

2017 Behavioral Risk Factor Surveillance System (BRFSS) Results

Background

The Behavioral Risk Factor Surveillance System (BRFSS) is a national survey conducted annually by the CDC to assess behavioral risk factors, including immunizations levels, for non-institutionalized U.S. adults. This study collects data by interviewing households in all 50 states, the District of Columbia, and selected areas for oversampling. The interviews are conducted by telephone, with households selected at random. Self-reported information about immunizations is collected by the BRFSS survey.

The BRFSS was established to provide an on-going, consistent data set for analyzing risk factors including immunization coverage levels in the United States and to disseminate this information to interested public health partners. The BRFSS provides national, state, and regional estimates of vaccination coverage, including new vaccines as they are licensed and recommended for use. It also helps track progress towards the Healthy People 2020 goals.

The BRFSS includes questions from the CDC that are asked in all 50 states and questions that are state-generated and asked only in specific states. For several years, Texas has chosen to ask additional vaccination coverage questions that are not asked nationally.

Vaccines Included

The following vaccine doses were measured in the 2017 BRFSS:

- ≥ 1 dose of any Pneumococcal ("Pneumonia") vaccine
- ≥ 1 dose of Shingles vaccine
- ≥ 1 dose of any Tetanus containing vaccine since 2005
- ≥ 1 dose of Human papillomavirus vaccine (HPV)
- HPV vaccine (UTD) among those who reported receiving ≥ 1 dose
- ≥ 1 dose of Hepatitis B vaccine (HepB)
- Hepatitis B Up-to-Date (UTD) among those who reported receiving ≥ 1 dose
- ≥ 1 dose of any Meningococcal vaccine

HP2020 Goals

- 90% Pneumococcal Vaccination Coverage among Adults 65+ Years
- 60% Pneumococcal Vaccination Coverage among High-Risk Adults 18-64 Years
- 30% Zoster Vaccination Coverage among Adults 60+ Years

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Table 1. Adult Immunization Estimates in Texas, BRFSS, 2017.

Vaccine (Age Group)	US Rates (2017)	2016	2017	Change in Percent (2016 & 2017)
Flu Shot (18-64)	34.7%	33.1%	31.8%	-1.3%
Flu Shot (65+)	60.2%	57.3%	59.4%	+2.1%
Pneumonia (18+)	38.3%	32.8%	37.1%	+4.2%
Pneumonia (65+)	74.2%	71.3%	74.2%	+2.9%
Tetanus (18+)	--	59.5%	57.5%	-2.0%
Ever HPV (18-49)	--	9.1%	13.0%	+3.9%
*All HPV (18-49)	--	37.1%	42.0%	+4.9%
Ever HepB (18+)	--	35.3%	32.3%	-3.0%
**All HepB (18+)	--	49.5%	51.4%	+1.9%
Shingles (50+)	27.7%	N/A	25.3%	N/A

('--': State optional modules, no national estimates.

*Percentage of 'All HPV' is the percentage of adults 18-49 who completed the series among those who ever started the HPV series.

** Percentage of 'All HepB' is the percentage of adults 18+ who completed the series among those who ever started the HepB series.)

Texas Coverage Rates

In 2017, Texas flu vaccination coverage was 36.6 percent (95% CI, 34.8-38.5 percent) among adults which was 3.5 percent significantly lower than national coverage estimates (40.1 percent, 95% CI, 39.7-40.4 percent) for adults. Among Texas adults, significantly higher flu coverage was observed among 65 and older age group, when compared to the other adults. Men had significantly lower coverage, 32.8 percent (95% CI, 30.2-35.4 percent), compared to women, 40.0 percent (95% CI, 37.4-42.7 percent). Adults with health insurance had significantly higher coverage, 41.2 percent (95% CI, 39.1-43.4 percent), compared to those without, 21.7 percent (95% CI, 17.8-25.6 percent). The Texas other racial/multiracial/non-Hispanic group had 10.6 percent significantly lower vaccination coverage compared to the national coverage, 40.9 percent (95% CI, 39.4-42.4) for this group. Adults with chronic conditions like cardiovascular disease, cancer and kidney disorders had significantly higher coverage levels, compared to those without.

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There were no significant differences in flu coverage rates between Texas and United States among 65+ age group, when stratified by education and race/ethnicity. Looking at time trends in Texas' flu coverage rates, there was a significant overall increase between 2014 and 2015, there was significant decrease between 2015 and 2016, and there was no significant difference between 2016 and 2017. The Texas flu coverage rates' among adults in 2014, 2015, 2016 and 2017 were 37.9 percent (95% CI, 36.5-39.2 percent), 43.2 percent (95% CI, 41.6-44.8 percent), 37.4 percent (95% CI, 35.6-39.1 percent) and 36.6 percent (95% CI, 34.8-38.5 percent) respectively.

Regarding pneumococcal and shingles vaccination, there were no significant differences in vaccination coverage between Texas and United States, when compared among different demographic groups. In Texas, white non-Hispanic and other race groups had significantly higher shingles vaccination coverage rates compared to Hispanic group among adults aged 50+. Adults with health insurance had significantly higher shingles vaccination coverage, 28 percent (95% CI, 25.4-30.6) compared to those without, 6.4 percent (95% CI, 2.9-9.8). People diagnosed with cancer had significantly increased shingles coverage compared to those without. Adults who had a personal doctor had significantly higher flu and shingles vaccination coverage compared to those without.

The overall coverage percent for Hepatitis B series completion in Texas adults is 51.4 percent. Adults with health insurance had significantly higher coverage, 56.1 percent (95% CI, 50.6-61.6), compared to those without, 33.5 percent (95% CI, 23.2-43.8).

Meningococcal vaccination coverage for adults between ages 18 and 24 years of age was 34.5 percent in 2017. Among this age group, white/non-Hispanic vaccine coverage was 57.3 percent (95% CI, 44.8-69.0) and 24.8 percent among Hispanics (95% CI, 16.8-34.9). The black/non-Hispanic and other racial groups had low sample size and hence no significant estimates.

Table 2: HP2020 goals among adults and Texas vaccine coverage rates in 2017

Vaccination	HP2020 Goals	Texas (2017)
		Percent (%)
Flu vaccine (18+ years)	70%	36.6%
Flu vaccine (65+ years)	90%	59.4%
Flu vaccine in Pregnant women	80%	35.0%
Pneumococcal Vaccine		
65 and above years	90%	74.2%
18-64 years	60%	28.3%
Shingles	30% (60+ years)	25.3% (50+ years)



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The following sections detail vaccination coverage estimates by age group, race/ethnicity, education, and gender as well as trends in coverage estimates over time. Data that are unreliable because of large relative standard errors (greater than 30.0 percent) are not presented. This report includes national estimates for vaccine coverage rates of influenza, pneumonia and shingles vaccines. However, there are no national estimates for tetanus, HPV and HepB vaccine coverage rates, as these are BRFSS state optional modules and Texas included these optional modules in the 2017 survey.



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Influenza

Figure 1. Adult Immunization Coverage Estimates for Influenza in Texas and United States by Age Group, 2017.

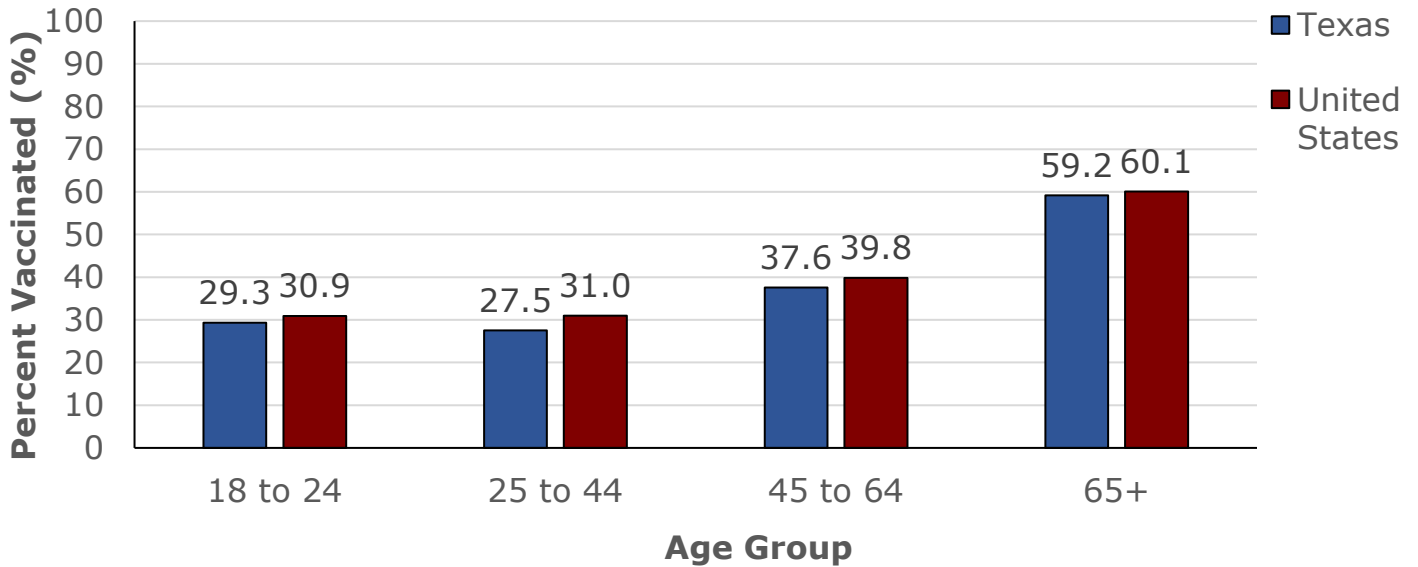
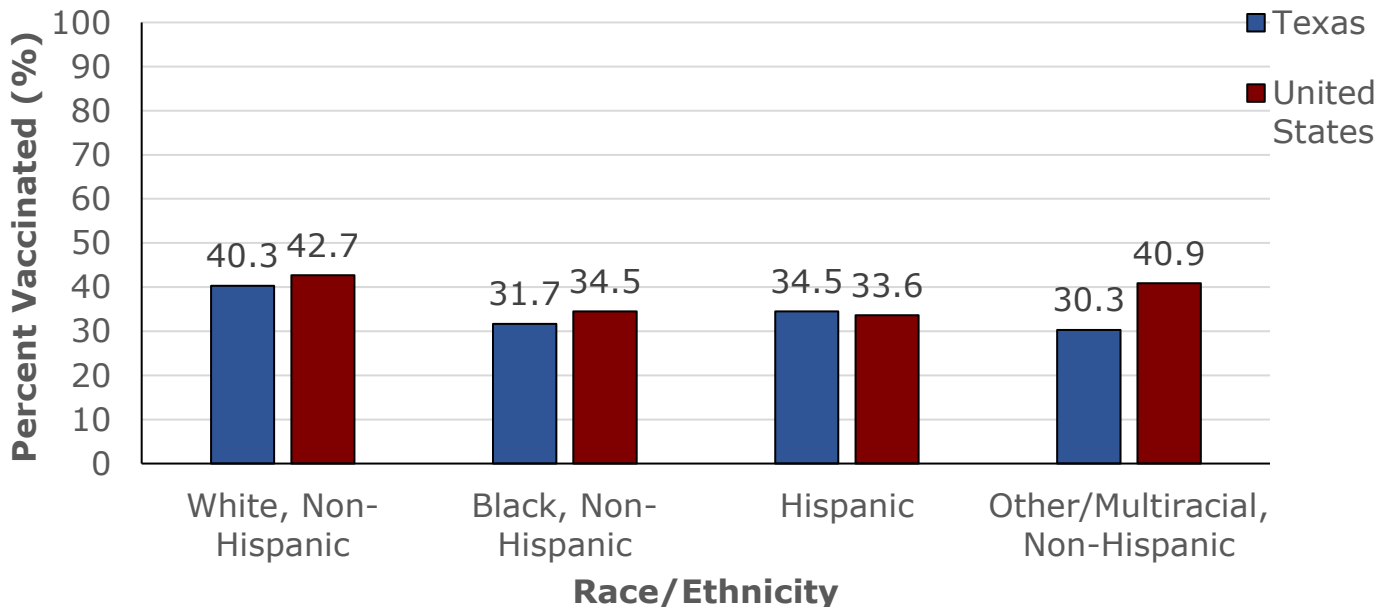


Figure 2. Adult Immunization Coverage Estimates for Influenza in Texas and United States by Race/Ethnicity, 2017.





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Figure 3. Adult Immunization Coverage Estimates for Influenza in Texas and United States among Seniors by Race/Ethnicity, 2017.

