3 ± 0.6*
Persons 18-49 yrs, all	32.3	33.5	32.7	33.6 ± 0.8
Persons 18-49 yrs, high risk	38.7	39.3	39.5	39.3 ± 1.8
Persons 50-64 yrs	45.3	47.0	43.6*	45.4 ± 1.0*
Persons ≥ 65 yrs	65.0	66.7	63.4*	65.3 ± 1.0*

* Statistically significant declines/increases from the previous season

www.cdc.gov/flu/fluview/index.htm



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Ramifications Exist When We Fail to Vaccinate Adults

- Beyond the impact to the health of the public, our ineffectiveness in immunizing adults:
 - Creates disincentive for manufacturers to enter the market
 - Leave the chronically ill vulnerable
 - Creates disparities in access to care
 - Absence of commitment exacerbates existing barriers to immunization for those in the lower socio-economic strata and for racial and ethnic minorities



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Other Ramifications Exist

“By failing to prepare, we are preparing to fail”
 - Benjamin Franklin

- Leaves us vulnerable during times of crisis when the ability to reach 250 million adults with vaccines/medications is crucial
 - Pandemic influenza
- Our failure to successfully immunize adults in healthy times predicts our failure to immunize them in times of crisis



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Conclusion

- Substantial burden of disease in adults for which vaccines are available
- Vaccines are effective in the adult population. Effectiveness varies by:
 - Vaccine type
 - Disease outcome
 - Age or health of person vaccinated
- Vaccination rates low among adults in U.S.
- Ramifications for failing to vaccinate



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IAC Resources

- Immunization Action Coalition
 - www.immunize.org
- IAC Express: free weekly e-newsletter
 - www.immunize.org/subscribe
- IAC’s Adult Patient Handouts & Staff Education Materials (all CDC-reviewed)
 - www.immunize.org/handouts/adult-vaccination.asp



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