THE
IMMUNIZATION
PARTNERSHIP

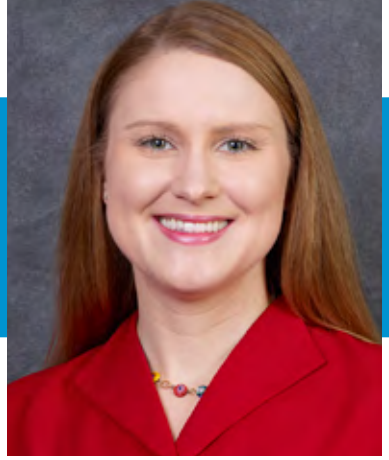
Report on the State of the State

December 2018

Texans Unite to Protect:

Working Together to Eliminate Vaccine-Preventable Diseases

Letter from the Leadership



Greetings from The Immunization Partnership

It is an honor to present our biennial report on the state of immunizations in Texas. The Immunization Partnership created six such reports in the past decade to make our communities safer and better protected from vaccine-preventable diseases. On behalf of our Board of Directors and staff, I would like to thank all of our donors, supporters, and individuals who contributed to this important report.

"Texans Unite to Protect: Working Together to Eliminate Vaccine-Preventable Diseases" is the product of months-long research, incorporating feedback from hundreds of community members and immunization stakeholders across the Lone Star State. We asked: What is Texas doing well? What more can be done to keep our communities safe from vaccine-preventable diseases? The data we collected were combined with information and statistics from state and national government agencies, peer-reviewed studies, and other evidence-based sources to provide a snapshot of how we're doing when it comes to immunization -- and perhaps more importantly, identifying the next steps to maintaining high vaccination rates and preventing vaccine-preventable diseases in our state.

The vast majority of Texas families vaccinate their children. It was not always that way, and we have made huge strides to get here. We celebrate those successes. However, as more parents choose to forgo vaccines for their children due to fear or misinformation and adults fail to vaccinate themselves, we are at risk of losing the progress we've made and falling short of keeping these dangerous diseases at bay. Indeed, as you will see in this report, that is already starting to happen.

The priorities outlined in this report illustrate where we have the most opportunities to improve. In addition to combatting vaccine hesitancy, too many people -- especially uninsured adults -- lack access to vaccines. When they are vaccinated, their records are not always stored in the statewide immunization registry, which can make it difficult to provide prompt and adequate care in the wake of a disease outbreak or natural disaster like Hurricane Harvey. Vaccine-preventable diseases like flu and HPV-related cancers continue to take the lives of too many Texans, and emerging and neglected tropical diseases threaten to do the same.

While this report is a summary of how Texas is doing overall, we know our state is large and diverse. The challenges Gulf Coast residents face may not be the same as those experienced in West Texas, and the Panhandle has different needs than the Hill Country. That's why we've added new region-specific summaries to the report this year, so stakeholders in those areas can see what they're doing well, where they can do better, and how they compare to other areas around the state.

We could not have accomplished this important project without the enthusiastic support of immunization stakeholders and our community. From the vocal community advocates of Immunize Texas to the commitment of policymakers and public health and medical professionals throughout Texas: Thank you for all that you do to prevent what's preventable.

Now, let's get to work.

Sincerely,

Allison N. Winnike

Allison Winnike
President and Chief Executive Officer
The Immunization Partnership

About Us

The Immunization Partnership's (TIP) vision is a community protected from vaccine-preventable diseases. We aim to fulfill this vision through our mission to eradicate vaccine-preventable diseases by educating the community, advocating for evidence-based public policy, and supporting immunization best practices. Together, these three areas address both the root causes of low immunization rates and the far-reaching policy issues that influence immunization rates in Texas. Our projects and programs are developed in concert with achieving the organization's mission. For more information, please visit **www.immunizeusa.org**.

Purpose of this Publication

In order to provide a roadmap for immunization stakeholders to improve and maintain high vaccination rates, The Immunization Partnership conducted surveys and town hall meetings to understand the challenges and opportunities experienced by immunization stakeholders throughout the state.

The primary purpose of this research was to:

- Identify gaps to combating vaccine-preventable diseases in Texas regarding laws and policy, education and outreach, and areas in need of further data or research.

The secondary objectives were to:

- Assess the immunization knowledge, attitudes, and beliefs of community members, clinicians and their medical teams, public health professionals, and other immunization stakeholders.
- Examine current utilization of evidence-based interventions to improve immunization rates in the community and health care settings.

Acknowledgments



THE IMMUNIZATION PARTNERSHIP

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The research for and writing of this publication was a collective effort that involved a wide network of individuals and institutions. The Immunization Partnership (TIP) would like to thank the local champions and partners who assisted with the planning and implementation of the 2018 stakeholder meetings and distribution of the surveys. TIP truly appreciates the following:

- Andrews County Immunization Coalition
- Angelina County & Cities Health District
- Beaumont Public Health Department
- City of Amarillo Health Department
- City of Laredo Health Department
- El Paso Immunization Coalition
- Gregg County Vaccine Awareness Coalition
- Immunization Coalition of Greater Houston
- Immunization Collaboration of Tarrant County
- Immunize El Paso
- Immunize San Antonio
- Methodist Healthcare Ministries of South Texas, Inc.
- Northeast Texas Immunization Coalition
- South Texas Immunization Coalition
- South Plains Immunization Network
- University of Texas Health Science Center at Houston, Cizik School of Nursing

TIP also wishes to thank Adjuvant Media LLC, Frontera Strategy, and Nidhi Nakra for their insights, knowledge, and time throughout the projects described in this report.

A SNAPSHOT OF THE STATE

Non-medical exemptions for school vaccine requirements in Texas are

25 times

higher than they were in 2003.

Nearly **12,000**

Texans died from flu and pneumonia during the 2017–2018 flu season.

More than

5.7 million

Texans live in health professional shortage areas (HPSAs) for primary care.

1 in 6

Texas public independent school districts have measles vaccination rates below the herd immunity threshold.

56.9%

of parents surveyed said taking time off work was the biggest barrier to getting their kids vaccinated.

9 in 10

parents surveyed agreed that all public school children should have their required vaccines before attending school.

99%

of parents surveyed agreed that vaccines keep children healthy by protecting them from different kinds of diseases.

1,273

Texans died of HPV-associated cancers in 2015.

An estimated

36,977

Texans are currently infected with chagas disease.

" Vaccines save lives; fear endangers them. It's a simple message that parents need to keep hearing."

— Jeffrey Kluger

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Background

When Edward Jenner created the first vaccine in 1796, it is unlikely he understood the impact his discovery would have on humanity. Access to safe and effective vaccines has monumentally changed our ability to fight disease and protect our children. Diseases that once killed thousands of people per year are now rare in the United States, and widespread vaccination has led to more than a 99 percent drop in dangerous infections like diphtheria, measles, and rubella in Texas.[1]

Figure 1. Comparison of Highest Vaccine-Preventable Disease Case Counts and 2015 Case Counts, Texas

Disease	Highest Case Count during 20th Century	2015 Case Count	Percent Decrease
Congenital Rubella Syndrome	12 (1974)	0*	100%
Diphtheria	1,544 (1946)	0*	100%
Haemophilus influenzae type b, invasive	843 (1988)	11	98.7%
Hepatitis A	4,892 (1973)	147	97%
Hepatitis B, acute	1,960 (1998)	159	91.9%
Measles	88,000 (1958)	1	>99.9%
Meningococcal disease, invasive	356 (1951)	30	91.6%
Mumps	32,939 (1950)	20	>99.9%
Pertussis	21,588 (1947)	1,504	93%
Pneumococcal disease, invasive**	1,952 (2009)	1,693	13.3%
Polio (paralytic)	2,778 (1950)	0*	100%
Rubella	8,408 (1970)	2	>99.9%
Tetanus	55 (1954)	2	96.4%
Varicella	26,888 (1997)	1,491*	94.5%

** Historic low or tied for lowest annual case count.*
***Reporting for invasive Pneumococcal disease began in 2003.*

Source: Texas Department of State Health Services, 2018[1]

It is no surprise then that the overwhelming majority of parents choose to vaccinate their kids. More than 96 percent of Texas kindergartens received school-required vaccines during the 2017-2018 school year, and two-thirds of toddlers are up-to-date on most recommended vaccines by age 3 years.[2,3]

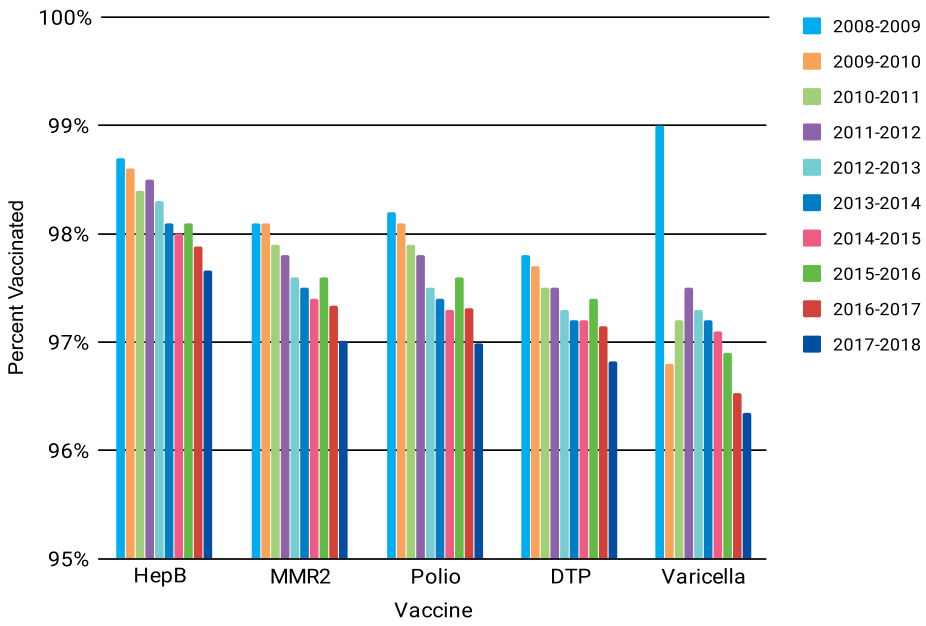
High vaccination rates resulted in a steep drop in once-rampant infections like varicella (chickenpox). While many adults may remember chickenpox as an unpleasant rite of passage, the varicella virus can be dangerous — even deadly. Prior to the release of the vaccine, an estimated 11,000 people were hospitalized every year because of the chickenpox virus, and more than 100 people died annually.[4]

As recently as 1997, Texas had a record 26,888 cases of chickenpox statewide, according to the Texas Department of State Health Services (DSHS). Following the release of the varicella vaccine and subsequent school vaccination requirement, that number plummeted by more than 94 percent in just two decades.[1,5] For the first time in modern history, an entire generation of kids is growing up never having experienced chickenpox.

But, all that could change. While statewide vaccination coverage remains high, the percentage of kindergartners being opted out of the chickenpox school vaccine requirement for non-medical reasons has nearly tripled since 2009.[6] Many of those exemptions are concentrated in neighborhoods and communities throughout the state where the vaccination rates are far below levels needed to keep diseases from spreading. If this trend continues, it threatens to undo the hard-fought progress made over the last 75 years, and diseases like chickenpox could once again become commonplace.