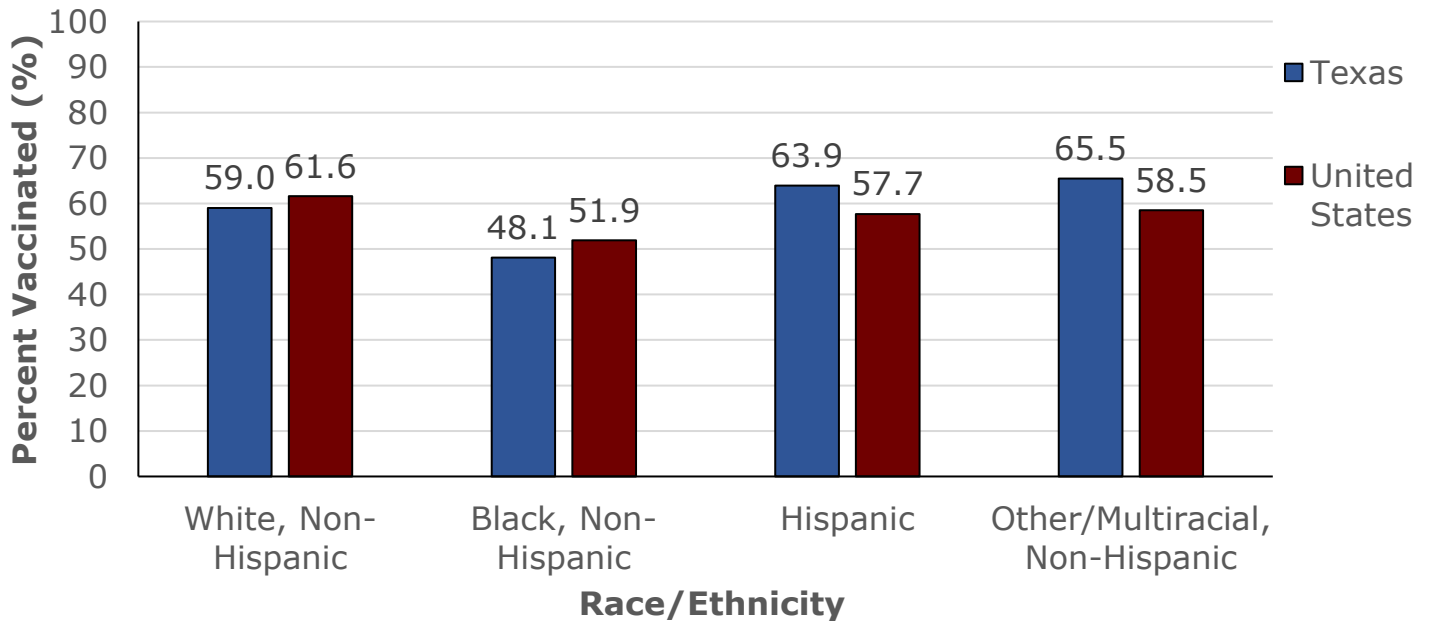
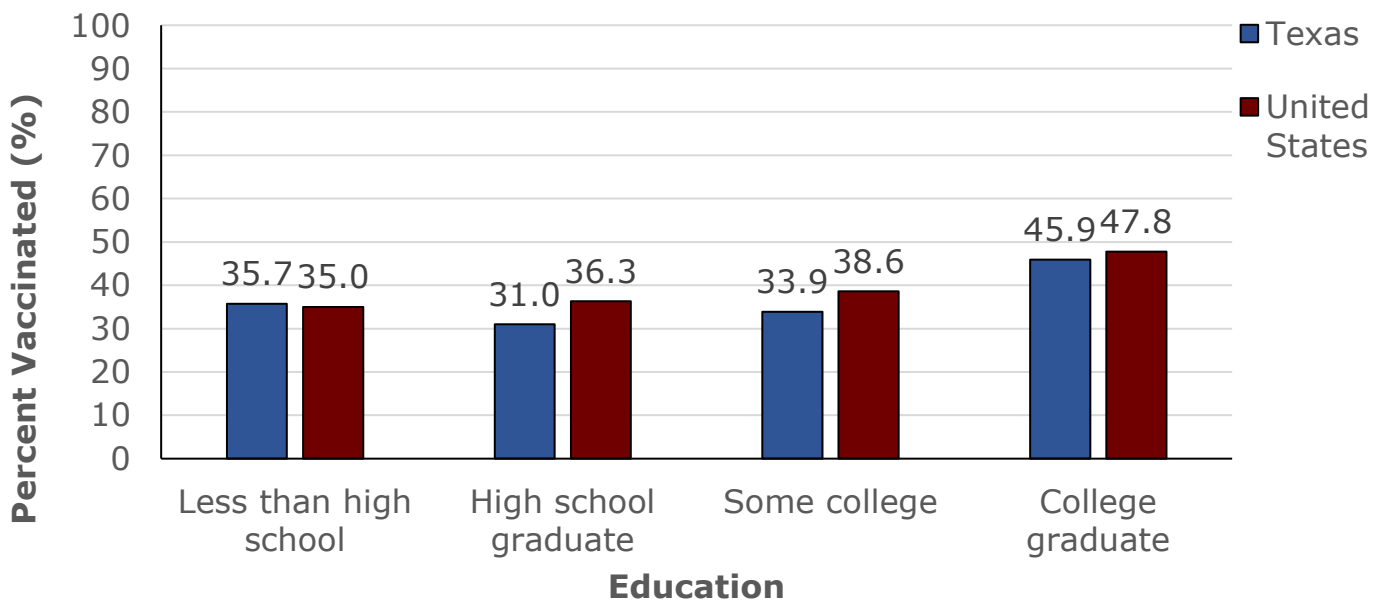


Figure 4. Adult Immunization Coverage Estimates for Influenza in Texas and United States by Education, 2017.





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Figure 5. Adult Immunization Coverage Estimates for Influenza in Texas and United States among Seniors by Education, 2017.

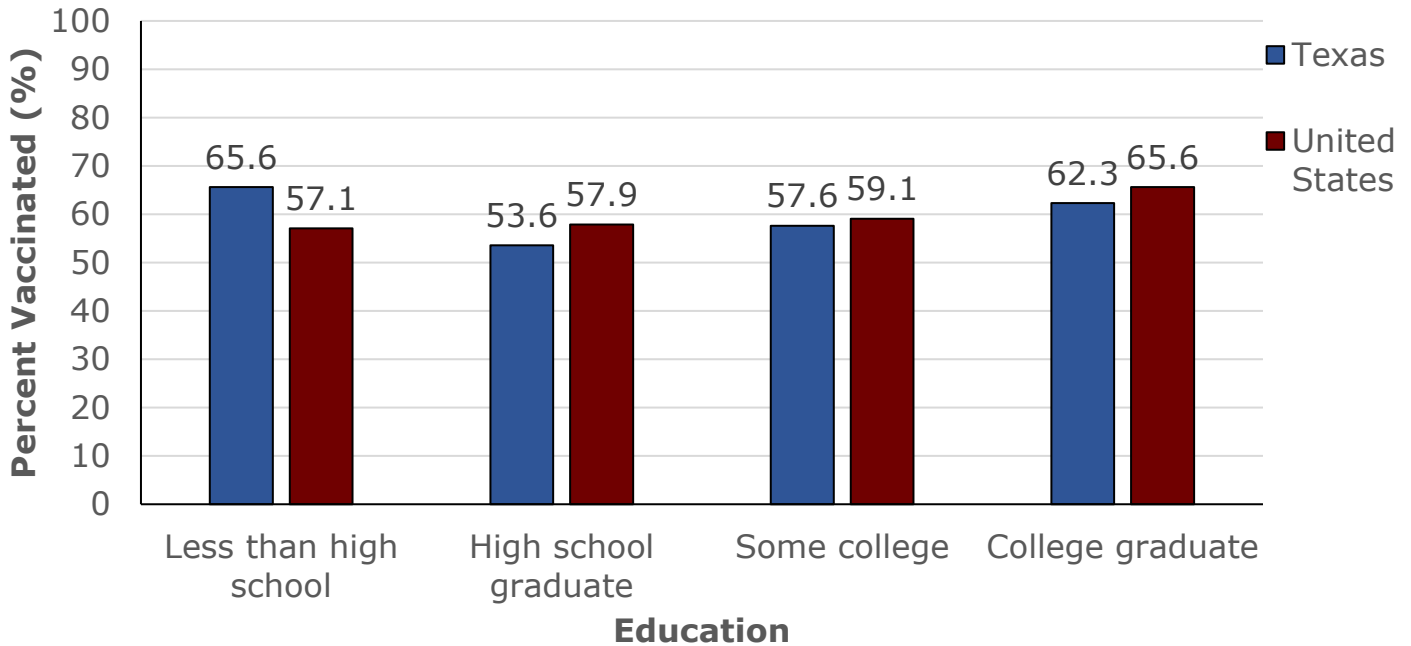
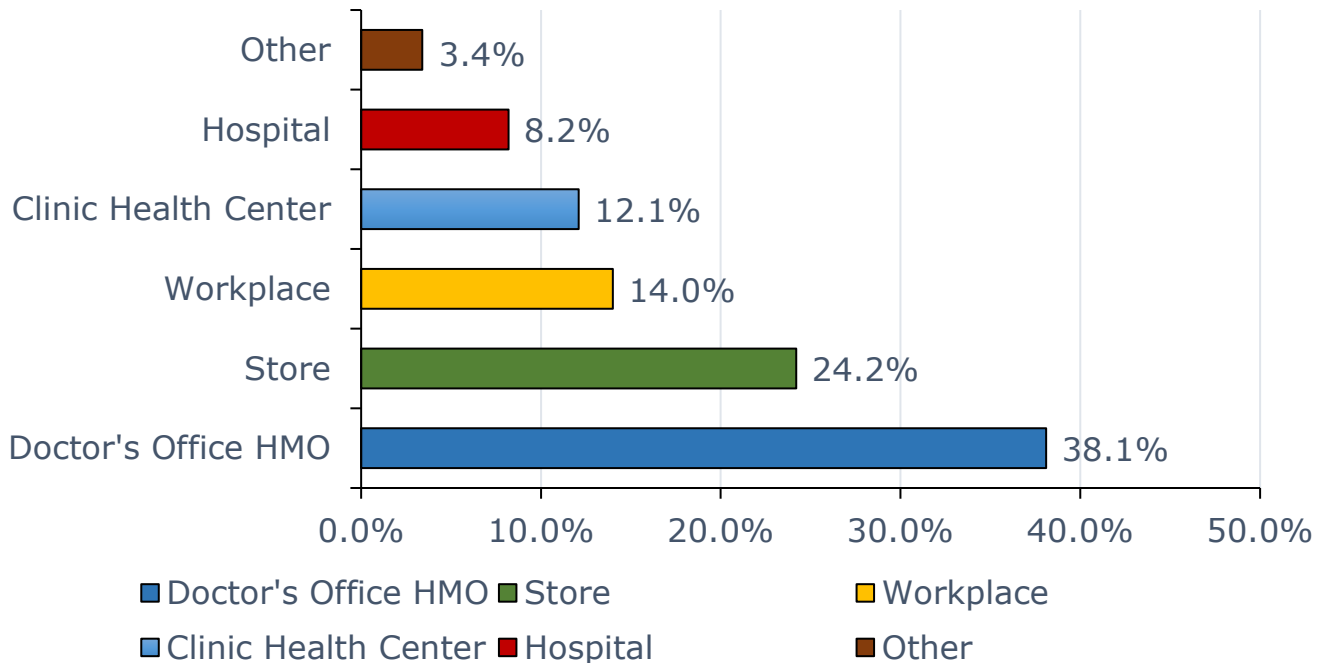


Figure 6. Location where Texas Adults Received Influenza Vaccination, 2017.





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Figure 7. Location where Texas Adults Received Influenza Vaccination by Age Group, 2017.

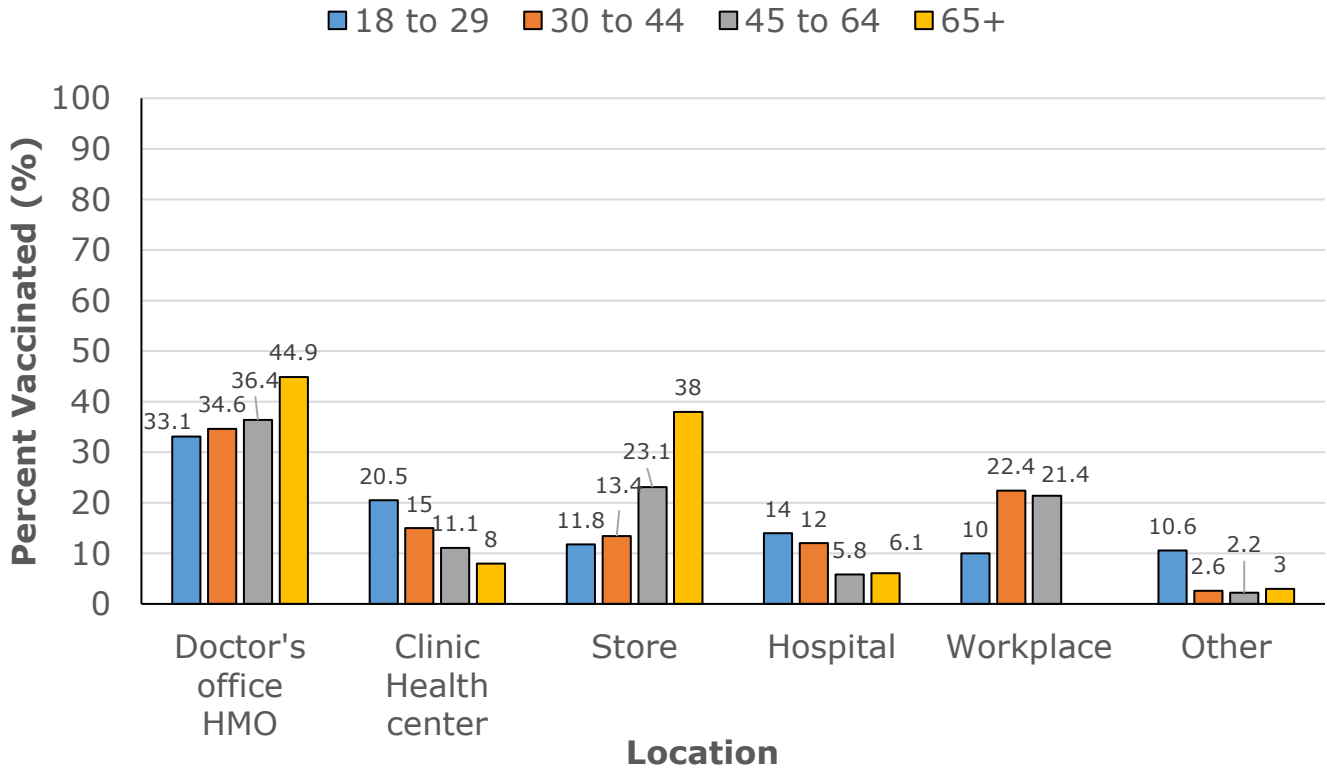
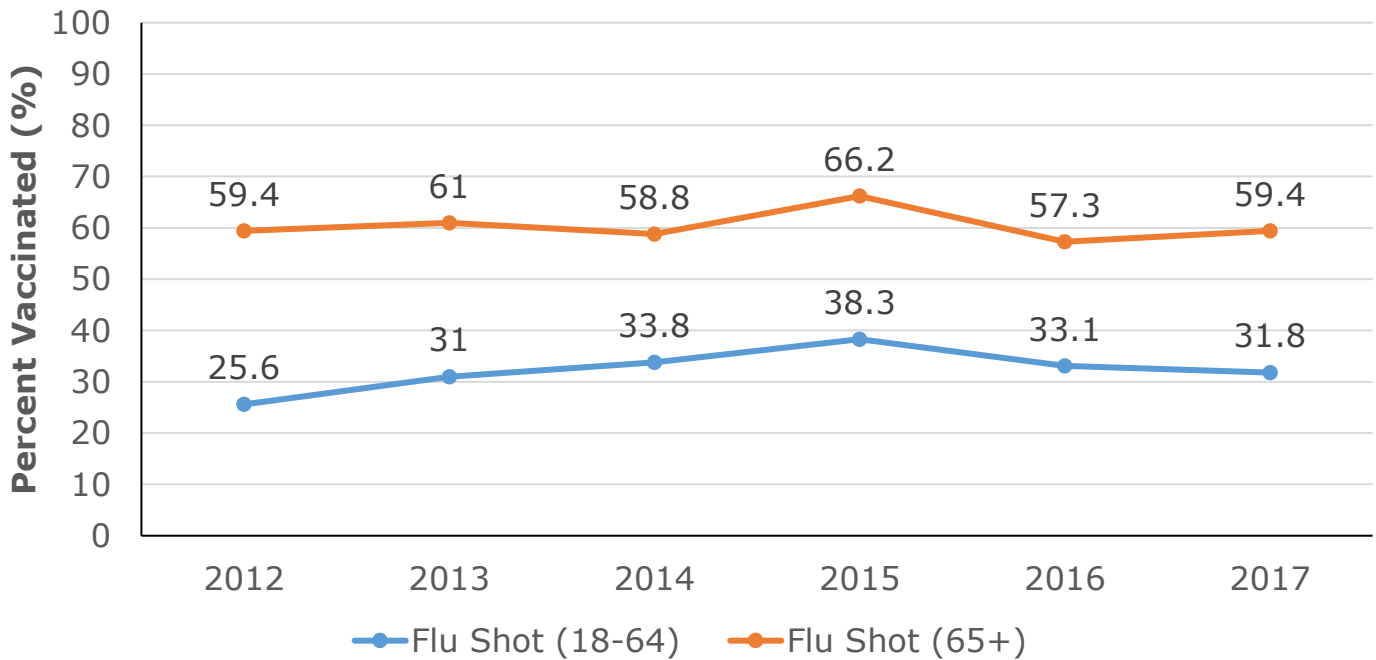


Figure 8. Adult Immunization Coverage Estimates for Influenza in Texas by Age Group, 2012-2017.





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Pneumonia

Figure 9. Adult Immunization Coverage Estimates for Pneumococcal in Texas and United States by Age Group, 2017.

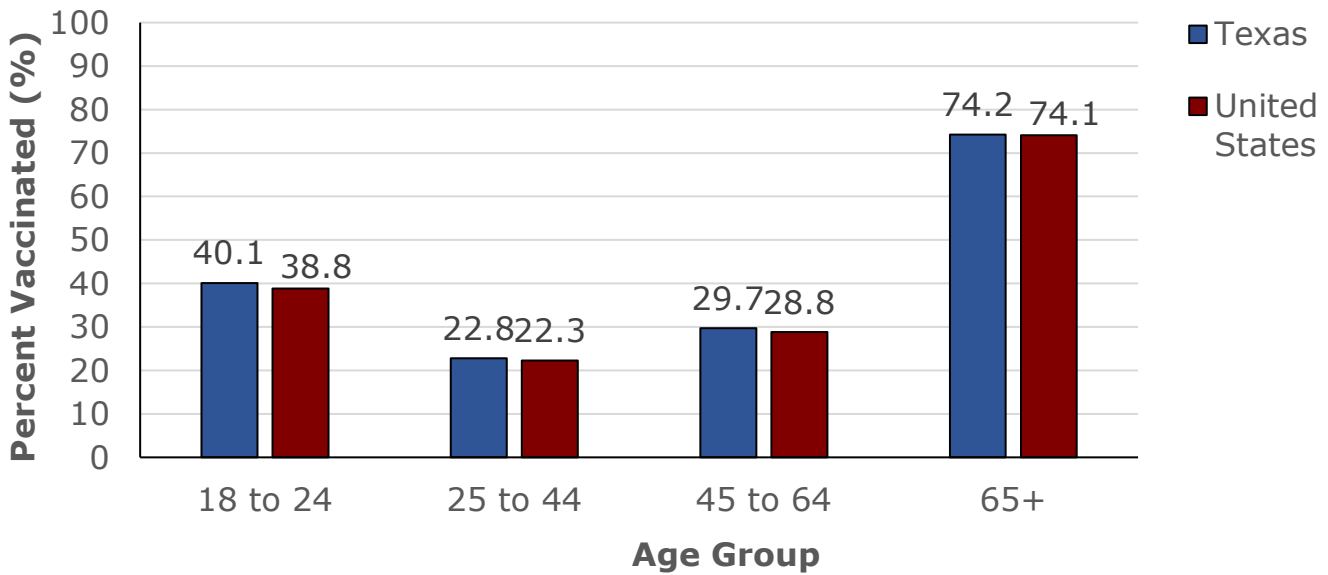
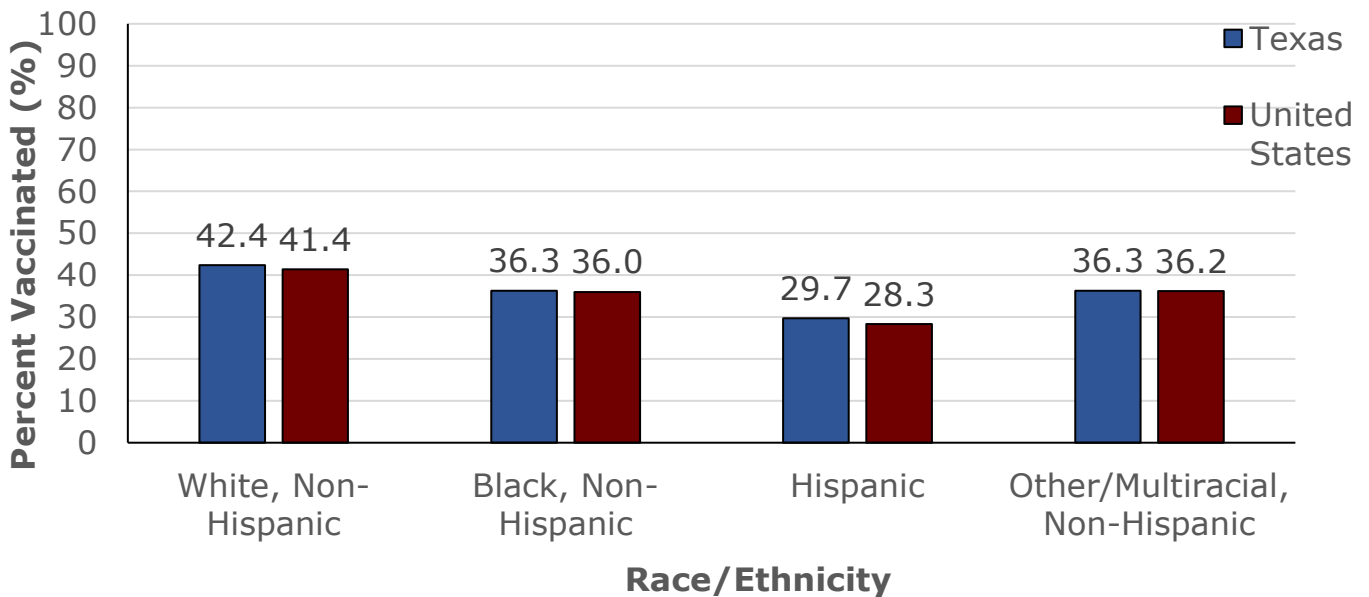


Figure 10. Adult Immunization Coverage Estimates for Pneumococcal in Texas and United States by Race/Ethnicity, 2017.





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Figure 11. Adult Immunization Coverage Estimates for Pneumococcal in Texas and United States among Seniors by Race/Ethnicity, 2017.

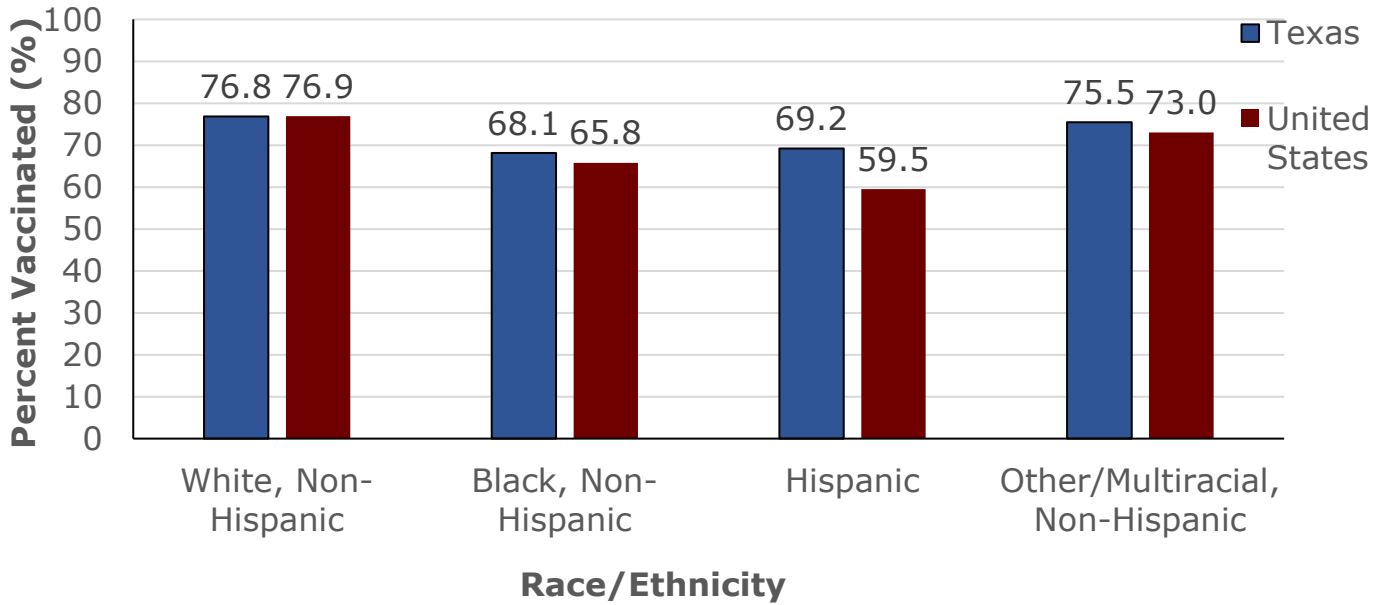
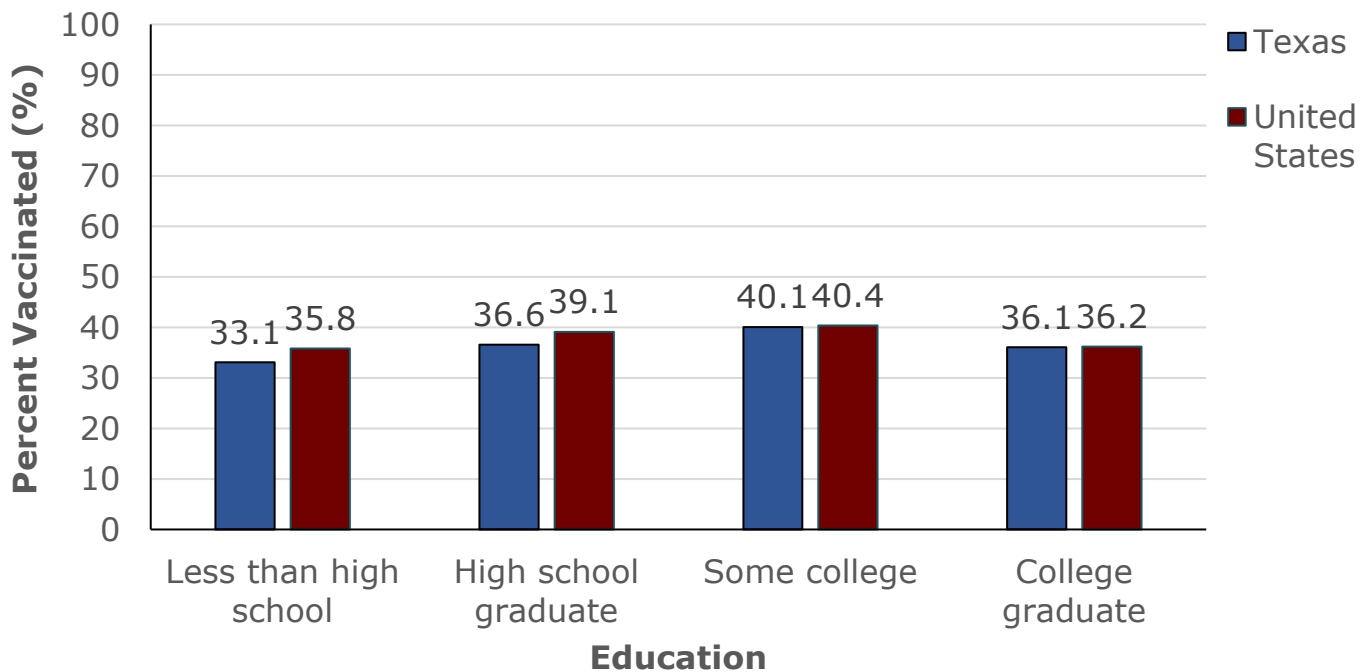


Figure 12. Adult Immunization Coverage Estimates for Pneumococcal in Texas and United States by Education, 2017.





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Figure 13. Adult Immunization Coverage Estimates for Pneumococcal in Texas and United States among Seniors by Education, 2017.

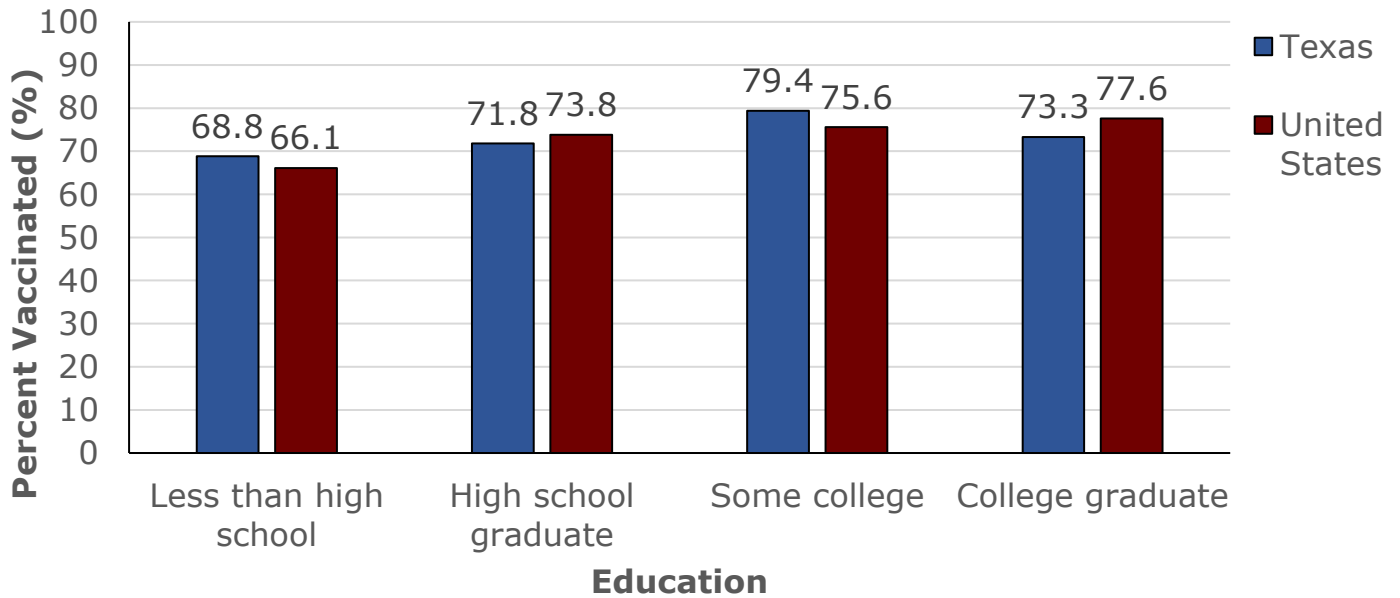
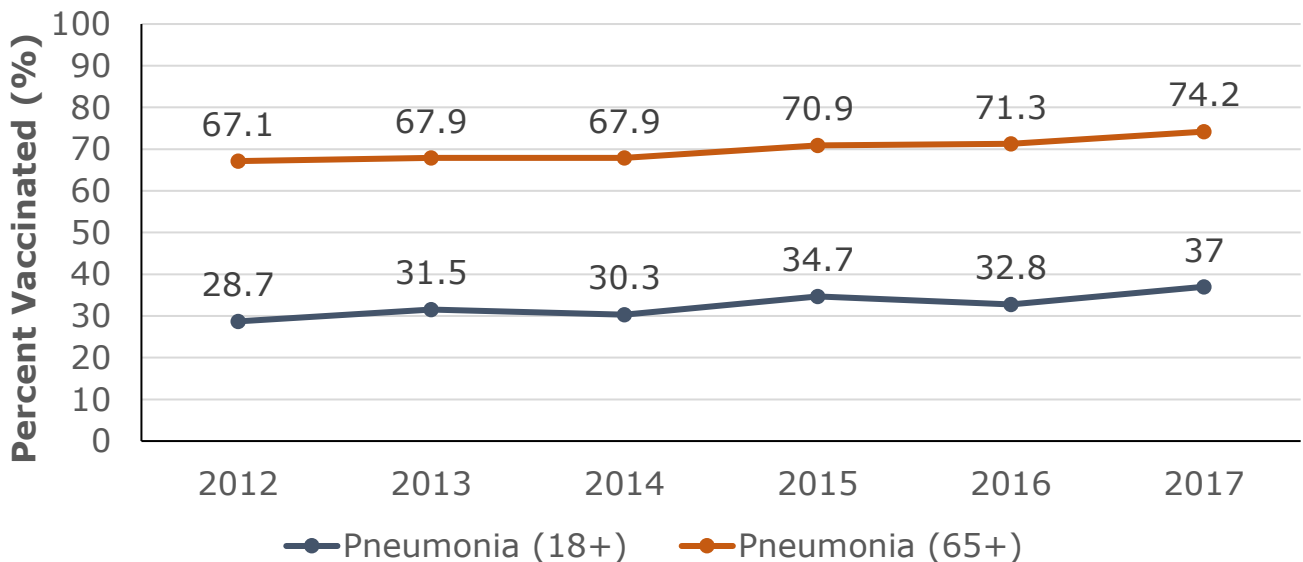