Background

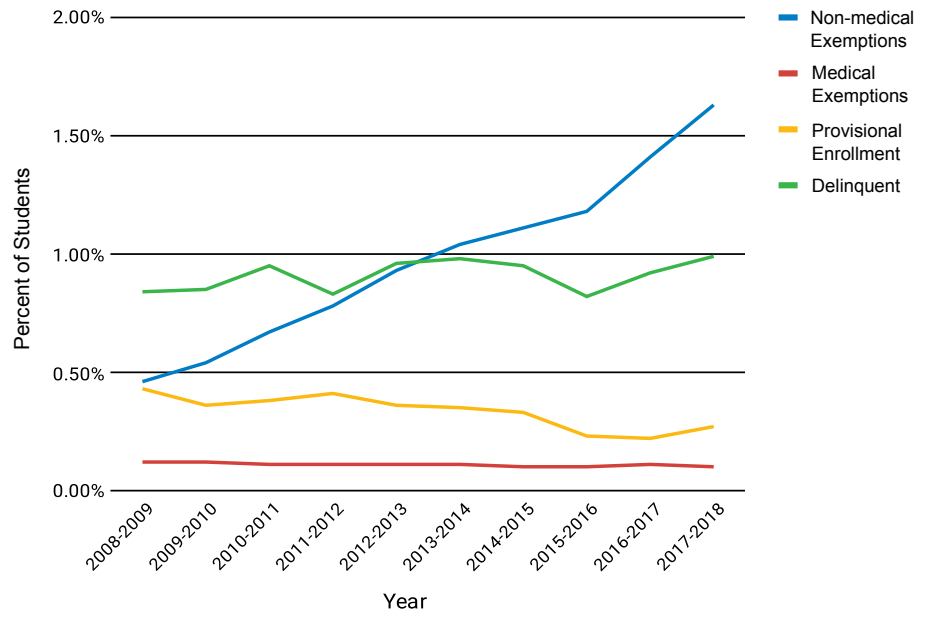
Figure 2. Vaccination Rates Among Texas Kindergartners, 2008-2018



Source: Texas Department of State Health Services, Annual Report of Immunization Status, 2008-2018[6]

Vaccination rates have been steadily declining among Texas kindergartners for the past decade, while the rate of non-medical exemptions has tripled.

Figure 3. Percent of Texas Kindergartners Without Two Doses of Measles-Containing Vaccines On File, 2008-2018



Source: Texas Department of State Health Services, Annual Report of Immunization Status, 2008-2018[6]

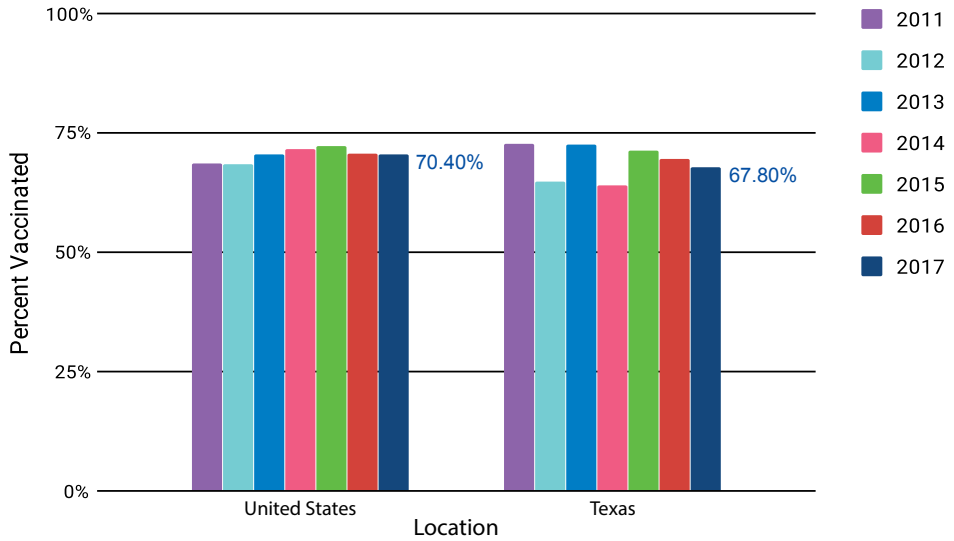
More than 86,000 cases of vaccine-preventable diseases were reported from 2007 to 2017 in Texas, including at least 1,248 deaths.[7,8] This does not even include the tens of thousands of cases of flu and HPV-associated cancers that occurred during that time frame. An estimated 8,400+ Texans died from flu or pneumonia during the 2015-2016 flu season alone.[10] And according to a June 2018 report by the Texas Cancer Registry, 15,353 Texans were diagnosed with HPV-associated cancers between 2011 and 2015.[11] Many of these cases could have been prevented with high vaccination rates across the age spectrum.

Texans have made significant progress in the fight against preventable diseases. To continue that progress, the state must halt the decline of early childhood vaccination rates and increase coverage in teens and adults.

Our state also has an opportunity to lead in a new era of vaccine-preventable diseases. Emerging and neglected tropical infections affect more than half the world's population — including many Texans. With world-class research facilities and academic institutions, Texas could be at the forefront of eliminating some of the globe's most dangerous diseases.

Immunization Coverage in Texas

Figure 4. Combined 7-Vaccine Series for Children 19 to 35 Months, United States and Texas, 2011-2017



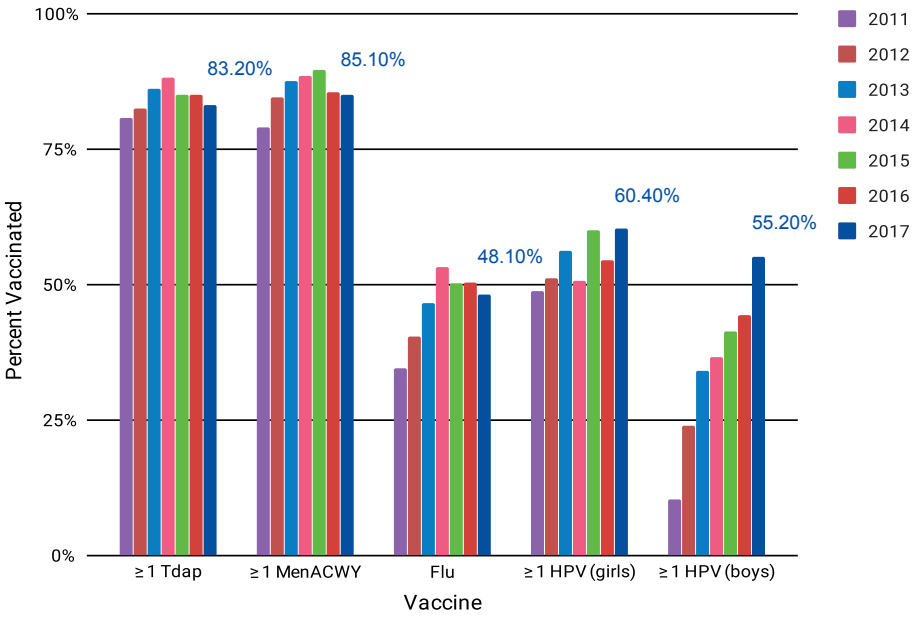
Source: Centers for Disease Control and Prevention, ChildVaxView[3]

About two-thirds of Texas toddlers are up-to-date on most recommended vaccines by age 3.

Background

Texas vaccination rates for the Tdap (tetanus, diphtheria, and pertussis) and meningococcal vaccines are above the Healthy People 2020 objectives of 80 percent.[12,13] Rates for flu and HPV vaccination coverage, however, lag behind.

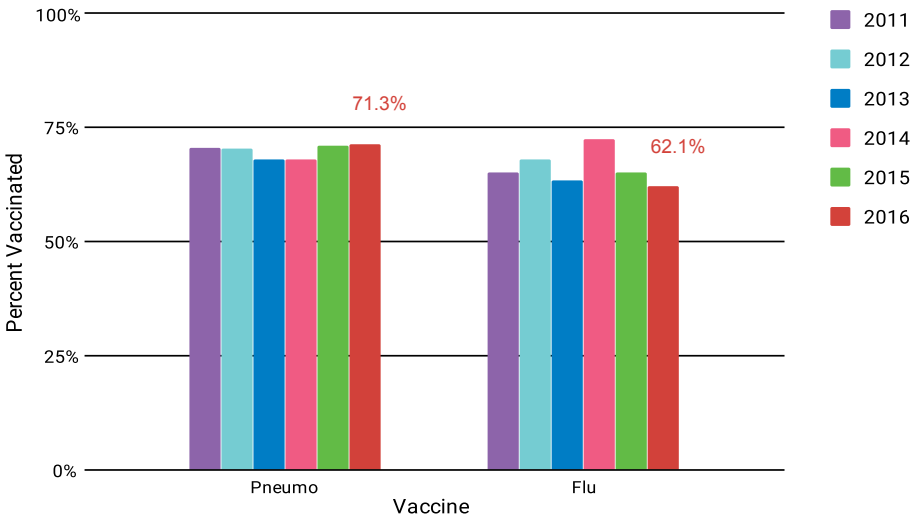
Figure 5. Adolescent Vaccination Rates for 13-17 Year Olds in Texas, 2011-2017



Source: Centers for Disease Control and Prevention, TeenVaxView[12]
Centers for Disease Control and Prevention, FluVaxView[15]

Despite pneumonia and influenza being leading causes of death in the United States, Texas vaccination rates for these two conditions remain below the Healthy People 2020 objectives of 90 and 70 percent respectively.[9,13,14,15]

Figure 6. Adult Vaccination Rates for Texans 65+ Years Old, 2011-2016



Source: Centers for Disease Control and Prevention, AdultVaxView[14]
Centers for Disease Control and Prevention, FluVaxView[15]

PRIORITIES

- Overcome Barriers to Immunization and Access to Care
- Prevent HPV-Related Cancers by Increasing HPV Vaccination Coverage Among Texas Adolescents
- Protect and Strengthen School Immunization Requirements
- Address Vaccine Hesitancy and Vaccine Refusal
- Improve the Quality and Efficiency of the Texas Immunization Registry, ImmTrac2
- Forge New Ground in the Fight Against Emerging and Neglected Tropical Diseases