Figure 14. Adult Immunization Coverage Estimates for Pneumococcal in Texas by Age Group, 2012-2017.





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Shingles

Figure 15. Adult Immunization Coverage Estimates for Shingles in Texas and United States by Age Group, 2017.

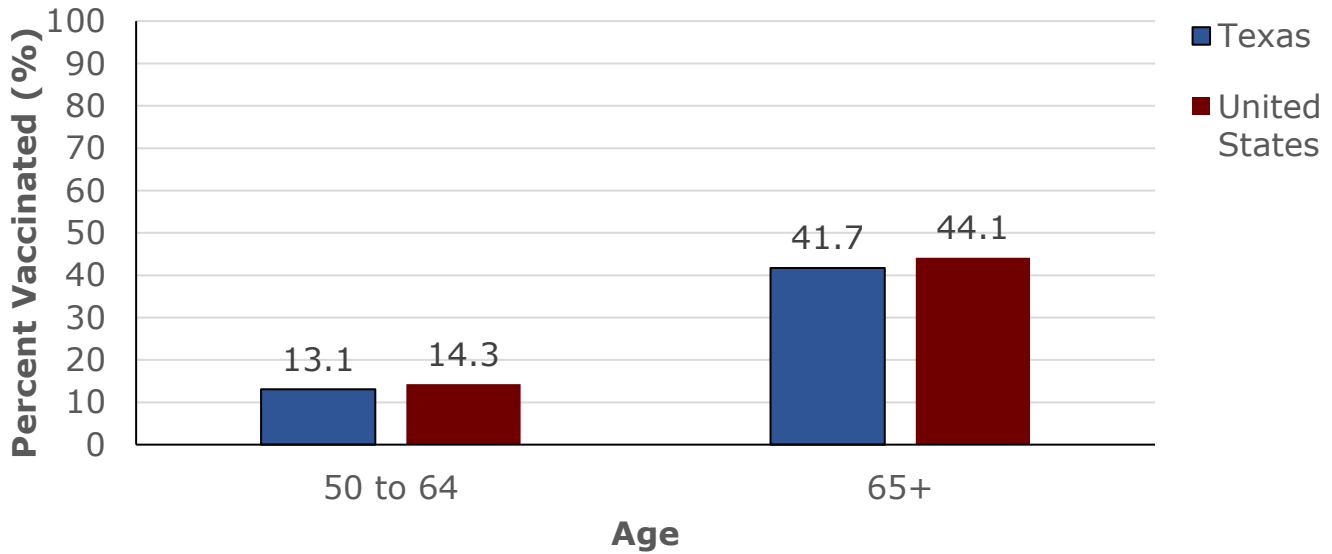
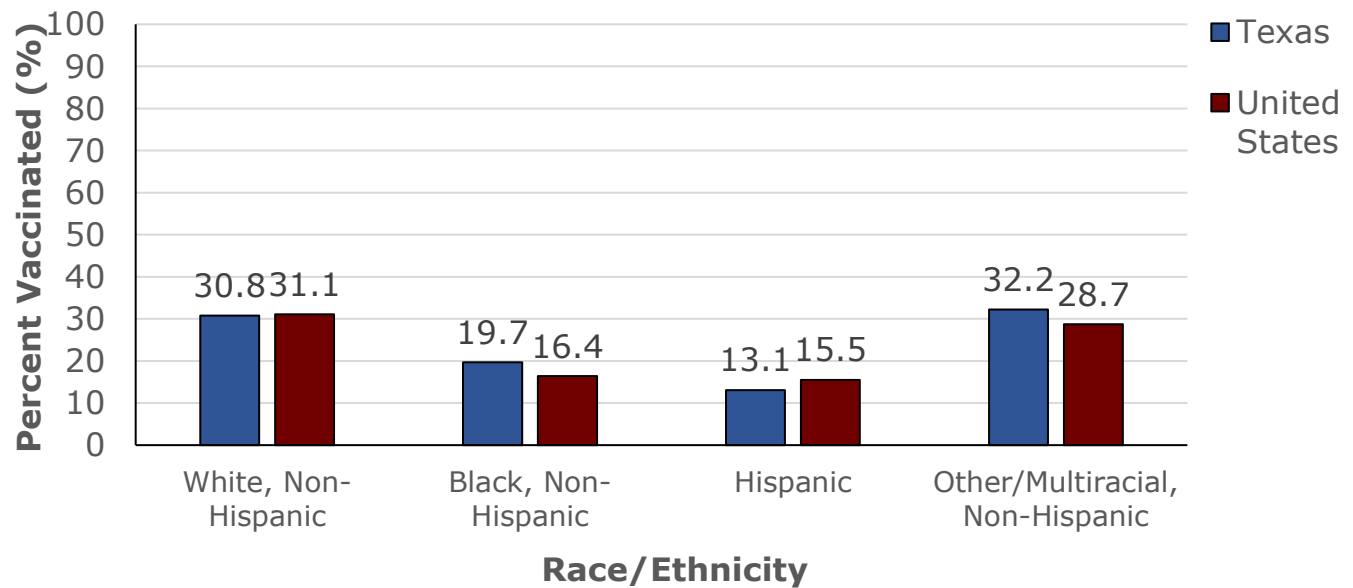


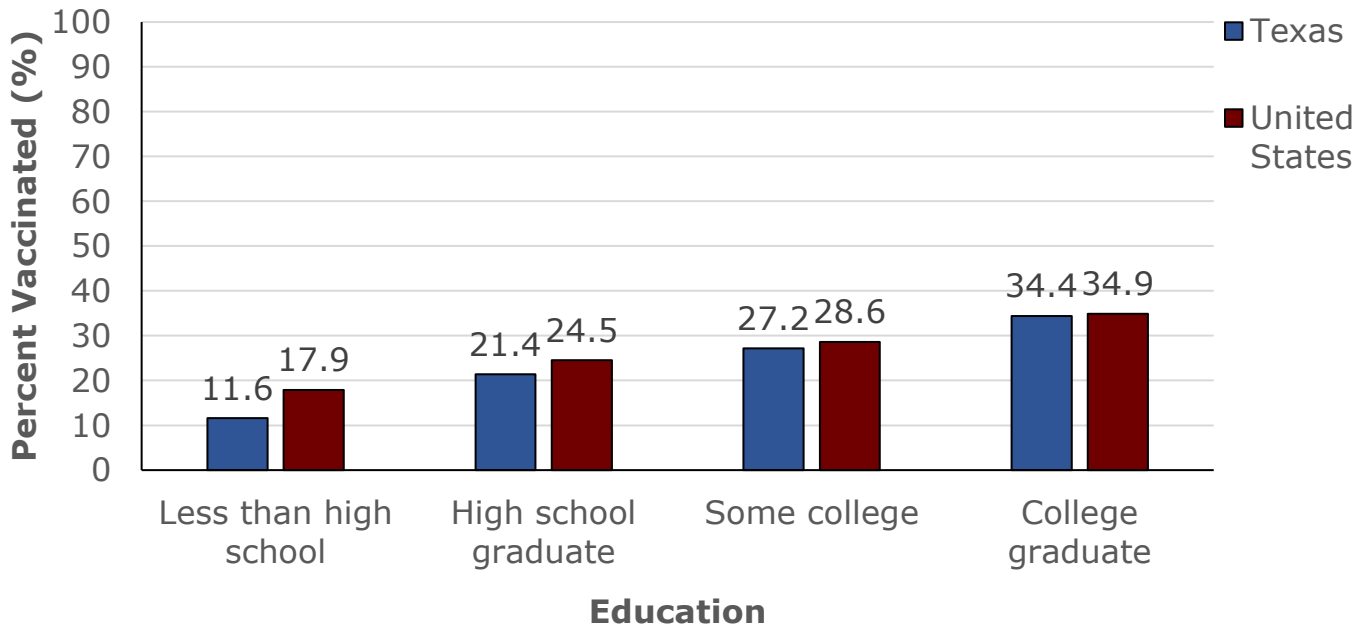
Figure 16. Adults aged 50+ Immunization Coverage Estimates for Shingles in Texas and United States by Race/Ethnicity, 2017.





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Figure 17. Adults aged 50+ Immunization Coverage Estimates for Shingles in Texas and United States by Education, 2017.





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Tetanus

Figure 18. Adult Immunization Coverage Estimates for Tetanus in Texas by Age Group, 2017.

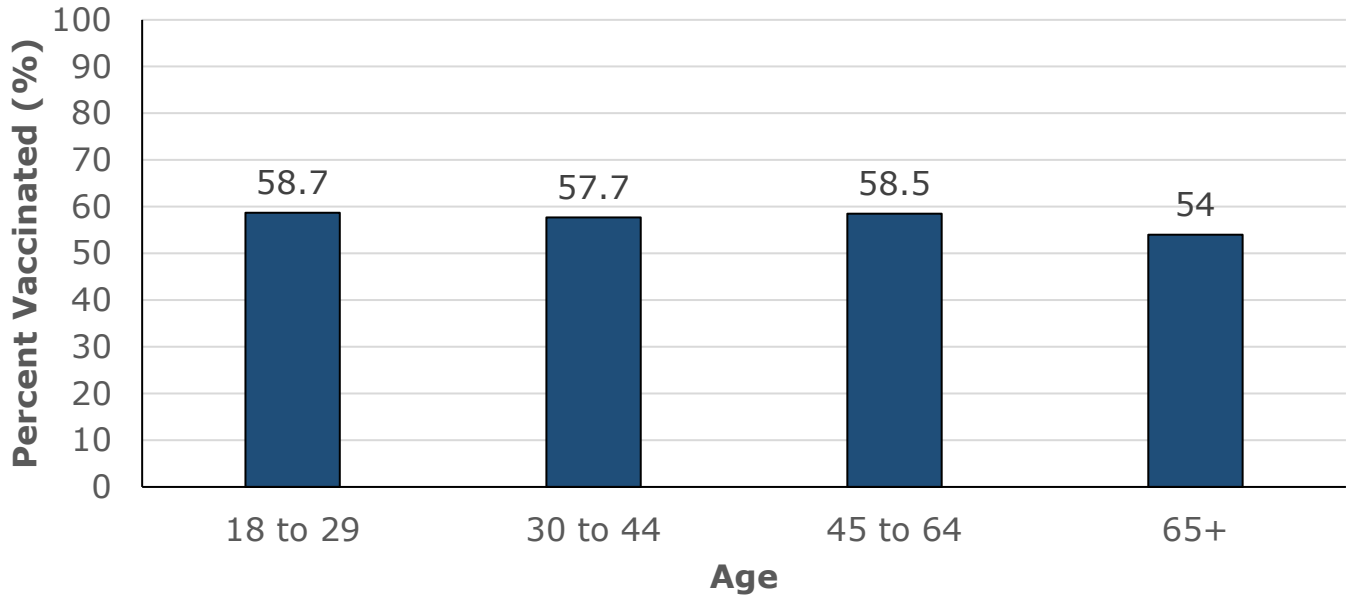
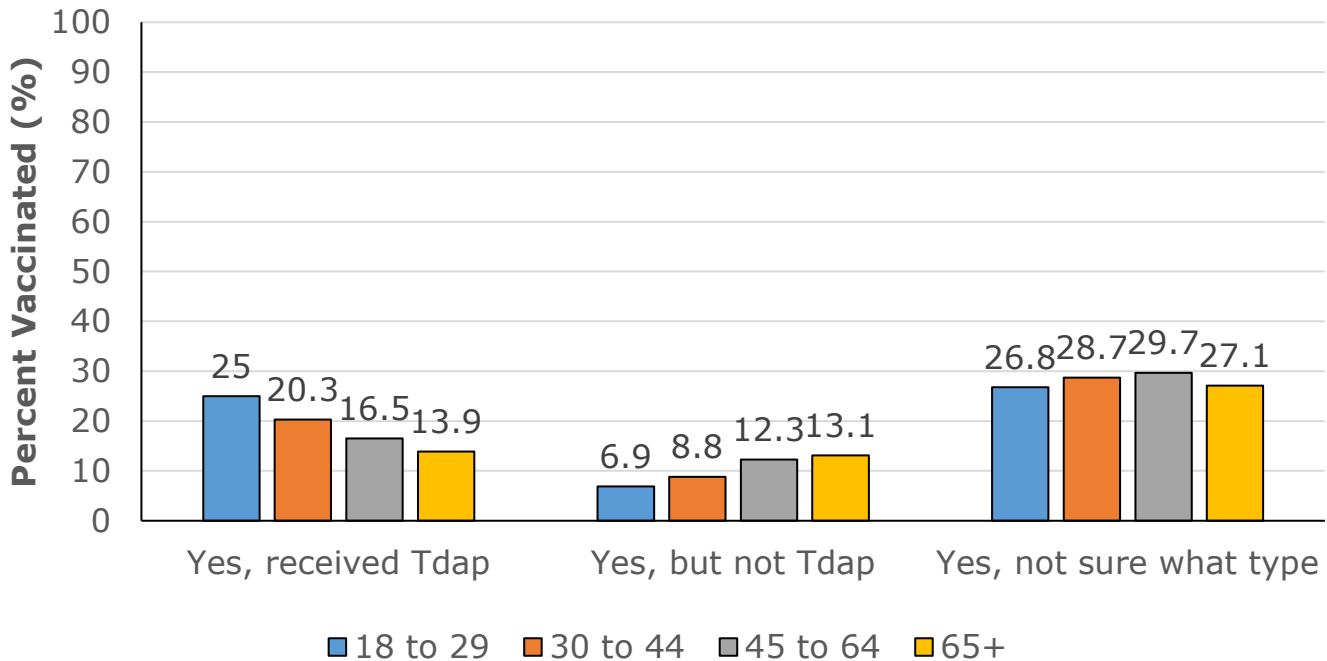


Figure 19. Adult Immunization Coverage Estimates for Tetanus in Texas by Type of Shot and Age Group, 2017.