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Immunization Priorities

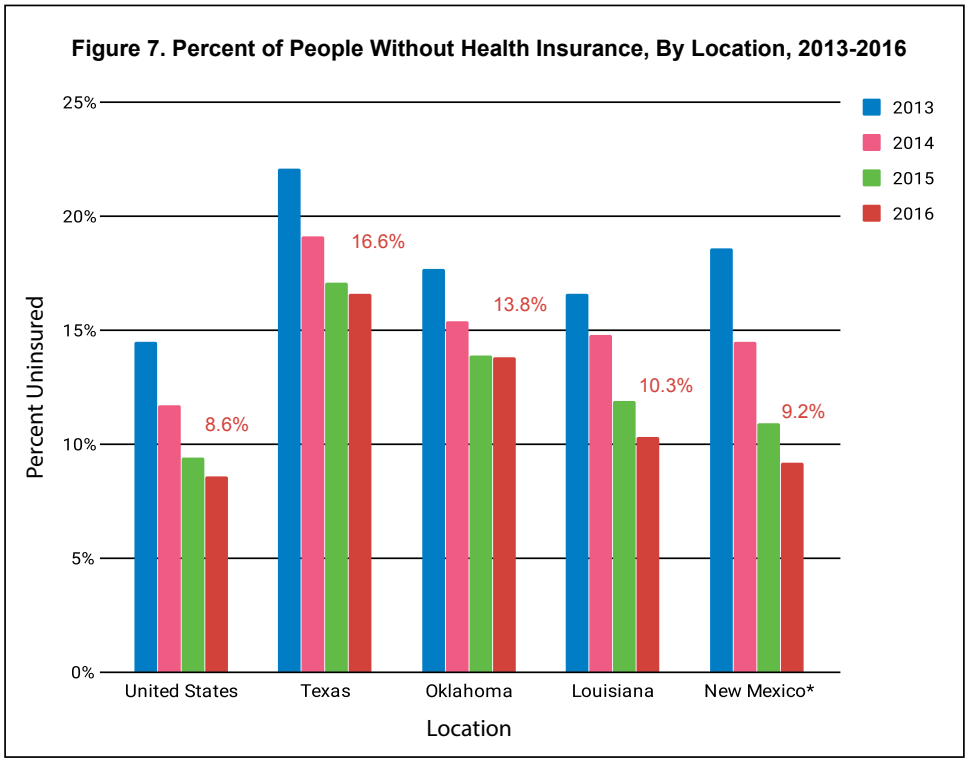


Overcome Barriers to Immunization and Access to Care

Highlights

- Texas has the highest rate of uninsured people in the country, and nearly one in five Texas families live in poverty.
- Texans often have to drive long distances to find an immunization provider, even when they have health insurance. This is a common barrier for rural communities.
- Parents surveyed said taking time off work was the biggest barrier to getting their kids vaccinated.
- Stakeholders identified misinformation about vaccines among families and state laws that allow non-medical exemptions for school vaccine requirements as the two most important barriers to maintaining high vaccination rates.

In Texas you can get a 72-ounce steak, a 10-gallon hat, and a 3-pound homecoming mum. The state has more land area than France, and more people than Australia.[16,17,18] It takes 12 hours to drive from Beaumont to El Paso or from Amarillo to Brownsville. What is not bigger in Texas is access to health care.



**Expanded Medicaid following the Affordable Care Act*
Source: U.S. Census Bureau, 2016[20]

Roughly 1 in 6 Texans lacked health insurance in 2016, compared to about 1 in 12 nationwide.

High Numbers of Poor and Uninsured (or Underinsured) Families

Nearly one in five Texas families live below the federal poverty level, and roughly 1 in 6 Texans did not have health insurance in 2016.[19,20] According to stakeholders, these are two of the biggest issues when it comes to maintaining high rates vaccination in Texas, especially for adult populations. The out-of-pocket cost of vaccines can be too high for low-income individuals, and those with insurance sometimes have difficulty paying their plan's co-pay.

Immunization Priorities

Poor families face many obstacles when it comes to vaccinating their kids. Taking time off work to bring their children into the clinic can mean lost wages. Not having access to transportation can make it harder to get to the clinic at all. Vaccination coverage rates for Texas toddlers were 9 percentage points lower in 2017 for those living below the federal poverty level, compared to those living at or above it (61.3 percent and 70.6 percent respectively).[21]

Two programs exist to help uninsured individuals in Texas access vaccines: Vaccines for Children (VFC) and the Adult Safety Net program (ASN). VFC provides vaccines at no cost to health care providers so that they can then administer them to children under 18 who do not have insurance, are on Medicaid or the Children's Health Insurance Program (CHIP), or who are otherwise unable to pay. The providers can charge uninsured patients a small fee (about $15 per dose) to administer the vaccines, but if a family cannot pay, providers are not supposed to turn them away. As a result, the program allows over 4 million kids to get vaccinated, according to the state health department.[22]

Uninsured adults can get access to vaccines through the ASN. Like VFC, ASN providers get their vaccine supply from the state and are allowed to charge a small administrative fee (no more than $25 per dose). While they are not supposed to turn people away if they cannot pay, some stakeholders in the town hall meetings said that not being able to pay the administration fee was a barrier for some adults in Texas. The program is also much smaller than VFC. Not all routinely recommended vaccines for adults are available through the program, including the flu vaccine. Underinsured adults — that is, those unable to afford their insurance co-pay or whose plans do not cover vaccines — do not qualify for the program.[22]

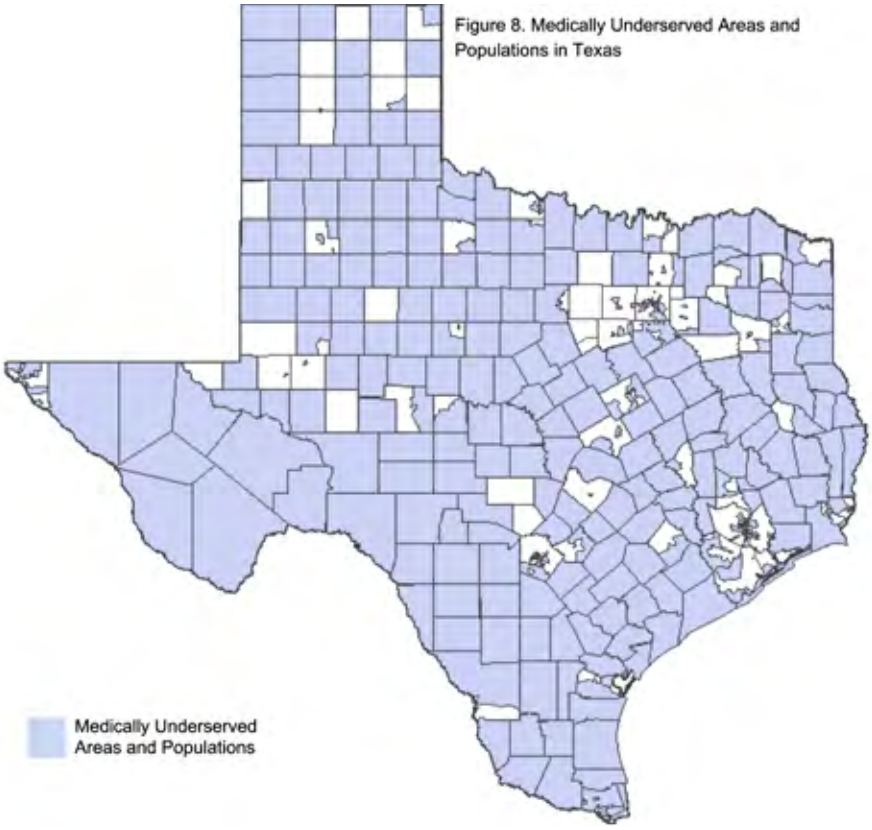
Shortage of Health Care Providers

Even when Texans do have health insurance or qualify for VFC or ASN, they often have a difficult time finding an immunization provider, especially in rural areas. Stakeholders participating in the survey and town hall meetings shared examples of when patients were turned away from nearby health care providers because they did not accept their insurance or participate in ASN or VFC. As a result, these individuals had to drive long distances to find a health care provider, or forgo vaccines altogether because they lacked access to transportation.

A huge portion of the state's population lives in communities where there are not enough health care providers. More than 5.7 million Texans live in health professional shortage areas (HPSAs) for primary care, meaning they have less than one provider for every 3,000 to 3,500 people.[23] While these areas are primarily found in rural parts of the state — especially along the Rio Grande — large cities are not exempt. Even metropolitan areas around Dallas, Houston, and San Antonio have populations designated as medically underserved because they do not have enough primary care health services to meet the needs of the community.[24]

"Client's that have health insurance cannot receive vaccines at the public health department with Adult Safety Net vaccines, but insurances may have high deductibles that client can't meet, doesn't cover vaccines or their provider doesn't carry vaccines. If local & regional Health departments are having such a large problem with vaccine loss; why not be able to administer vaccine to broader group of clients?"

— LVN in Kingsville



Source: U.S. Department of Health and Human Services, Health Resources and Services Administration[24]

Immunization Priorities

Co54Priorities

"You're not going to give them a vaccination at the same time they're going in for that acute treatment. And it's not money that they've got. They need to fix their problem or take care of their children. They're not worried about getting their flu shot or their pneumonia shot."

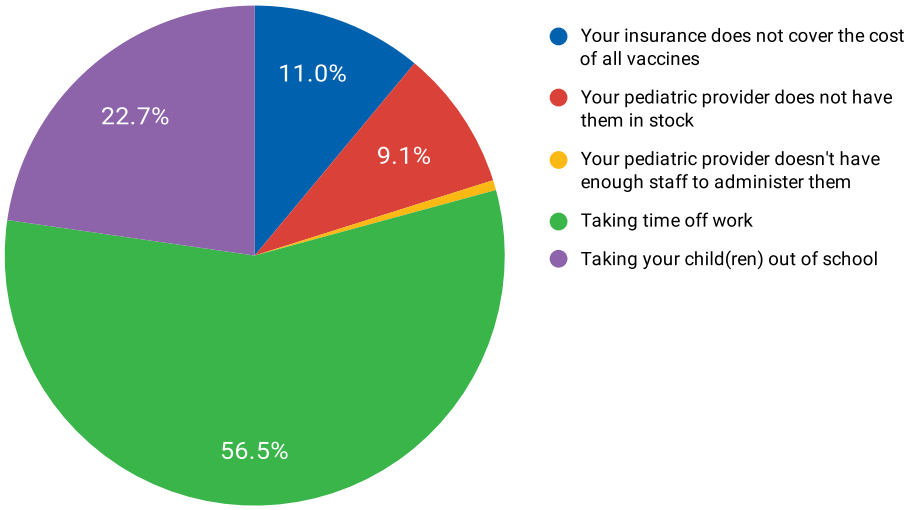
— Stakeholder in Beaumont

Adults who visit a health care provider typically go because of an illness or injury. Stakeholders say those acute issues tend to take priority over preventive health measures like vaccines. Many adults rely on their doctors to tell them what vaccines they need and when, but after going through the physical exam, treatment plan, and patient questions, health care providers often do not have enough time to talk about immunization. Without a recommendation, adult patients are less likely to get vaccinated.[25]

Competing priorities are particularly challenging for busy families juggling work, school, and active schedules. Parents overwhelmingly cited taking time off work when asked what the biggest barrier was to getting their children vaccinated. This barrier appeared to be greatest for vaccines that were not required for school, such as the flu vaccine, where parents in the survey indicated they found it hard to find time to bring their kids into the clinic to get vaccinated.

Parents surveyed said taking time off work was the biggest barrier to vaccinating children.

Figure 9. What is the biggest barrier in having your child(ren) vaccinated?