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Figure 20. Adult Immunization Coverage Estimates for Tetanus in Texas by Race/Ethnicity, 2017.

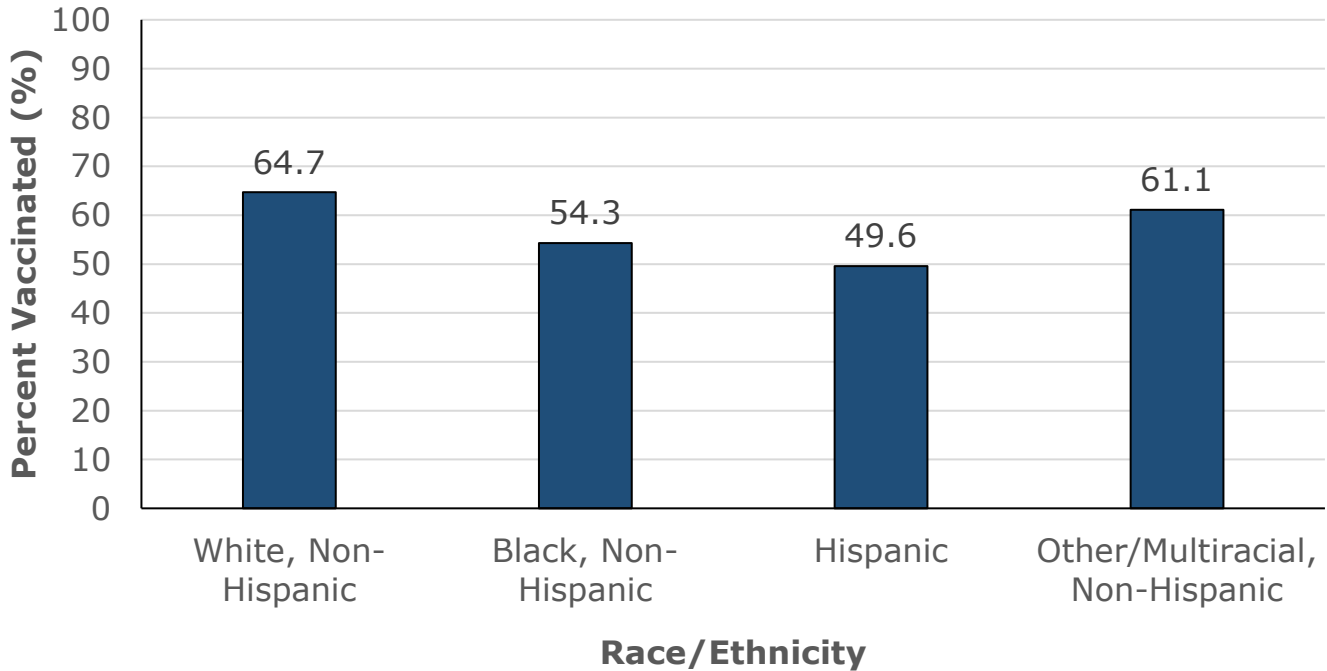
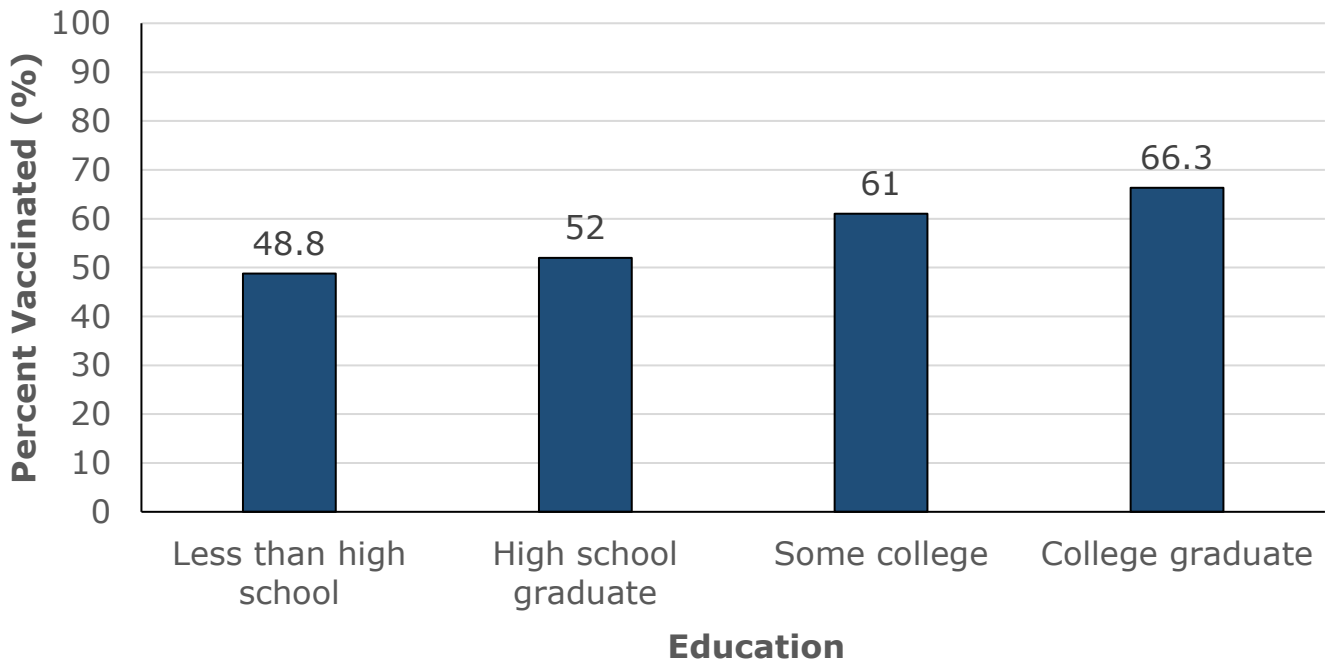


Figure 21. Adult Immunization Coverage Estimates for Tetanus in Texas by Education, 2017.





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Figure 22. Adult Immunization Coverage Estimates for Tetanus in Texas by Type of Shot and Education, 2017.

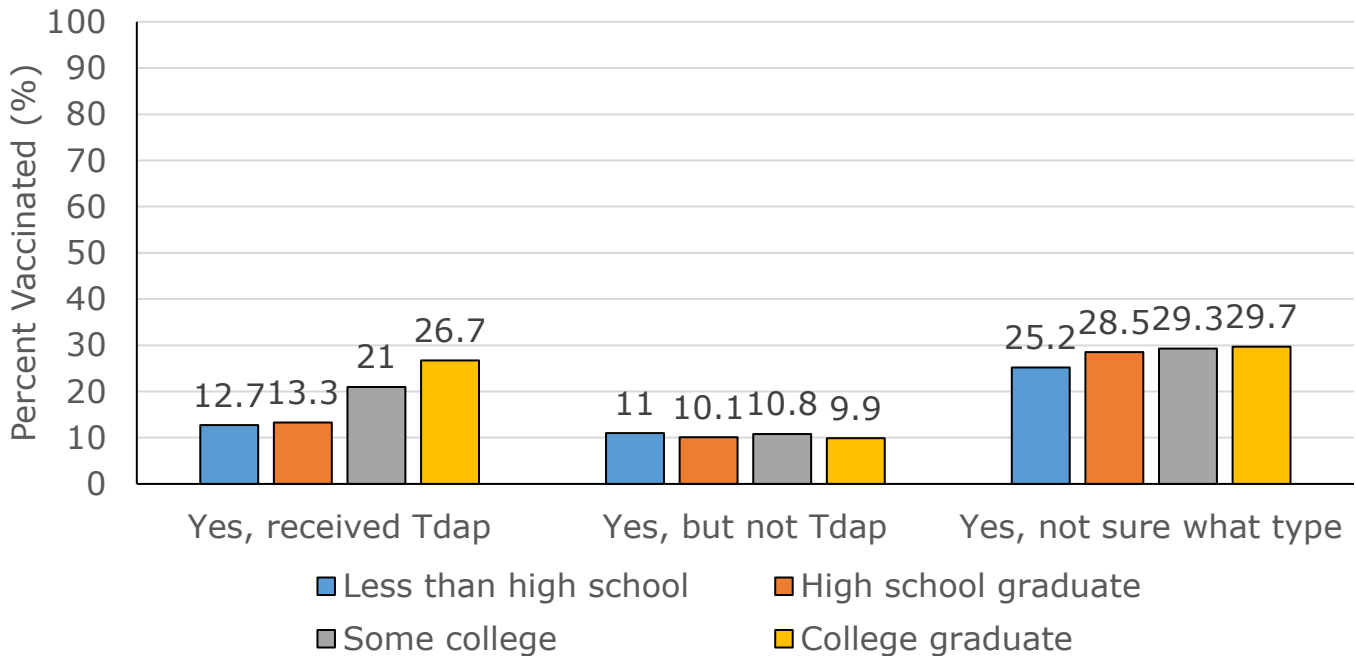
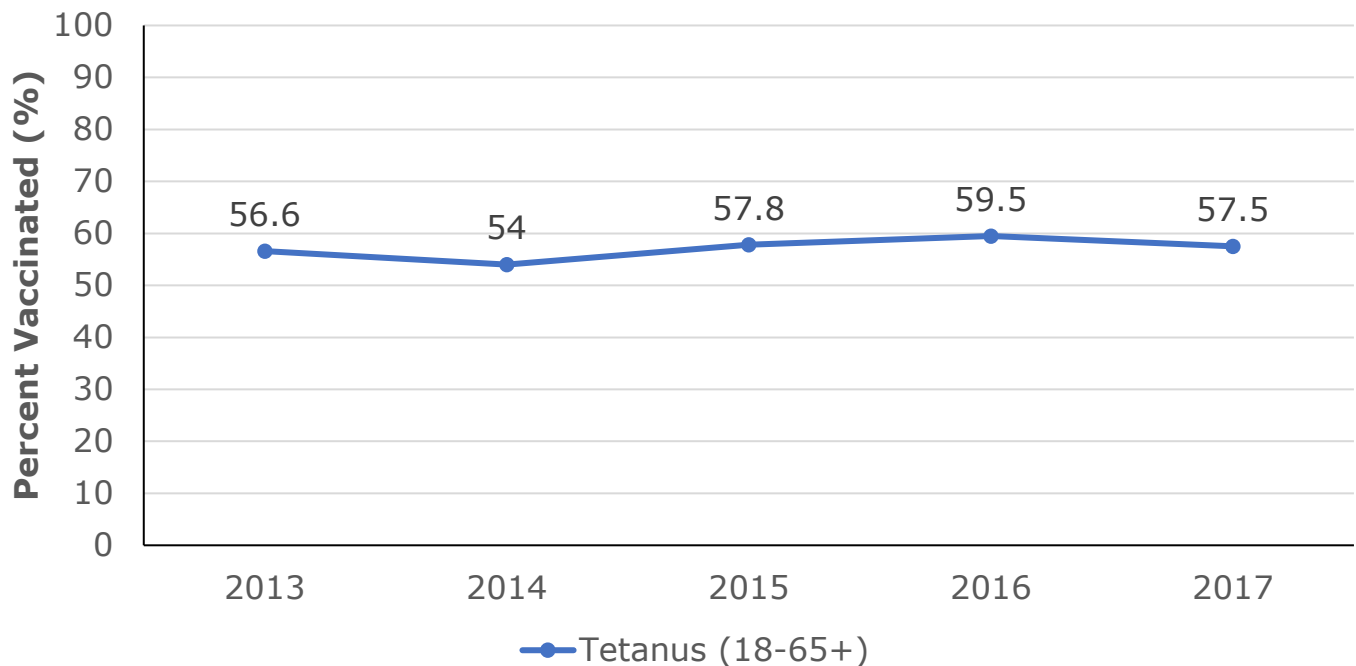


Figure 23. Adult Immunization Coverage Estimates for Tetanus in Texas, 2013-2017.





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HPV

Figure 24. Adult Immunization Coverage Estimates for HPV Initiation in Texas by Age Group, 2017.

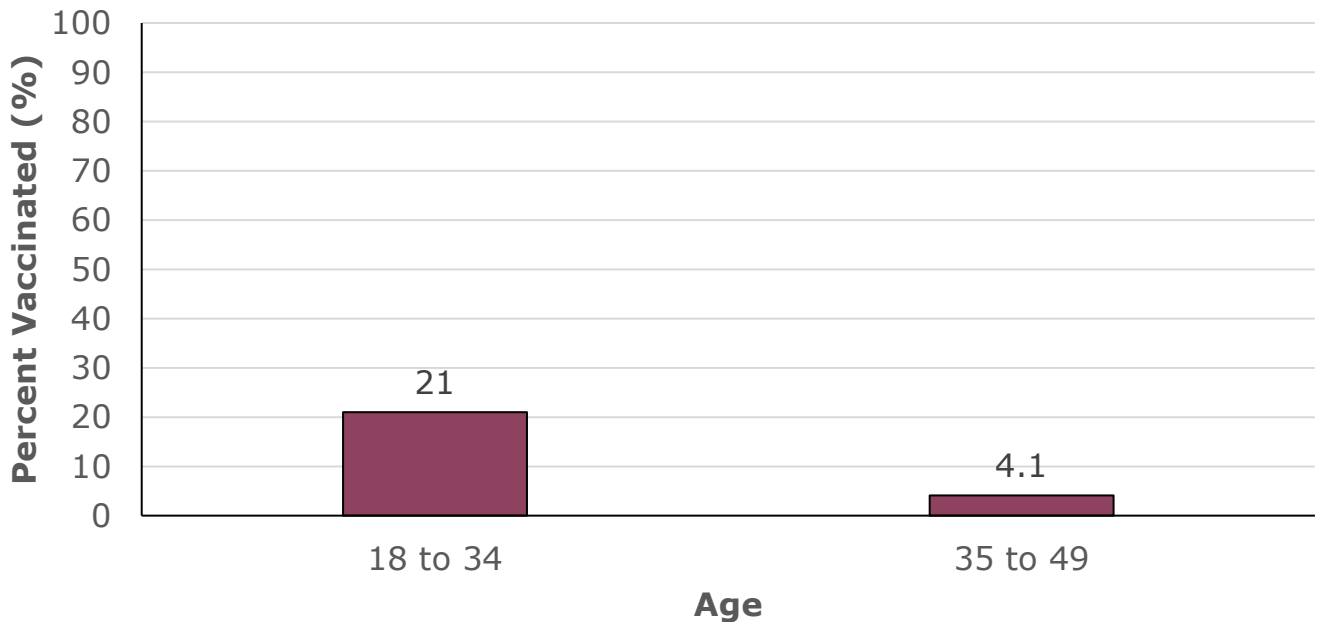
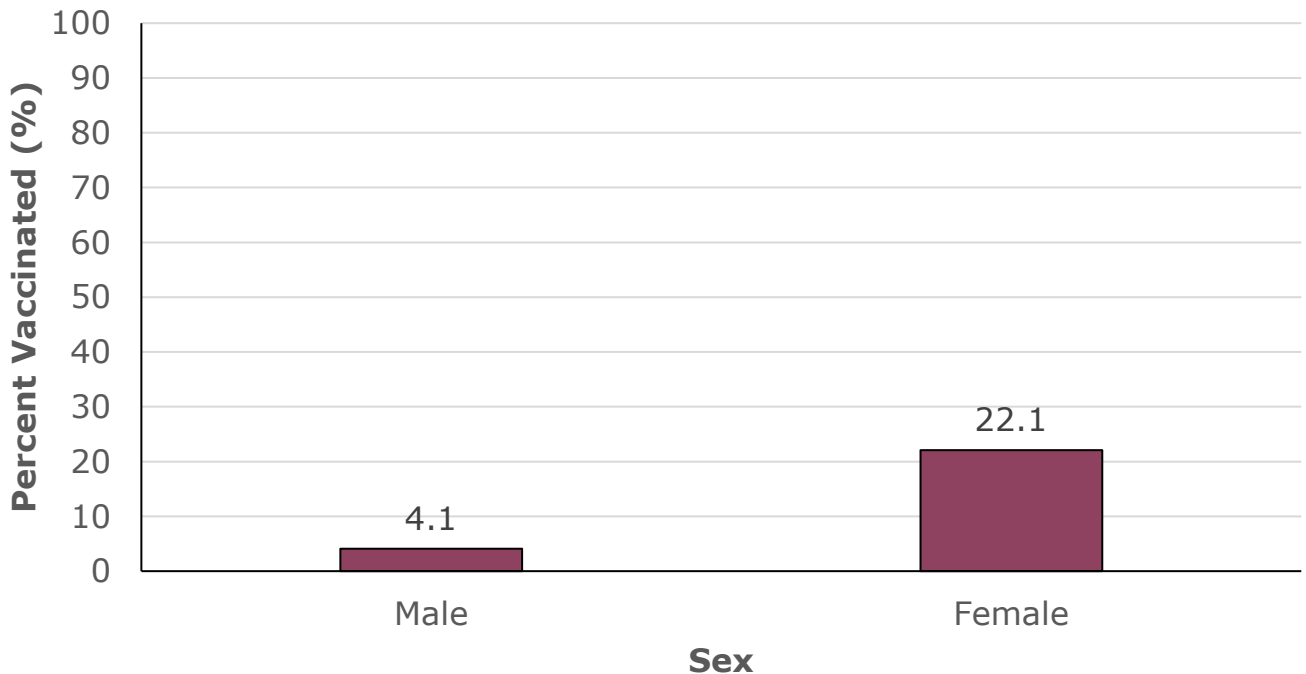


Figure 25. Adult Immunization Coverage Estimates for HPV Initiation in Texas by Sex, 2017.





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Figure 26. Adult Immunization Coverage Estimates for HPV Initiation in Texas by Race/Ethnicity, 2017.

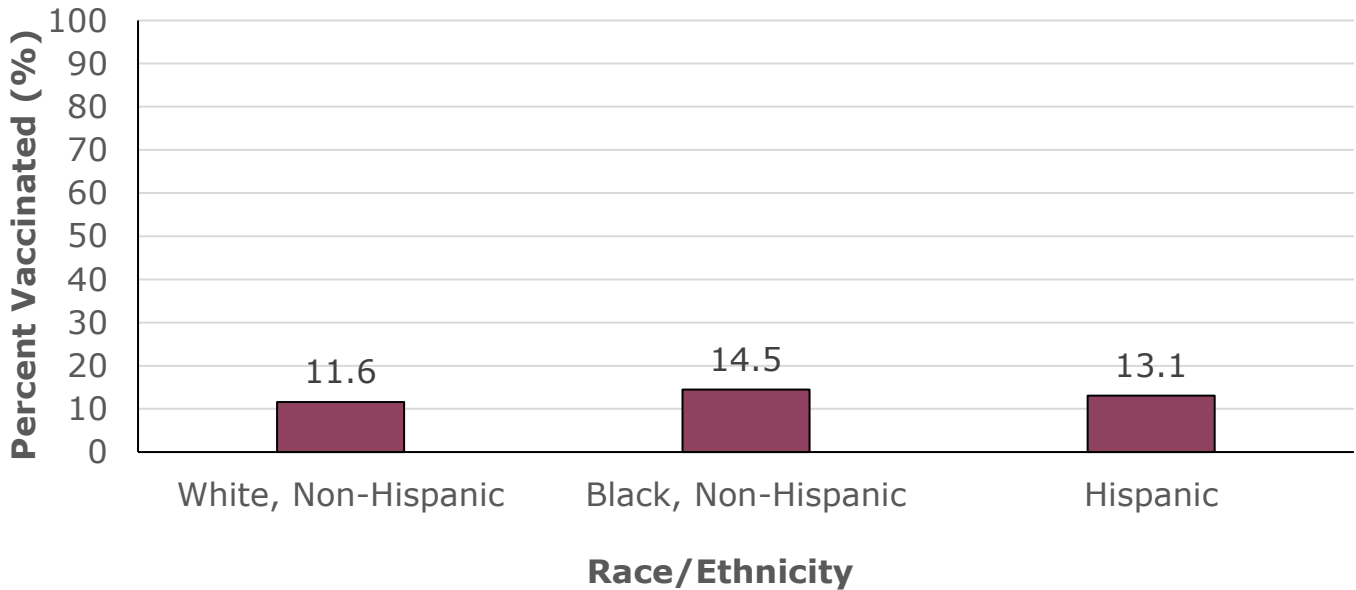
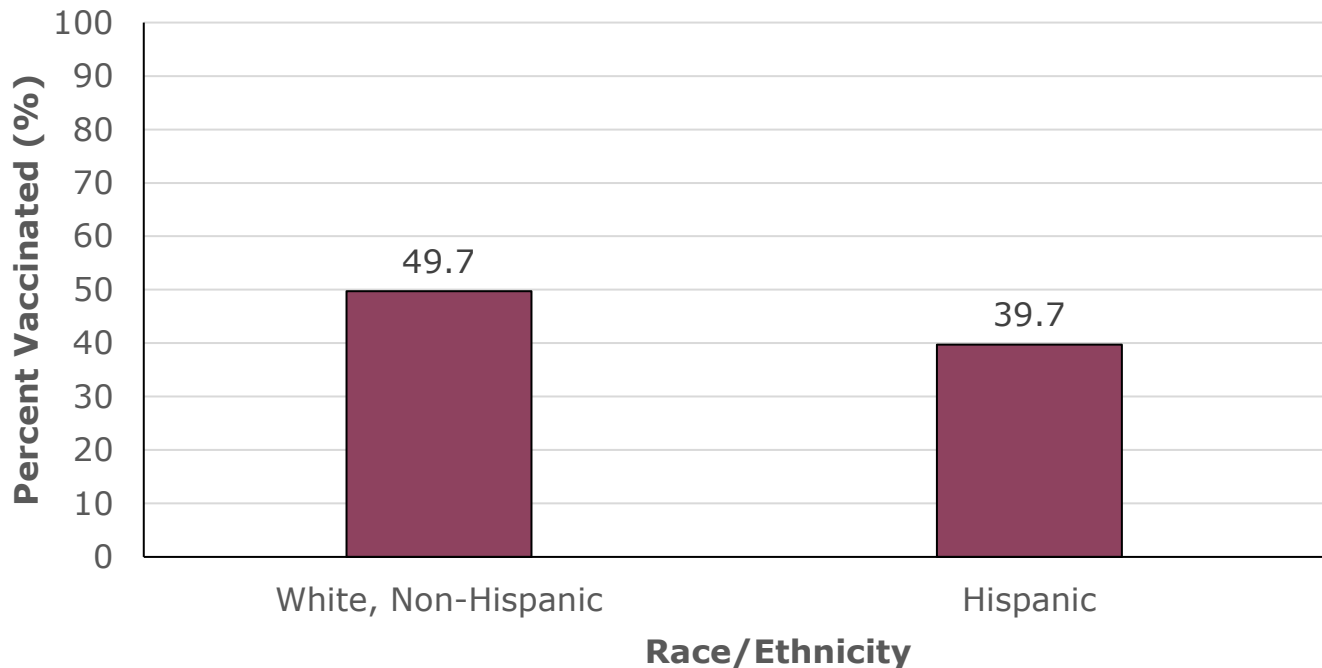


Figure 27. Adult Immunization Coverage Estimates for HPV Series Completion Among those Who Have Initiated the Series in Texas by Race/Ethnicity, 2017.





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Figure 28. Adult Immunization Coverage Estimates for HPV Initiation in Texas by Education, 2017.

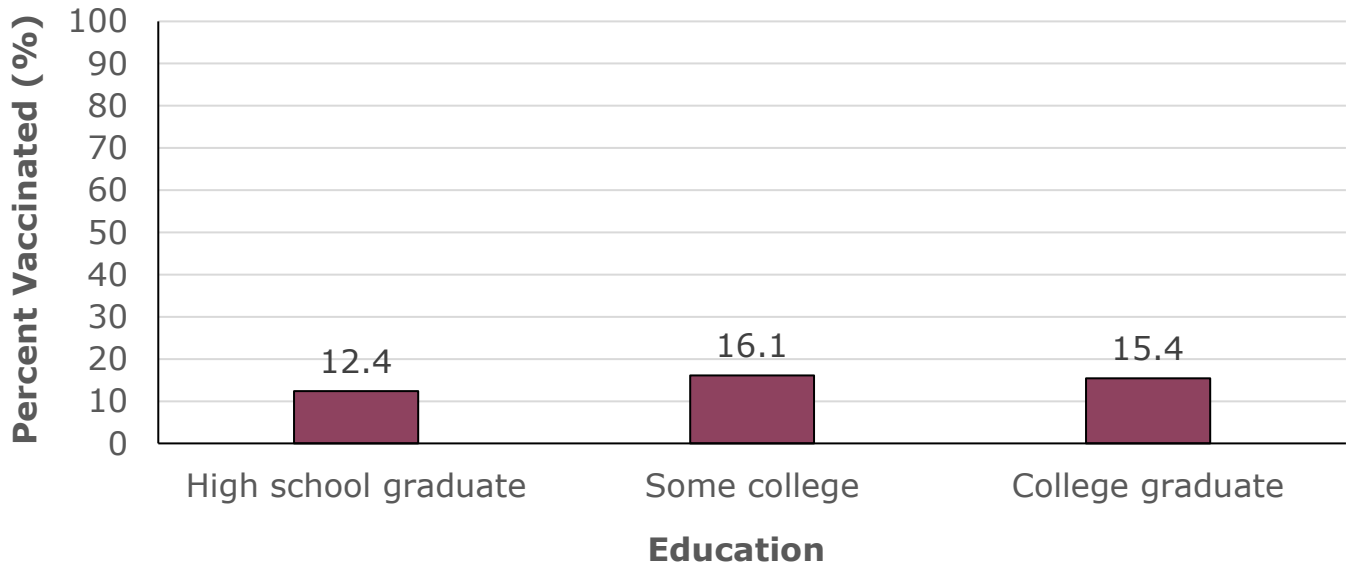
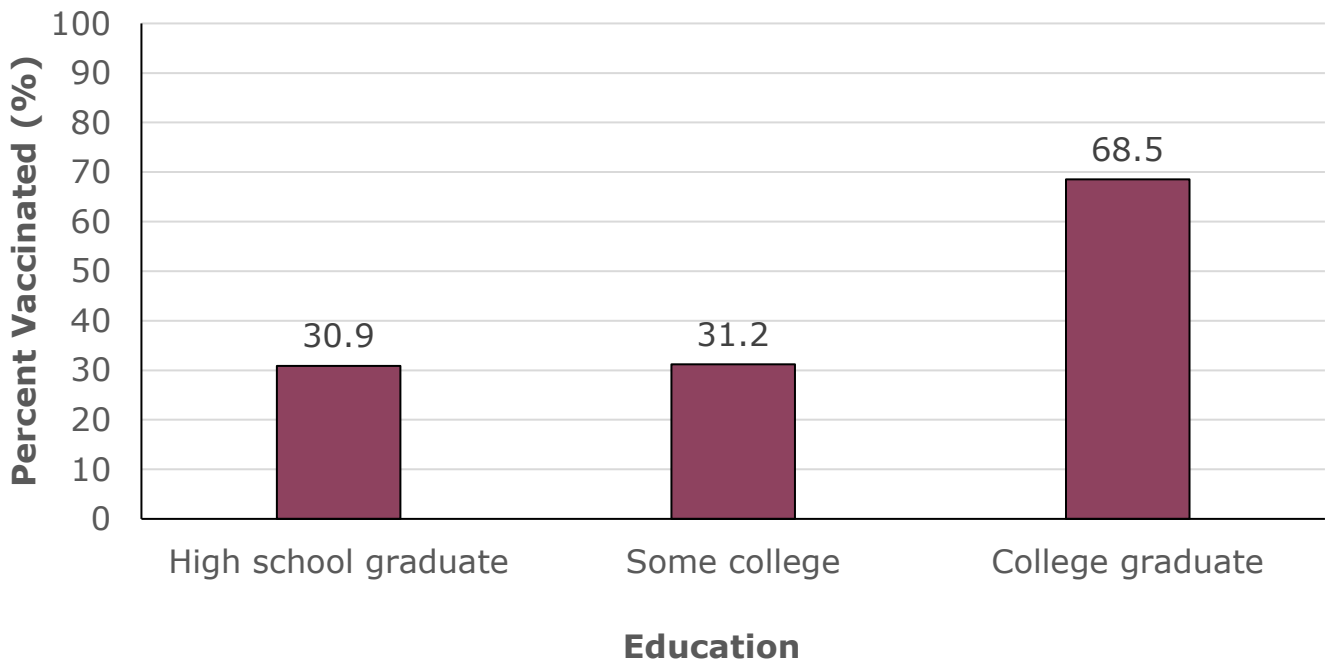


Figure 29. Adult Immunization Coverage Estimates for HPV Series Completion in Texas by Education, 2017.