Source: The Immunization Partnership Community Survey, 2018

"I did not manage to get either of my kids' flu shots this season simply because it was terribly inconvenient, and we just failed to make it happen. I kept meaning to find time for the appointments, but being a busy family with two full-time working parents we somehow managed to let the whole season go by without getting the kids vaccinated. Ironically, I was vaccinated though, since every year my work schedules a day to offer flu vaccines in the office."

— Parent of two in Austin

Misinformation or Lack of Knowledge About Vaccines

Since 2012, The Immunization Partnership has asked stakeholders in its biennial surveys what they thought were the biggest barriers to immunization in Texas. "Misinformation or lack of knowledge about vaccines among families" was identified as the most important barrier every survey. A whopping 96 percent of stakeholders surveyed in 2018 said it was either "important" or "very important" to maintaining high immunization rates.

The vast majority of parents surveyed appeared to have high confidence in the benefits of vaccines. More than 91 percent of community survey respondents said they agreed strongly that vaccines keep kids healthy by protecting them from disease, and 95 percent said that vaccines prevent illnesses that are serious and possibly severe. Not a single respondent said they disagreed with those statements. But, when asked if they thought vaccines were safe, well-tested, and beneficial, respondents were slightly less confident; about 77 percent said they strongly agreed.

More than 91 percent of community survey respondents said they agreed strongly that vaccines keep kids healthy by protecting them from disease, yet only about 77 percent said they agreed strongly that vaccines were safe, well-tested, and beneficial.

Research has shown a little over a quarter of families choose to delay vaccines, and about 15 percent refuse at least one vaccine for their child. How confident a parent is in the benefits and safety of vaccination is closely linked to that decision. Those who postpone or forgo vaccines are significantly more likely to believe that vaccines are harmful, and less likely to trust their child's health care provider.[26]

The lack of confidence and knowledge is not limited to parents of young children. Stakeholders in the town hall meetings said many adults do not realize that vaccines are recommended beyond childhood. If they do, they do not think of them as beneficial or life-saving enough to make them a priority. These beliefs might explain the low vaccination coverage levels among younger adults. Despite recommendations that everyone over the age of six months get the flu vaccine every year, less than 25 percent of adults aged 18 to 49 years were vaccinated during the 2017-2018 flu season.[27]

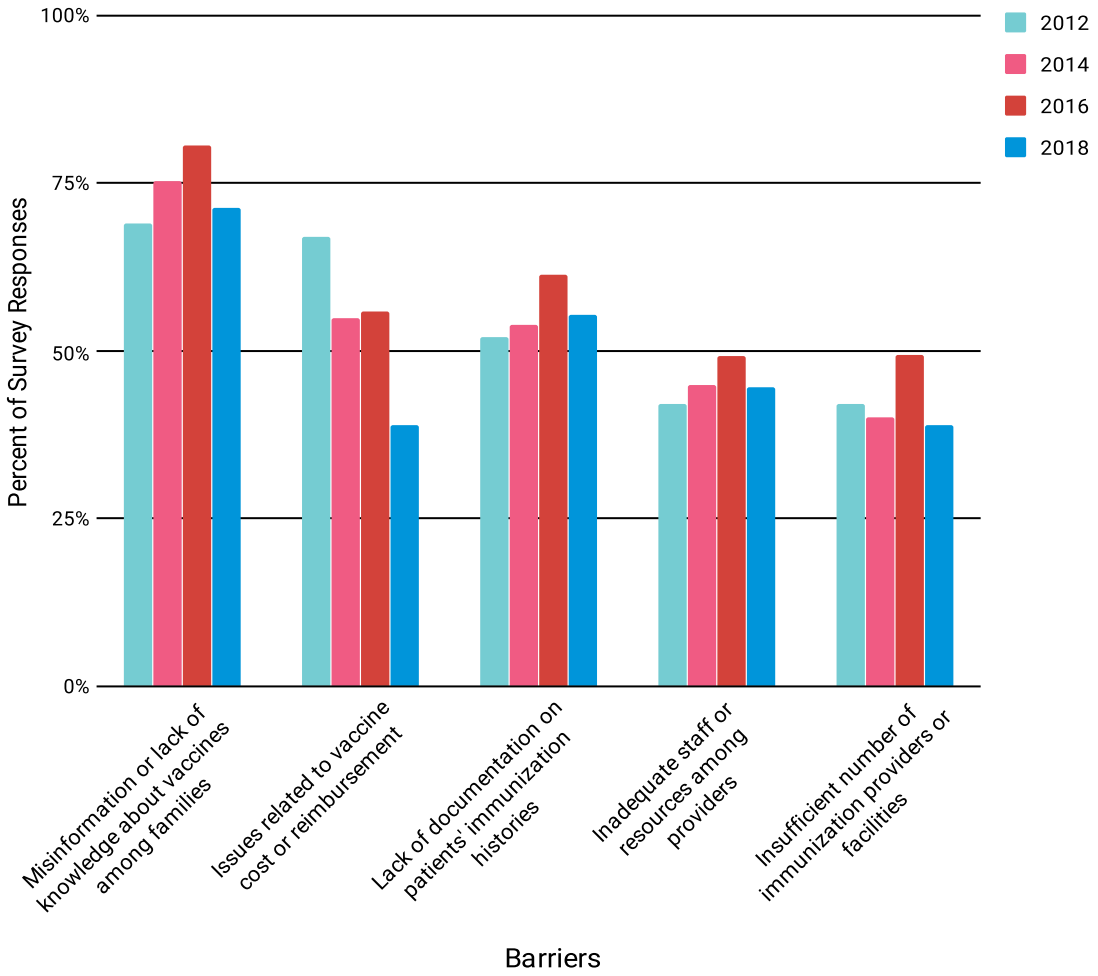
"We need to make sure. When we do immunization promotion, it's from cradle to grave. 'You've got to get vaccinated.' That's our message, because adults seem to forget."

— Stakeholder in Laredo

Immunization Priorities

Since 2012, stakeholders have consistently identified misinformation or lack of information about vaccines as the most important barrier to immunization in Texas.

Figure 10. Very Important Barriers to Maintaining High Immunization Rates, According to Stakeholder Survey Respondents, 2012 - 2018



Note: Wording for this survey question changed in 2016. It previously asked about barriers to "increasing immunization rates" and was changed to ask about barriers to "maintaining high immunization rates."

Source: The Immunization Partnership Biennial Stakeholder Survey, 2012-2018

Recommendations

Expand access to the Adult Safety Net (ASN) program to include underinsured adults. A chief concern expressed by stakeholders in the town hall meetings was that the ASN program — while hugely beneficial — falls short of providing enough support to those who need it. About 21 percent of Texas adults between the ages of 19 and 64 (more than 3.3 million people) were uninsured in 2016, but this group is not the only one who has difficulty accessing vaccines.[28] Another 33 percent were underinsured, meaning they cannot afford the deductibles and out-of-pocket costs associated with their insurance plans.[29]

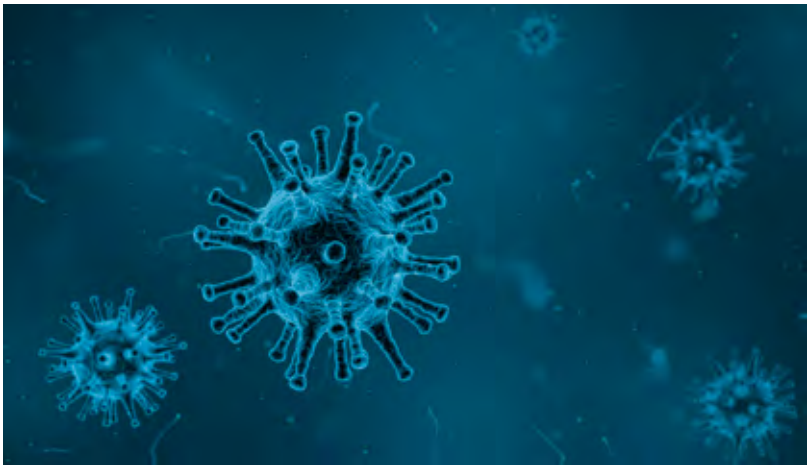
The Affordable Care Act requires insurance plans to cover the costs of preventive care services (including vaccines) at no cost to the patient, but plans can limit where patients can access the services in order to be covered.[30] Not all health care providers offer the full range of recommended vaccines for adults, so many insured Texans have to go to an out-of-network provider, such as a pharmacy or health department, to get vaccinated, and that can mean paying out-of-pocket costs they cannot afford. But because these adults technically have insurance, they are not eligible to receive vaccines through the ASN program.

Stakeholders at the town hall meetings recommended the ASN program be opened up to these underinsured patients to meet the need they see in their own communities. One stakeholder in Lufkin shared a story of having 100 doses of ASN vaccine expire at their clinic — not for lack of need, but because their underinsured patients did not qualify to receive them. As such, the program's constrictions create inefficiencies, leading to poor stewardship of the state's resources. Allowing ASN providers to administer vaccines to all patients who cannot afford them (not just the uninsured) would lead to more adults being vaccinated and, at the same time, better protect the state's financial resources.

Include all routinely recommended adult vaccines in the Adult Safety Net program, including influenza vaccine. Most adult vaccines are available through the ASN program, but many stakeholders expressed concern that one vaccine, in particular, was not: influenza. Flu kills more people in Texas than all other vaccine-preventable diseases combined.[31] Nearly 12,000 Texans died from pneumonia and influenza during the 2017-2018 flu season — most of whom were adults — but the flu vaccine is not currently available through the ASN program.[32,33] Given the risk posed by flu, stakeholders said they would like to see the vaccine added to the ASN formulary.

Immunization Priorities

Nearly 12,000 Texans died from pneumonia and influenza during the 2017-2018 flu season — most of whom were adults — but the flu vaccine is not currently available through the ASN program.



Stakeholders also requested the polio vaccine be added to ASN, especially to vaccinate new immigrants who might not have received the vaccine in their home country. According to the U.S. Census Bureau, one in six Texans was not born in the United States.[34] Global vaccination coverage against polio is high — about 85 percent in young children — but stakeholders say some adult immigrants either were never vaccinated against the disease or have lost their vaccination records and need the vaccine to maintain their immigration status or become a permanent resident.[35,36] Adding polio to the list of vaccines available through ASN could help ensure uninsured immigrants in Texas stay up-to-date on all recommended vaccines.

Explore options to expand Adult Safety Net program provider eligibility, especially in rural areas. Currently, the ASN program is only open to public health department clinics, federally qualified health centers, and rural health clinics.[22] But stakeholders in town hall meetings said these types of facilities are few and far between, especially in rural areas.

Expanding the program to enroll different types of health care facilities serving adult patients could help improve lagging vaccination coverage rates among Texas adults. Opening up the program to OB-GYNs, for example, could help vaccinate more women against pertussis (whooping cough). STI clinics could provide younger adults with the HPV vaccine. And pharmacies, with their longer hours and greater availability in remote areas, could capture those uninsured adults who otherwise would not be able to access a health care provider.

That said, stakeholders cautioned that there are many providers already eligible for ASN who do not know about the program. If the eligibility requirements were expanded, it would be important to recruit and educate providers about what ASN is and why it would be beneficial for their patient populations.