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Figure 30. Adult Immunization Coverage Estimates for HPV Initiation and Series Completion in Texas, 2012-2017.

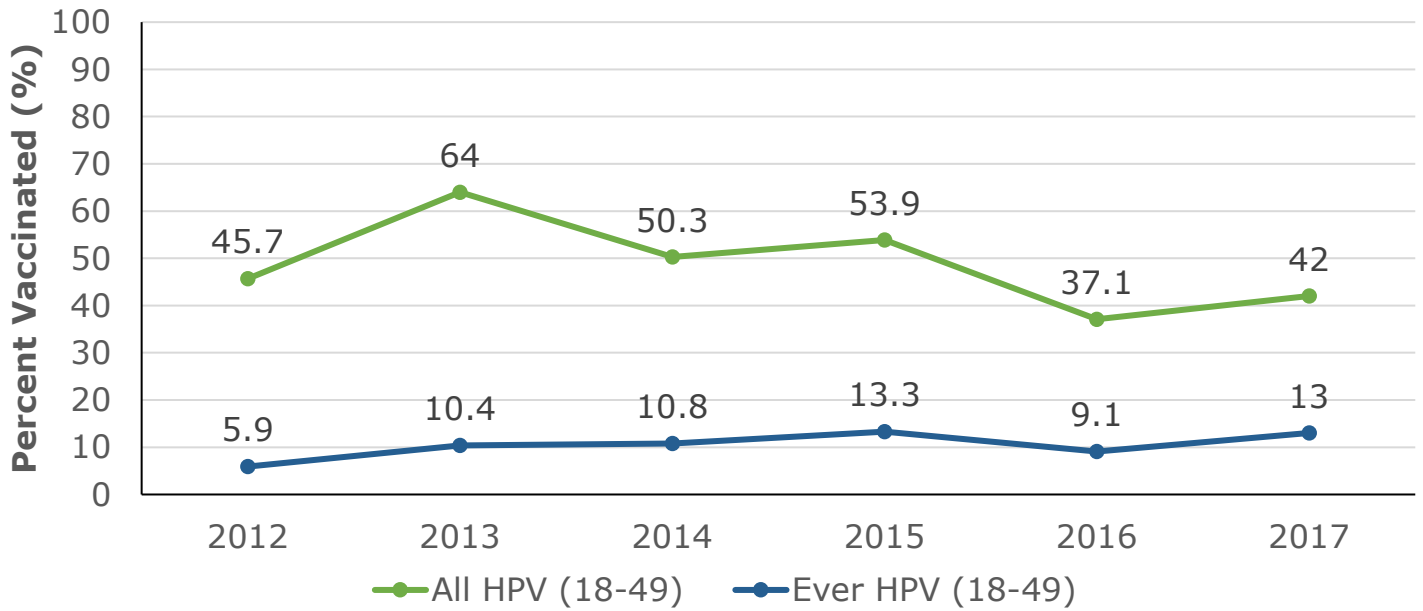
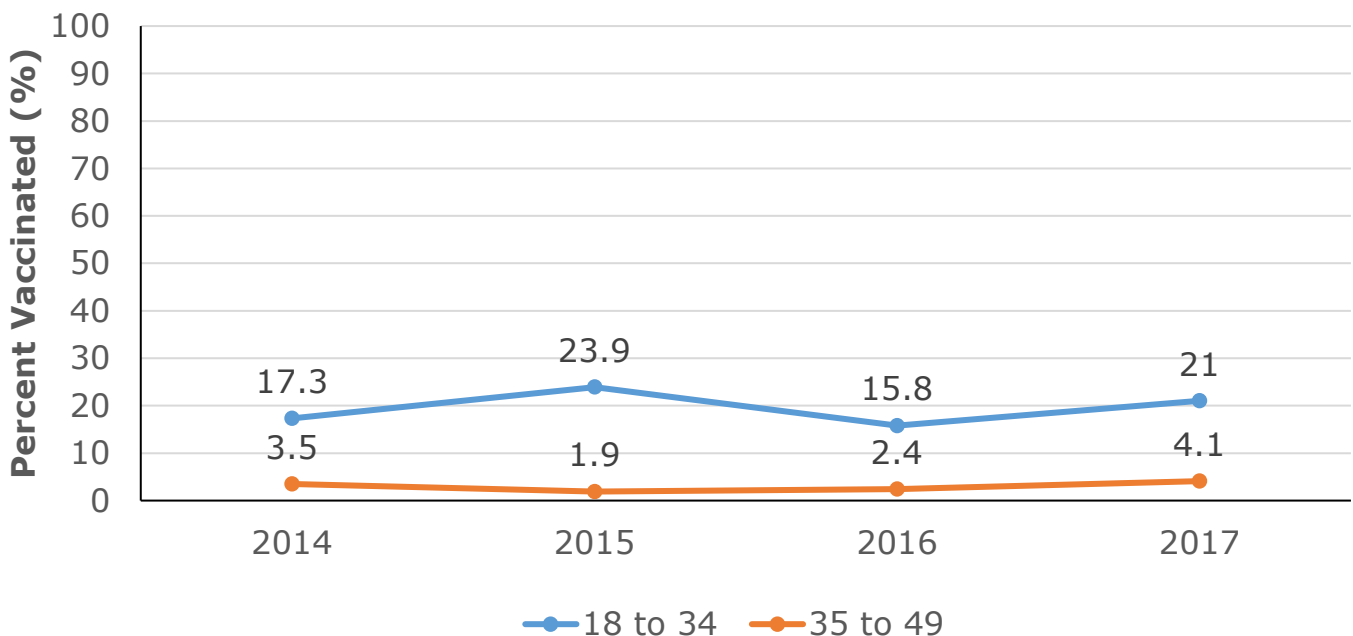


Figure 31. Adult Immunization Coverage Estimates for HPV Initiation in Texas by Age Group, 2012-2017.





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Hepatitis B

Figure 32. Adult Immunization Coverage Estimates for HepB Initiation in Texas by Age Group, 2017.

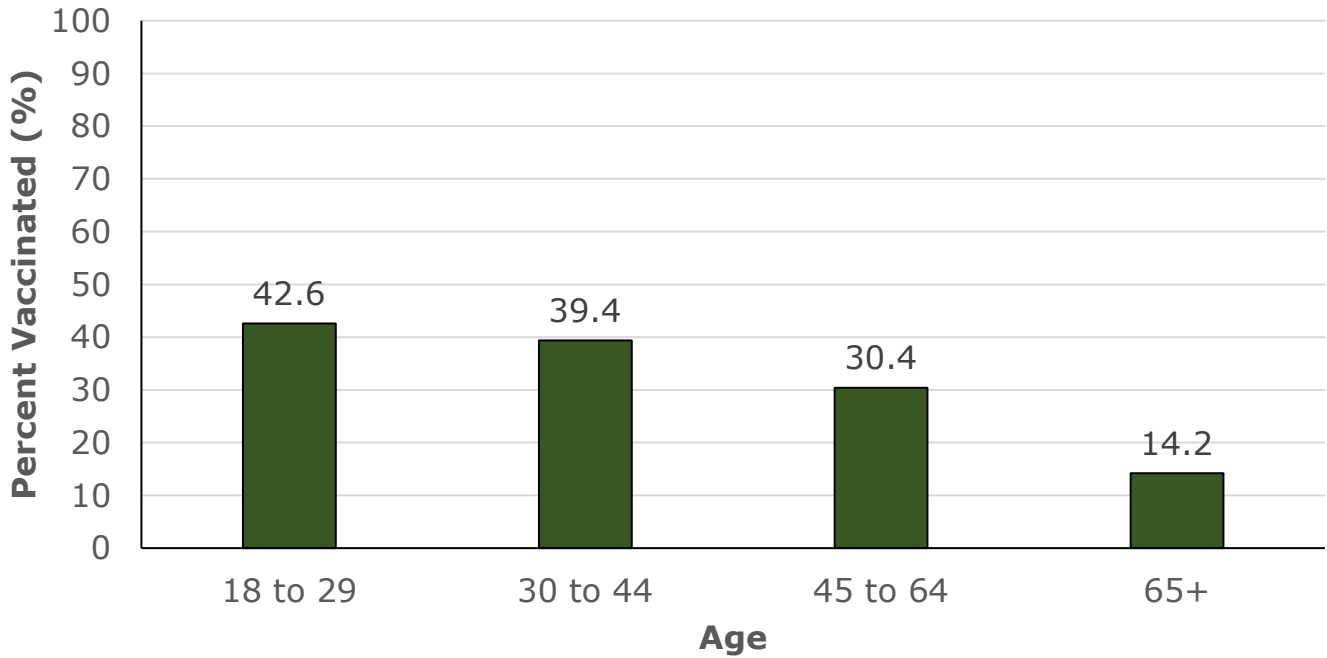
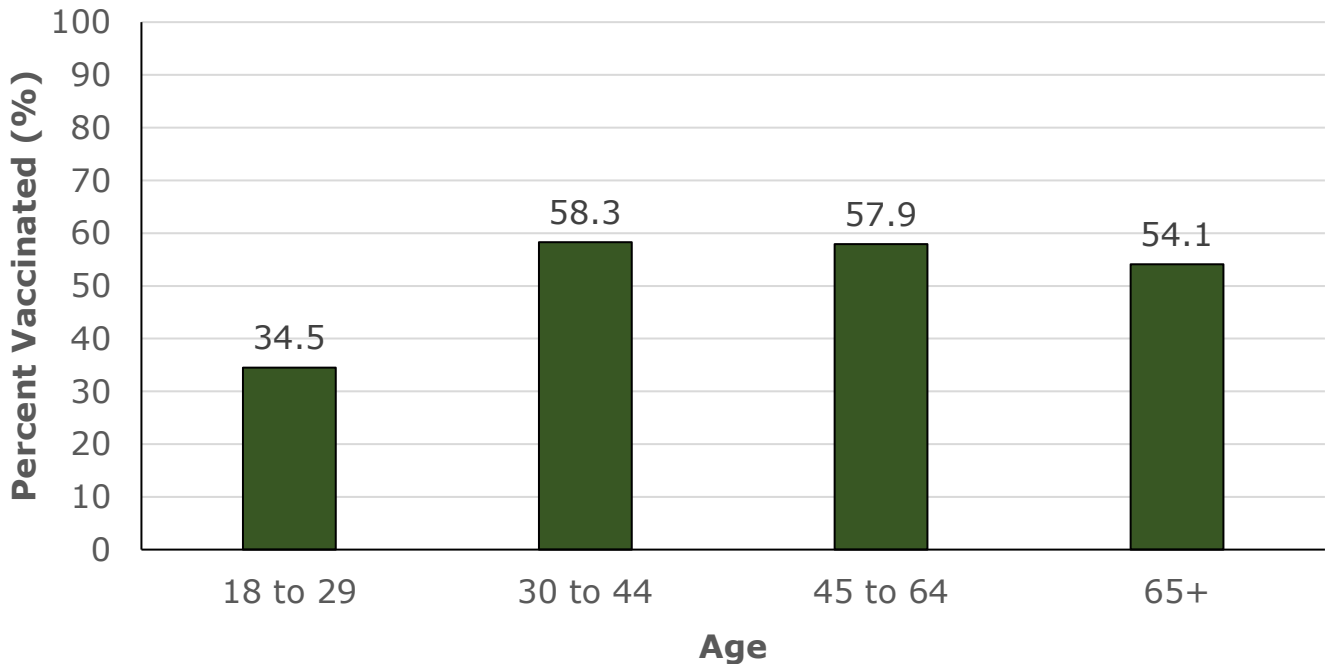


Figure 33. Adult Immunization Coverage Estimates for HepB Series Completion in Texas by Age Group, 2017.





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Figure 34. Adult Immunization Coverage Estimates for HepB Initiation in Texas by Race/Ethnicity, 2017.

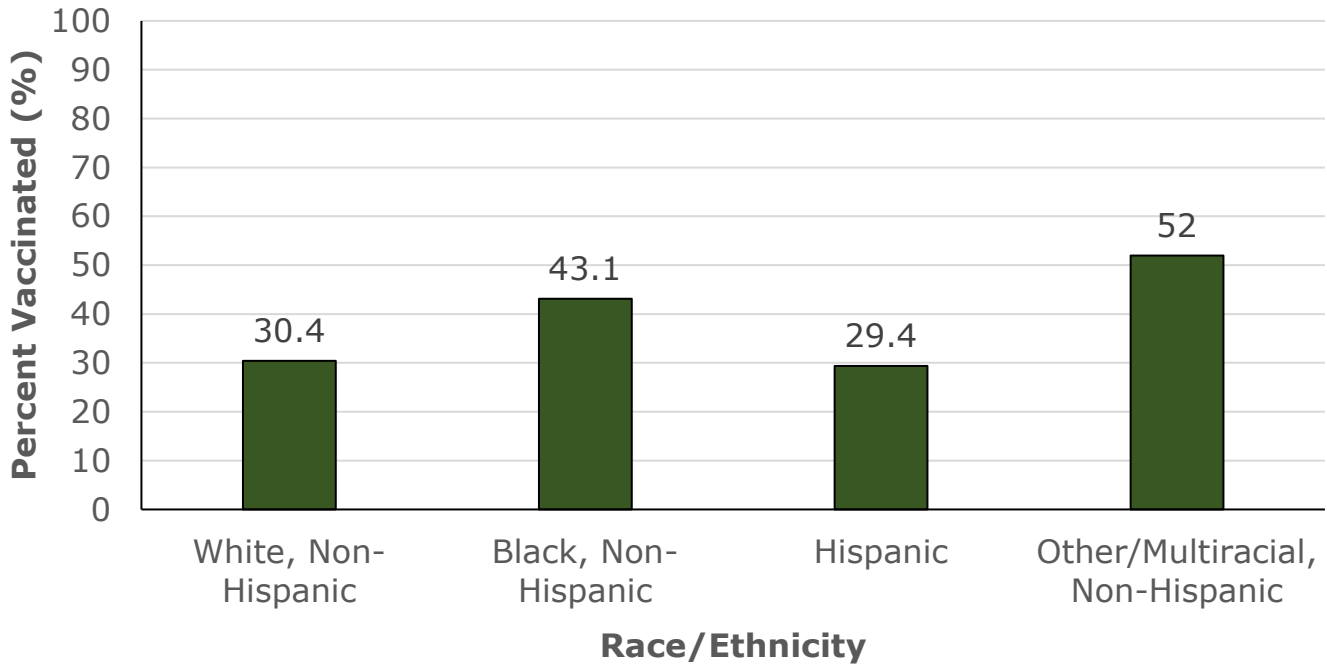
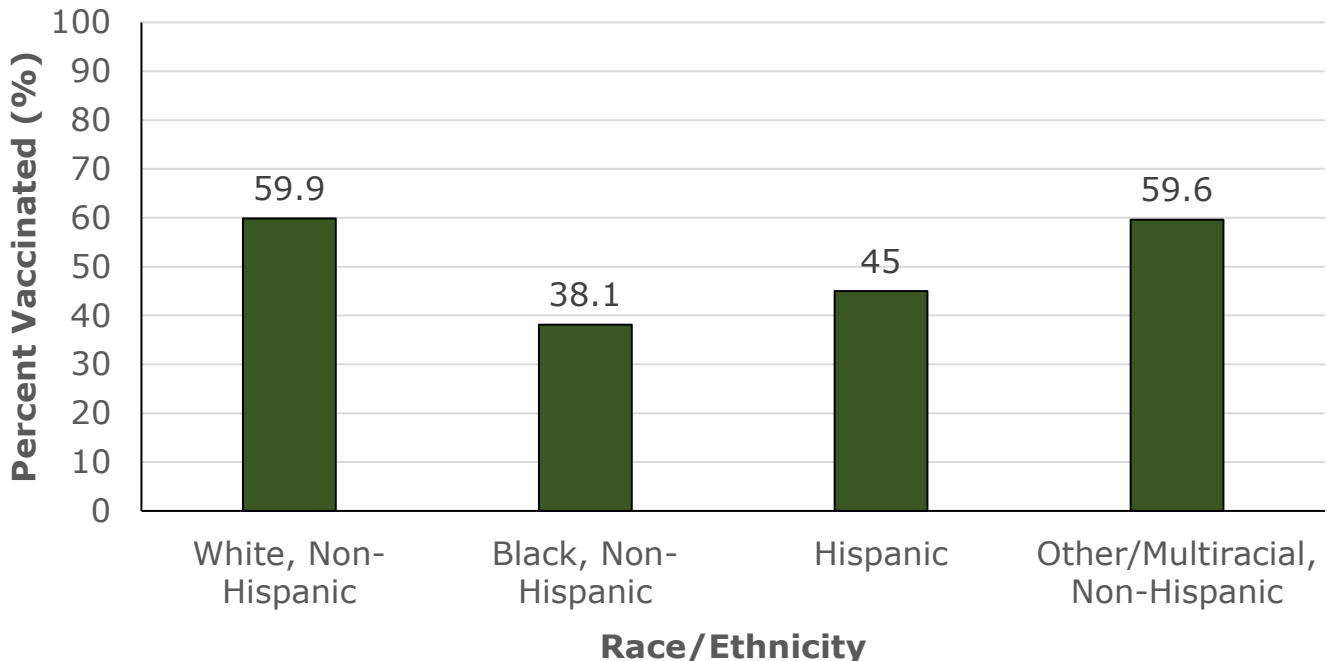