"My oldest child's school also has a clinic with vaccination available which is extremely convenient as a parent "

— Parent of three in Galveston

Utilize non-traditional and multi-disciplinary approaches to vaccination. Some stakeholders said they have had to get creative when it comes to improving immunization coverage in their communities — often traveling to remote areas, hosting special events, or partnering with area clinics. Meeting people where they are helps to reduce the barriers associated with immunization. Some parents said in the community survey, for example, that school-based and worksite vaccination programs made getting vaccinated much more convenient.

Many of the efforts mentioned by stakeholders and parents align with recommendations by the Community Preventive Services Task Force and have been shown to improve vaccination rates for a wide range of populations. Some of these evidence-based, non-traditional approaches include:

- Conducting home visits[37]
- Vaccinating in schools or child care centers[38]
- Offering worksite programs with free or reduced-price vaccinations[39,40]
- Providing client or family incentives for receiving a vaccination or returning to finish a vaccine series[41]

These efforts should be in addition to clinic-based initiatives, such as allowing for walk-in and immunization-only visits, reminding patients about upcoming doses and contacting patients who are overdue for vaccines, setting up routine alerts to remind providers to talk about vaccines with patients, and establishing standing orders to allow non-physicians to administer routinely recommended vaccines based on an approved protocol rather than individual prescriptions.

Prevent HPV-Related Cancers by Increasing HPV Vaccination Coverage among Texas Adolescents

Highlights

- HPV affects nearly everyone at some point in their lifetime. While most cases clear, some lead to cancer.
- Cancers linked to HPV kill roughly 1,200 men and women every year in Texas alone.
- No effective screening tool exists for most HPV-associated cancers. Vaccination is the most effective way to prevent them.
- Despite a safe and effective vaccine available, only about half of Texas teens have been vaccinated against HPV.

The Human Papillomavirus (HPV) is a cancer-causing virus that affects nearly everyone in their lifetime. Roughly 80 million people are currently infected with HPV in the United States — many of whom have no idea they are infected. The majority of those cases will clear up without issue, but tens of thousands will likely go on to become cancer.[42]

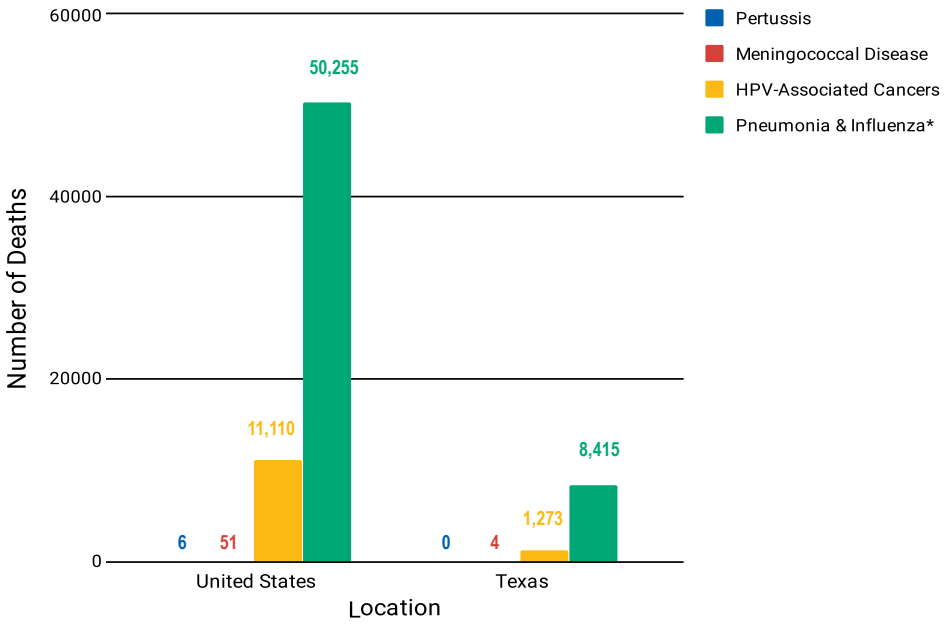
HPV Causes Cancer

With the exception of influenza and pneumonia, no other vaccine-preventable disease causes more death and devastation in Texas than cancer-causing HPV. More than 1,200 people die every year in Texas from cancers linked to HPV, and most of those deaths are due to cervical cancer and oropharyngeal cancer (at the base of the tongue and tonsils).[44]

Texas has one of the highest cervical cancer rates in the country, and despite effective screening methods (such as pap smears) to catch cases in the early stages, nearly 400 Texas women died from the disease in 2015 alone.[43,44] HPV-related cancer rates are particularly high along the Rio Grande Valley, though major metropolitan areas around Houston and Dallas are not immune.[45]

Oropharyngeal cancers are even more common. An estimated 2,793 cases in Texas were linked to HPV in 2015, resulting in nearly 700 deaths in both men and women.[44] Unlike cervical cancer, there is no effective screening method to catch oropharyngeal cancer cases early, making preventing HPV infections altogether that much more important.

Figure 11. Estimated Deaths from Select Vaccine-Preventable Diseases in 2015



Sources:
Centers for Disease Control and Prevention, 2015 Final Pertussis Surveillance Report[46]
Centers for Disease Control and Prevention, Enhanced Meningococcal Disease Surveillance Report, 2015[47]
Texas Department of State Health Services, Vaccine Preventable Diseases[48]
Texas Department of State Health Services, Texas Influenza Summary Report, 2015-2016 Influenza Season[49]
The University of Texas MD Anderson Cancer Center, HPV Fact Sheet[44]
Centers for Disease Control and Prevention, FluView[50]

**Pneumonia and Flu statistics are from the 2015-2016 flu season.*

Figure 12. Estimated HPV-Associated Cancers in the United States and Texas

Cancer Statistics	In United States, 2017		In Texas, 2015	
Cancer Type	**New Cases**	**Deaths**	**New Cases**	**Deaths**
Oropharyngeal (Throat/Tonsil)*	17,000	3,050	2,793	694
Cervical (Cervix Uteri)**	12,820	4,210	1,112	390
Vulvar (Vulva)**	6,020	1,150	280	54
Vagina**	4,810	1,240	88	30
Anus, Anal Canal and Anorectum**	8,200	1,100	431	73
Penile**	2,120	360	117	32
Total Estimated Cancer Deaths	**11,110**		**1,273**	

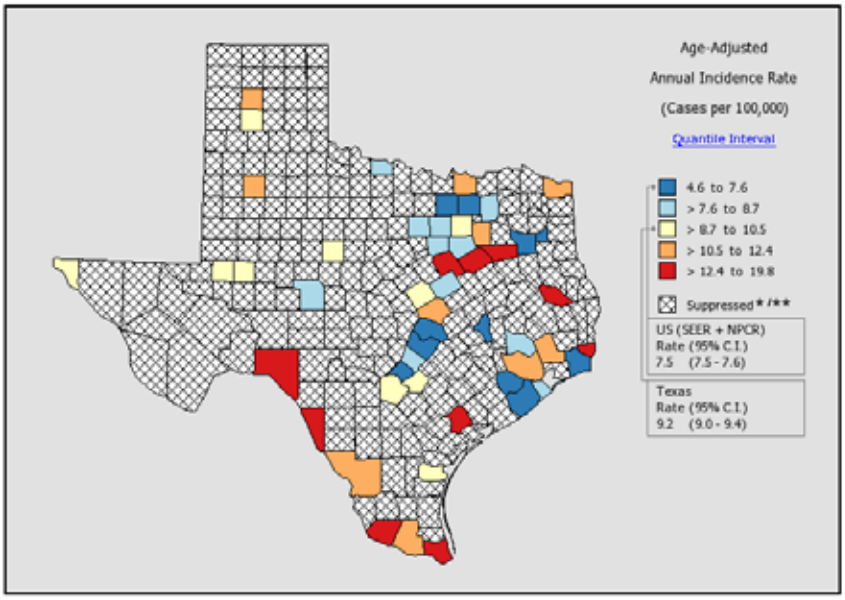
**Estimated number of cases occurring at HPV-related subsites of the pharynx (base of tongue and tonsil/oropharynx)*

***In general, HPV is thought to be responsible for more than 90% of anal and cervical cancers, about 70% of vaginal vulva and oropharyngeal cancers, and more than 60% of penile cancers. http://www.cdc.gov/cancer/hpv/statistics/.*

Source: This table was originally created by the University of Texas MD Anderson Cancer Center for its HPV Fact Sheet.[44]

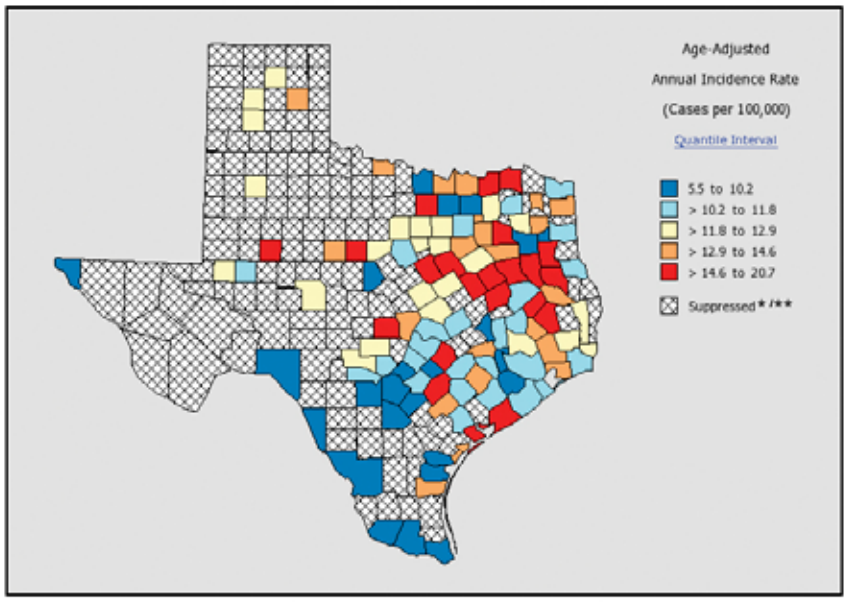
Rates for HPV-related cancers like cervical cancer are particularly high along the Rio Grande Valley, though major metropolitan areas around Houston and Dallas are not immune.

Figure 13. Incidence Rates for Cervical Cancer in Texas, 2011-2015



Source: National Cancer Institute, State Cancer Profiles[45]

Figure 14. Incidence Rates for Oral Cavity and Pharnyx Cancer in Texas, 2011-2015



Notes: Incidence rates (cases per 100,000 population per year) are age-adjusted to the 2000 U.S. standard population (19 age groups: <1, 1-4, 5-9..., 80-84, 85+). Rates are for invasive cancer only. Data have been suppressed to ensure confidentiality and stability of rate estimates. Data is currently being suppressed if there are fewer than 16 counts for the time period.