Figure 35. Adult Immunization Coverage Estimates for HepB Series Completion in Texas by Race/Ethnicity, 2017.





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Figure 36. Adult Immunization Coverage Estimates for HepB Initiation in Texas by Education, 2017.

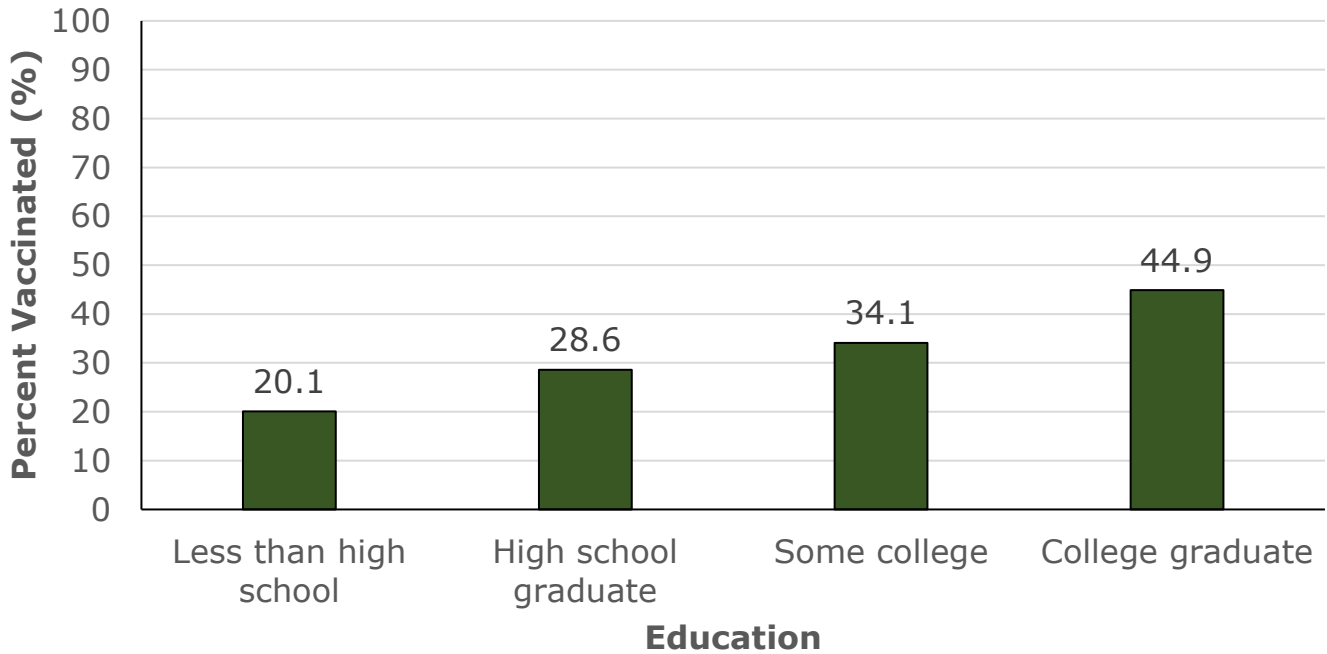
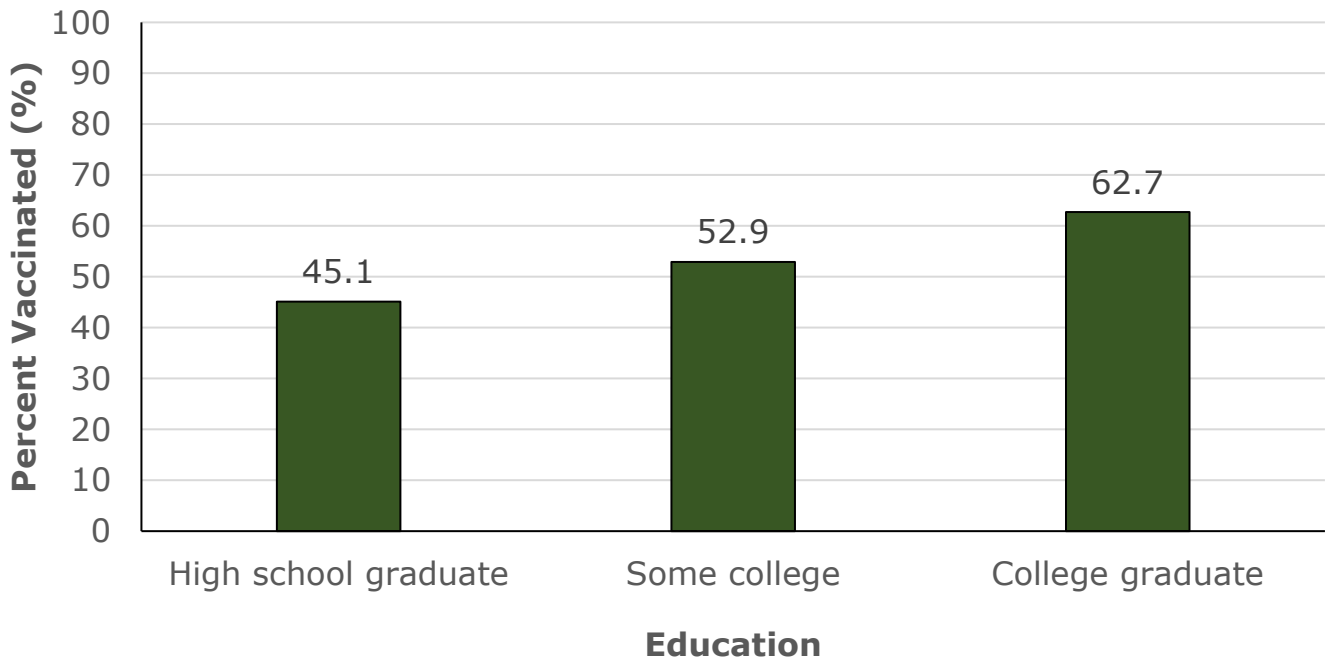


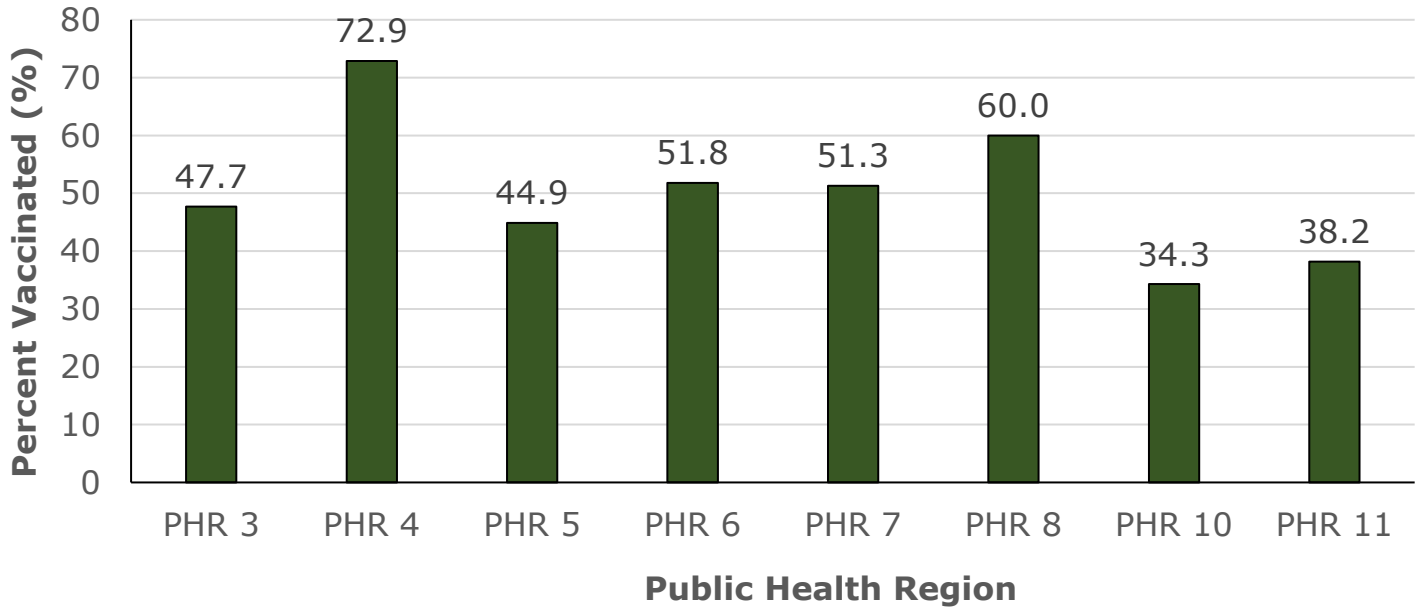
Figure 37. Adult Immunization Coverage Estimates for HepB Series Completion in Texas by Education, 2017.





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Figure 37. Adult Immunization Coverage Estimates for HepB Series Completion in Texas by Public Health Region, 2017. ⁺



⁺ Regions 1, 2 and 9 had estimates excluded, as they were considered unreliable, because the sample size was too small.

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Discussion

Importance of vaccination coverage

Vaccination is one of the most efficient tools in protecting individuals and public health. Vaccines reduce disease morbidity and mortality rates through providing direct protection to those who receive them and indirect protection to the community when vaccine coverage reaches a community immunity threshold. In the United States, administration of a flu vaccine in elderly reduces the chances of developing complications from cardiovascular and cerebrovascular disease by approximately 20 percent and decreases the risk of mortality from all causes by 50 percent, when compared with unvaccinated elderly. Studies have also shown the combined administration of inactivated influenza vaccine along with polysaccharide pneumococcal vaccine significantly decreased in-hospital mortality rates from cardiac failure and pneumonia among elderly individuals.

Efficacious vaccines not only prevent the incidence of infectious disease among immunized, but they also reduce the incidence and spread of disease among unimmunized individuals in the community. This is called herd immunity. Hence vaccination coverage rates are extremely important to prevent outbreaks in a community. Diseases like measles are highly infectious and need higher vaccination coverage compared with diseases like rubella, polio and Hib, which are less infectious, to attain herd protection in the community. Monitoring vaccine coverage rates allows public health officials to know what communities are most vulnerable to outbreaks of vaccine preventable diseases.

Additional advantages of vaccines include protection against diseases like cancer and other related diseases, health-care savings for the society, prevention the development of antibiotic resistance, safe global air travel, promotion of economic growth and many others.

The Healthy People 2020 (HP2020) project sets public health goals to achieve each decade, vaccination measurements are included among these goals (Table 2). According to HP2020, 80 percent of pregnant women should get their flu shots every year. However, in 2017, only 35 percent of pregnant women in Texas received their flu shots compared to 40.3 percent in the United States. The HP2020 target for pneumococcal vaccination for persons aged 65 years and above is 90 percent and in 2017, Texas coverage rates for pneumococcal is 74.2 percent among adults aged 65 and above. From 2017 BRFSS survey data, Texas needs to improve its overall coverage levels among adult population to reach HP 2020 goals.

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Texas Department of State Health Services (DSHS) and It's Role in Adult Immunizations

Texas DSHS created a program named "Adult Safety net (ASN)" which supplies vaccines to enrolled providers at no cost and for the public at low cost. This program is developed to provide vaccination for uninsured adults, so that the vaccine coverage levels improve and benefit the health of Texans.

There are 523 ASN providers in the state of Texas and anyone, who is 19 years of age or older and does not have health insurance are eligible to receive low-cost vaccines. ASN program is funded by state public funds.

Other activities that DSHS actively conducts to improve adult immunization coverage include:

- "Maintenance of Texas Immunization Registry". Beginning in 2009, all adults, who sign the consent form to add records to the registry (ImmTrac2) can track their immunization histories.
- Surveillance of adult vaccine coverage rates via BRFSS
- Promote vaccines for adults especially high-risk adults (pregnant women, elderly, and those with underlying medical conditions).
- Create educational material: brochures, presentations, online education.

Conclusion

The BRFSS survey provides Texas valuable information on immunization coverage for adult immunizations across the state. The results from the 2017 survey indicate a need for Texas to prioritize efforts to increase immunization coverage to reach national immunization goals. Texas DSHS Immunization Unit remains dedicated to its goal of eliminating the spread of vaccine preventable diseases by increasing immunization coverage for Texans, raising awareness of the diseases that vaccines prevent, and educating the public about vaccine safety.



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- <https://dshs.texas.gov/chs/brfss/default.shtm>

- Vaccination greatly reduces disease, disability, death and inequity worldwide
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- <https://nccd.cdc.gov/weat/#/crossTabulation/selectYear>