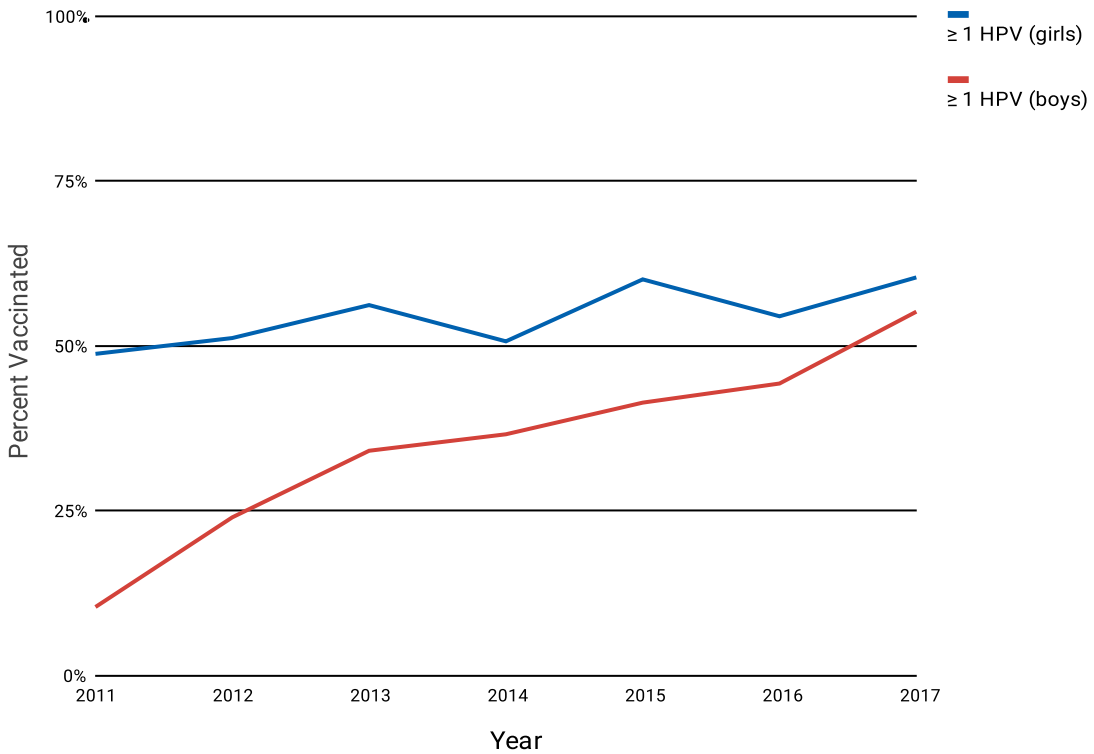
Source: National Cancer Institute, State Cancer Profiles[45]

Vaccination Is the Most Effective Way to Prevent Cancers Caused by HPV

Because the overwhelming majority of people with HPV infection have no symptoms at all, many do not even realize they have the virus and continue to spread it through various types of sexual activity. Even condoms do not fully protect partners from transmitting HPV, as it can be spread through skin-to-skin contact. The most effective way to prevent an infection is through vaccination.

The HPV vaccine prevents the seven subtypes of HPV most likely to cause cancer, as well as two types that cause nearly all genital warts. The vaccine is recommended by the Centers for Disease Control and Prevention (CDC) for all adolescents (with very few exceptions) at age 11-12, but only about 40 percent of Texas teens had been fully vaccinated against HPV in 2017 and fewer than 60 percent got at least one dose.[51,52]

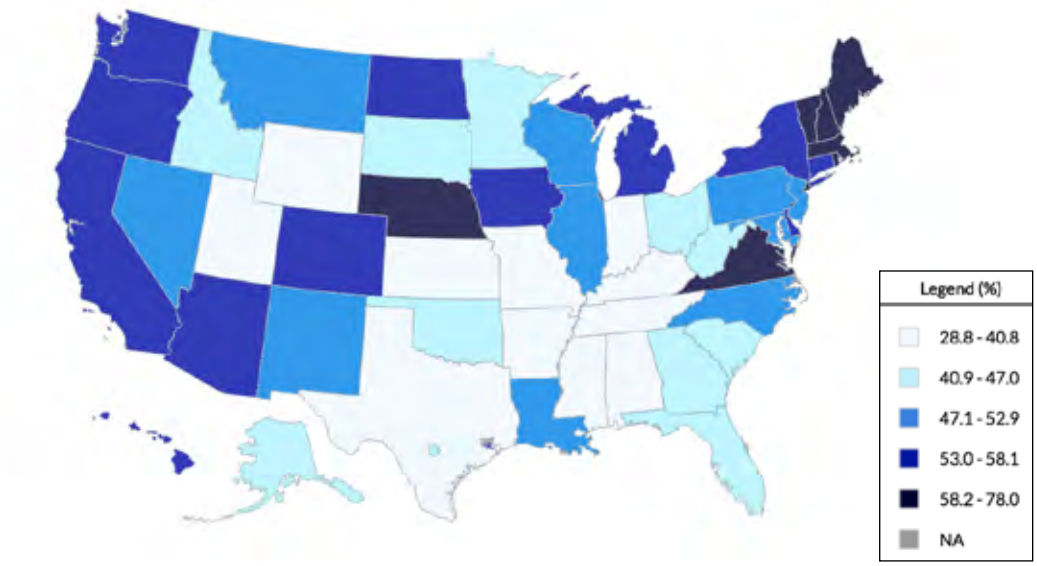
Figure 15. Texas Teens (13-17 Year Olds) Who Received at Least One Dose of HPV Vaccine, 2011-2017



Source: Centers for Disease Control and Prevention, TeenVaxView[12]

Figure 16. HPV Vaccination Up-to-Date, Males and Females, Age 13-17 Years, Coverage for 2017

Only about two in five Texas teens were up to date with their HPV vaccination in 2017.



Source: Centers for Disease Control and Prevention, TeenVaxViews[51]

The HPV Vaccine Is Safe

The HPV vaccine has a stellar safety record, with several large-scale studies indicating that it is just as safe as other vaccines given to teens, including the meningitis vaccine. Roughly 29 million doses of the currently used HPV vaccine (Gardasil 9) have been distributed in the United States, and reports of severe side effects are extremely rare. Only about 3 percent of all (unverified) reports were classified as serious reactions.[59] The CDC investigates these reports but so far has not found any evidence that the vaccine causes serious injury, outside of allergic reactions.

The most common side effects of the vaccine are pain near the injection site (it can sting more than other vaccines), fever, headache, nausea, or soreness — similar to what you would see in any other vaccine given at almost any age.[59]

The HPV Vaccine Is Effective

Concerns about the vaccine's effectiveness are also unfounded. Studies show that the vaccine is highly effective at preventing the types of HPV most likely to cause cancer, and that the protection appears to last for at least 10 years.[53,54,55]

While it will still be a few years before a direct link can be made between HPV vaccination and a drop in cancer rates, researchers are already finding huge reductions in cancer precursors. One study in Denmark found that the risk for cervical neoplasia (a precursor to cervical cancer) dropped by up to 80 percent in women who got at least one dose of the HPV vaccine compared to those who were never vaccinated.[56] That is huge. And it is likely just the beginning. Countries with higher vaccination rates (above 50 percent) are already beginning to see the effects of herd immunity as HPV infections drop for everyone — not just those vaccinated. Current data out of Australia have researchers predicting the country will be able to totally eliminate cervical cancer by 2028.[57]

Recommendations

Educate Texas-based medical personnel on the importance of provider recommendation for HPV vaccination. Nearly all (96 percent) of parents responding to the community survey said they trusted doctors and nurses — more than any other source when it comes to vaccine information, including the CDC and local health departments. Research shows provider recommendations are hugely important when it comes to HPV vaccination. Even when things like race, income, insurance, and mother's age or education are taken into account, teens recommended the HPV vaccine by their health care provider are almost five times more likely to get at least one dose than those who did not receive a recommendation.[58]

Figure 17. Percentage of Community Survey Responses that Had Trust or High Trust in the Following Sources of Vaccine Information

Doctors & Nurses	95.93%
Centers for Disease Control and Prevention (CDC)	94.77%
Public Health Department	94.77%
Scientific journals and publications	92.44%
School Nurses	67.84%
National Public Radio (NPR) or Texas Public Radio	62.21%
Family & Friends	32.56%
Non-Profit Organizations	30.99%
Advocacy & Special Interest Groups	22.22%
News Websites	22.22%
Faith Community	8.24%
Social Media (Facebook, Instagram, Twitter, Youtube, chat, forums)	2.33%

Source: The Immunization Partnership Community Survey, 2018

Immunization Priorities

Teens recommended the HPV vaccine by their health care provider are almost five times more likely to get at least one dose than those who did not receive a recommendation.[58]

It is important to note that *offering* the vaccine is not the same as *recommending* it. Doctors and other medical personnel should include HPV vaccination as part of their routine adolescent care, being careful to recommend the HPV vaccine in the same way and on the same day as other vaccines given at age 11-12 like meningococcal and pertussis vaccines.

Providers should also shift the conversation away from HPV being a sexually transmitted infection and focus instead on its ability to protect against cancer. Many parents are uncomfortable talking about sex with their preteens or think it is unnecessary to vaccinate their child when they are not yet sexually active. Stakeholders said that they address this concern by emphasizing that HPV vaccination is not about sex at all — it is about cancer prevention.

If parents still have questions or concerns, health care providers should try to address them right then and there, rather than providing a brochure or Vaccine Information Statement (VIS) sheet and asking them to return. As stated earlier in this report, parents in Texas already find it challenging to take time off work to take their child into the clinic for vaccines. Asking them to come back to get their child vaccinated means risking that they will not return.

The HPV vaccination is not about sex — it is about cancer prevention.

Engage parents in conversations about HPV vaccine and associated cancers to allay fears and correct misinformation. One of the biggest barriers to vaccinating more Texas teens against cancer-causing HPV is that many parents lack adequate and accurate information about the vaccine and what it does. Nearly one in five parents responding to the community survey said they had questions about the HPV vaccine, the most of any vaccine given during adolescence.

Health care providers participating in the stakeholder survey echoed those findings, responding that HPV was one of most frequent vaccines refused by parents, second only to the flu shot. When asked what the typical reason was for vaccine refusal, health care providers said parents expressed concerns about safety and ingredients. Three of the top five barriers to vaccinating teens against HPV identified by stakeholders had to do with misperceptions about the need for and safety of the vaccine.

Figure 18. Top 5 Barriers to Vaccinating Girls 13-17 Years Against HPV, According to Stakeholders

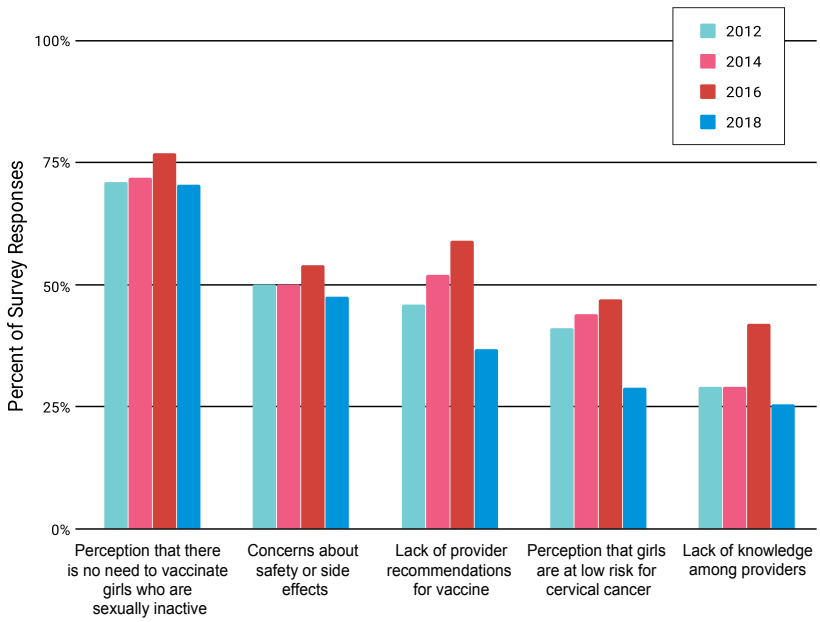
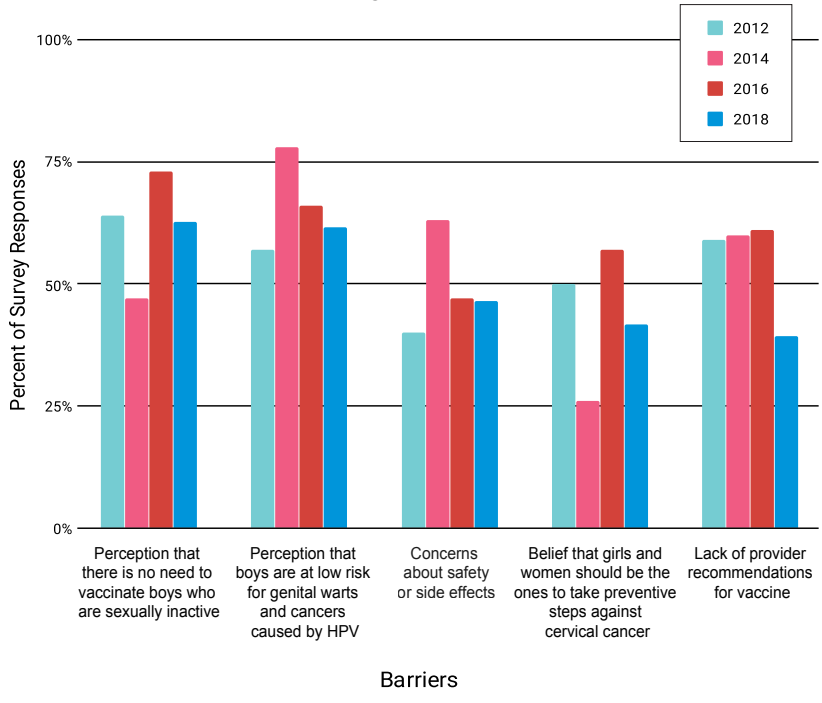


Figure 19. Top 5 Barriers to Vaccinating Boys 13-17 Years Against HPV, According to Stakeholders



Source: The Immunization Partnership Stakeholder Surveys, 2012-2018

Stakeholders surveyed consistently reported misperceptions about who needs to be vaccinated and why as one of the most important barriers to vaccinating Texas teens against HPV, followed by concerns of safety and a lack of provider recommendation.

Immunization Priorities

Parents hear a lot of scary stories about the HPV vaccine from social media, news reports, and among friends, but the overwhelming majority of these stories are not backed by science. To date, no credible scientific research has shown the HPV vaccine causes serious safety concerns, including primary ovarian insufficiency (POI), loss of fertility, adverse birth or pregnancy outcomes, Guillain-Barré syndrome, postural orthostatic tachycardia syndrome (POTS), chronic regional pain syndrome (CRPS), chronic fatigue syndrome, or death. The only significant safety concern found to be linked to the HPV vaccine is fainting right after getting it, which is why the Food and Drug Administration changed its guidance for doctors administering the HPV vaccine to include strategies to prevent falls and injuries following vaccination.[59]

Some parents responding to the community survey stated they did not vaccinate against HPV because they did not think the vaccine protected against enough subtypes. This, too, is largely untrue. Studies show an estimated 92-93 percent of HPV-associated cancers are linked to HPV subtypes found in the vaccine.[60,61]

Health care providers, public health personnel, community health workers, and other trusted sources should make even more of an effort to listen to the concerns of each specific parent and address them with science-based information, compassion, and confidence.

Expand access to HPV vaccination, particularly in school settings. Stakeholders participating in both the survey and town hall meetings thought allowing or encouraging HPV vaccination at a wide variety of locations — not just pediatric or family practice clinics — could make it easier for adolescents and adults to access the vaccine.

One recommendation made over and over again in the surveys and meetings was to allow HPV vaccines to be given at school. Studies show that school-based vaccination programs are successful at improving HPV vaccination rates.[62] Allowing schools to give the vaccine on-site would virtually eliminate many of the barriers for parents wanting to get their child vaccinated but who lack the time or resources to make it happen.

Protect and Strengthen School Immunization Requirements

Highlights

- Requiring immunizations for school-age children corresponds with higher vaccination uptake and lower levels of vaccine-preventable diseases.
- Immunizations required for school entry are viewed as being more important by parents than other CDC-recommended vaccines.
- Currently, Texas families can opt out of school-required vaccines for any reason, including philosophical objections. Non-medical exemptions increased 25-fold between 2003 and 2017.

Vaccines have been required by state governments for over a century, dating back to the 1800s when smallpox outbreaks terrorized communities. At the time, the virus killed three in 10 people who were infected and permanently scarred countless others.[63,64]

A lot has happened since then. Smallpox has since been eradicated, and other deadly diseases have been fought back to a tiny fraction of what they once were, thanks to vaccination programs. Now all 50 states require vaccines for school, though what vaccines are mandated and when vary from state to state. The stricter the vaccination laws, the fewer the outbreaks of vaccine-preventable diseases.[65]

Recommended vs. Required Vaccines

It is important to note that mandated or required vaccines are not more important than recommended ones; they're simply referring to different immunization schedules made by different groups of people. Many parents — and even some health professionals — have expressed confusion over what it means for a vaccine to be recommended versus required.

The recommended immunization schedule is issued every year by a panel of volunteer public health and medical experts known as the Advisory Committee on Immunization Practices. These recommendations are based on the latest information available on how safe and effective certain vaccines are in specific age groups, how common or severe vaccine-preventable infections are, and how practical or cost-effective it would be to vaccinate everyone in a particular age group or with a specific medical condition.

Vaccines are only added to the recommended schedule if they are safe, effective, and important for preventing dangerous diseases. If a vaccine will likely only benefit some, the panel makes that distinction and will limit their recommendation to just that specific group. Simply put, if a vaccine is routinely recommended, it means that this panel of experts believes it is essential for everyone in that age group unless there is a medical reason they should not receive it (such as an allergy). This schedule is the same all over the country.

Required vaccines, on the other hand, differ from state to state and are largely determined by the state government and state health department. These schedules typically include only what the state has deemed the minimum vaccines needed for children to enroll in school or childcare facilities. Of the 12 vaccines routinely recommended for kids and teens by the Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics (AAP), Texas requires nine for child care enrollees or K-12 students.[66,67,68] The remaining recommended vaccines might not be "required," but forgoing them will still put children at risk for unnecessary — and often dangerous — infections.

Figure 20. Recommended Vaccines vs. Those Required for Child Care or School Entry in Texas

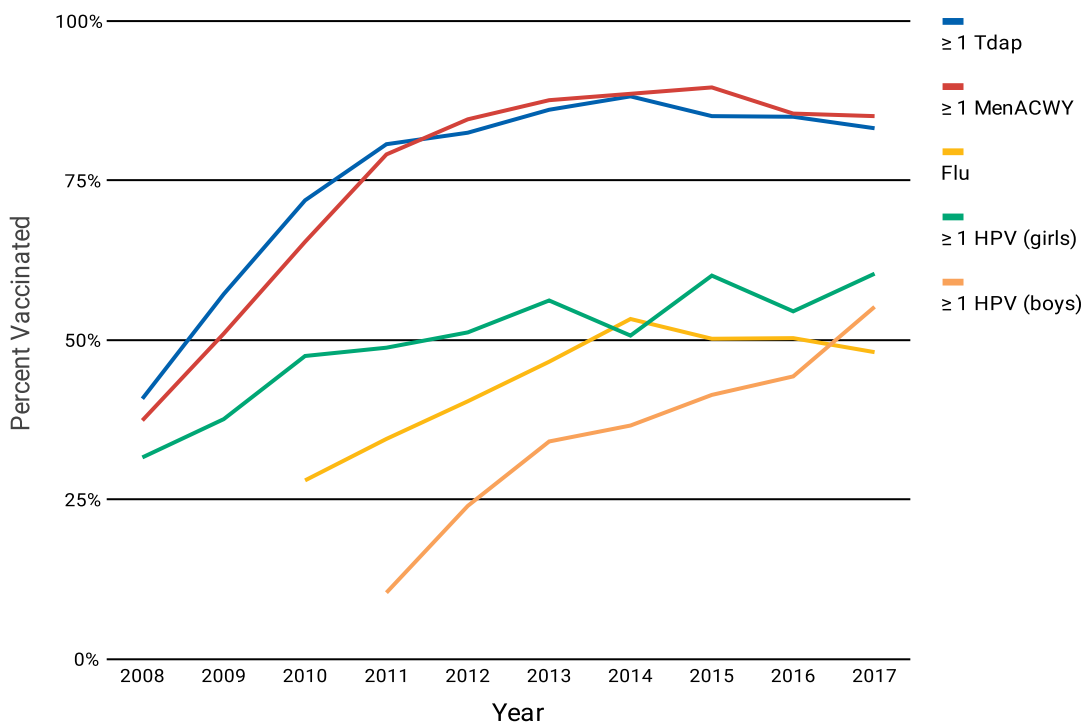
		Texas Minimum Immunization Requirements		
Vaccine	**Recommended by CDC and AAP**	**Child Care**	**Kindergarten**	**7th Grade**
Hepatitis B	X	X	X	X
Rotavirus	X			
DTaP/Tdap	X	X	X	X
Hib	X	X		
PCV	X	X		
Polio	X	X	X	X
Influenza	X			
MMR	X	X	X	X
Varicella	X	X	X	X
Hepatitis A	X	X	X	X
MenACWY	X			X
HPV	X			

Sources: Centers for Disease Control and Prevention[66]
Texas Department of State Health Services[67,68]

This distinction is necessary because when vaccines are required for school entry, vaccination rates go up. For example, when Tdap (tetanus, diphtheria, and pertussis vaccine) was first required for Texas 7th graders in 2009, it only took three years for vaccination rates to surpass the Healthy People 2020 objectives of 80 percent[69,12]. Meanwhile, coverage rates for non-required vaccines recommended by the CDC rose at a much slower rate and, in some cases, appear to have leveled off far short of Healthy People 2020 objectives.

Vaccination rates for CDC-recommended vaccines are higher when they are required for school entry.

Figure 21. Vaccination Coverage Rates Among 13-17 Year Olds in Texas, 2008-2017



Source: Centers for Disease Control and Prevention, TeenVaxView, FluVaxView[12,15]

Notes: Vaccination coverage rates for flu for this particular age group were not available for years prior to 2010, and HPV vaccination was not routinely recommended for boys until 2011.

Tdap and MenACWY became required for 7th graders in 2009.

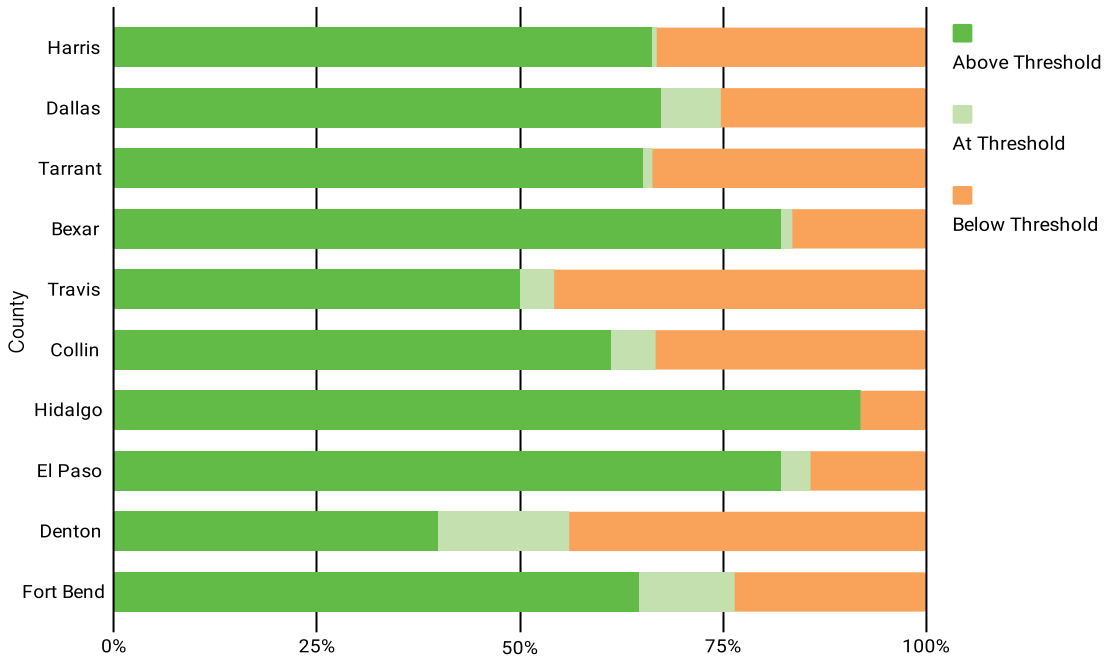
Rise in Non-Medical Exemptions

State vaccination rates are high, with more than 96 percent of kindergarten and 7th grade students receiving school-required vaccines.[2] That figure, however, masks huge gaps in coverage rates throughout the state.

A quarter of all Texas independent school districts during the 2017-2018 school year had kindergarten MMR (measles, mumps and rubella) vaccination rates below 95 percent — the percentage believed to be needed to protect the community from measles, commonly referred to as the "community immunity threshold." Seventy school districts had rates below 80 percent.[70,71]

The differences between one school district and another can be extreme, even within the same county. In Harris County, Texas' most populous county, the kindergarten MMR vaccination rates among school districts ranged from 28.57 percent to 100 percent. Only two-thirds of Harris county's school districts had rates at or above the community immunity threshold for measles.[70]

Figure 22. Proportion of ISDs in Texas' 10 Most Populous Counties That Were Below, At, or Above the Community Immunity Threshold for Measles During the 2017-2018 School Year

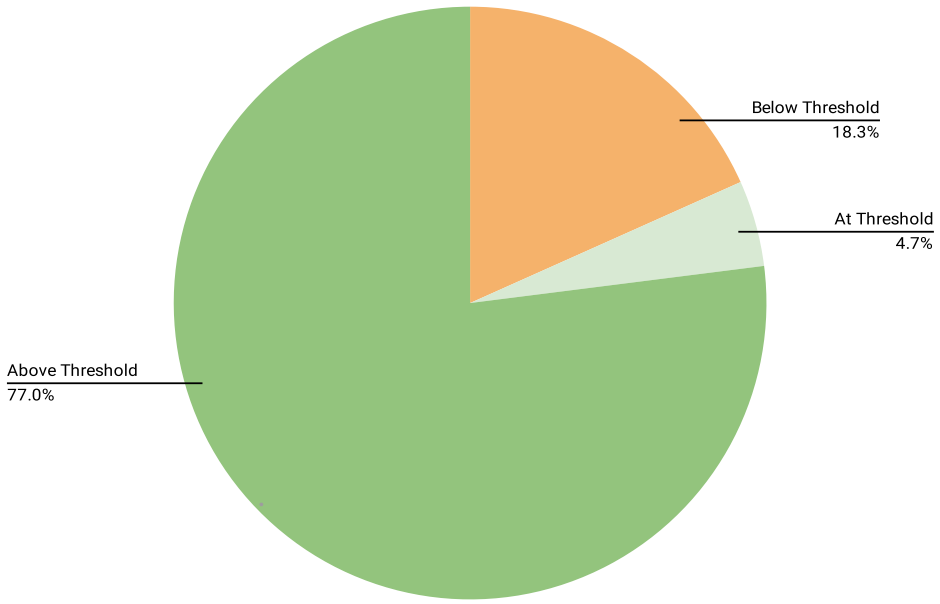


Source: Texas Department of State Health Services, 2017-2018 School Vaccination Coverage Levels — Kindergarten[70]

Immunization Priorities

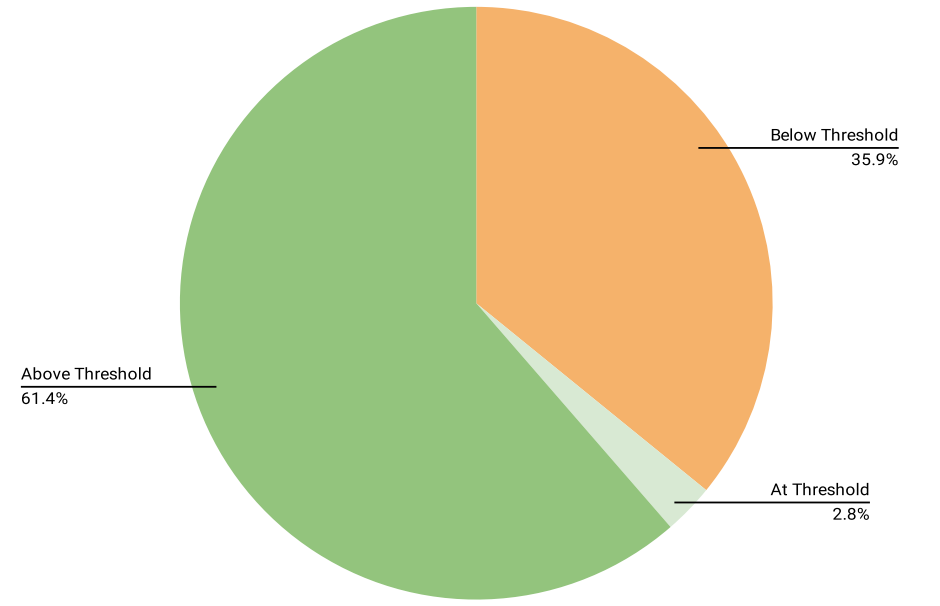
At least 95 percent of the population should be vaccinated against measles to protect the community from outbreaks.[71] This is known as the community immunity threshold.

Figure 23: Public ISDs in Texas Below, At, or Above the Community Immunity Threshold for Measles



Overall, private schools had lower vaccination rates than public schools, with only 64 percent meeting or exceeding the measles community immunity threshold (95 percent vaccination coverage or higher), compared to 82 percent of public school districts in Texas.

Figure 24: Private Schools in Texas Below, At, or Above the Community Immunity Threshold for Measles



Source: Texas Department of State Health Services, 2017-2018 School Vaccination Coverage Levels — Kindergarten[70]

Recommendations

Tighten the process for families to get non-medical exemptions. Not everyone seeking non-medical exemptions to school immunization requirements objects to vaccinations. According to stakeholders, some families seek an exemption because they cannot take time off work to get their children vaccinated or because they cannot prove their child's immunization history. Simply put, getting an exemption is often easier for Texas families than getting vaccines or locating lost shot records.

States with more complex procedures for obtaining an exemption have lower exemption rates and higher vaccination coverage.[72,73,74] Getting a non-medical exemption in Texas currently involves requesting an affidavit from the state health department, either through its website or by mail or fax. Once the family receives the form (usually within a week), they sign, notarize, and submit it to the child's school.[75] It is more involved than writing a simple note, but it is still significantly easier than scheduling an immunization appointment and taking time to bring children into a clinic to get vaccinated.

"We need stricter laws in Texas to prevent parents from opting out of vaccines. Too many parents can easily apply for the waiver — jeopardizing our entire community. It is just a matter of time before our state is hit with an epidemic of a preventable disease. "

— Parent in Fort Worth

Many parents and stakeholders participating in The Immunization Partnership surveys expressed frustration at how easy it is to obtain non-medical exemptions. Just over 87 percent of stakeholders said that laws that allow for non-medical exemptions for school attendees was an "important" or "very important" barrier to maintaining high immunization rates.

Tighter processes for obtaining non-medical exemptions for school immunization requirements would protect public health by reducing the number of people who forgo vaccines out of convenience, while still protecting the legal rights and deeply held beliefs of families choosing not to vaccinate.

Tighter processes for obtaining non-medical exemptions for school immunization requirements would protect public health by reducing the number of people who get exemptions for the sake of convenience, while still protecting the legal rights of families with deeply held convictions.

Improve data collection and reporting on non-medical exemptions and delinquency. In 2015, a bill was introduced in the 84th Texas state legislature that would have shifted the way school exemption and vaccination rates were publicly reported from the district level to the campus level. In areas like Houston, where the school district contains hundreds of campuses, vaccination rates at the district level provide parents with very little information.

Named "Parents Right to Know," the bill would have allowed parents to see non-medical exemption rates of their children's current or prospective schools. Parents of medically fragile kids, in particular, depend on high vaccination coverage to keep their children safe, but studies show many parents (not just those of kids with medical conditions) value vaccination rate information and use it to make school or child care decisions.[76]

"Just like parents want better information about the extracurricular activities offered, the type of learning environment, or the typical class size at their child's school, information about school health is another piece of information that should be available to help parents make informed decisions."

— Parent testifying in support of the Parents Right to Know Bill

The bill asked for a small change. Individual schools already report their campus-level vaccination and exemption rates to the state health department, and sharing that information with parents is common practice in many other states. The bill, however, never made it to the governor's desk. Faced with intense push back from a small but vocal group, legislators chose not to move the bill forward in 2015 or when it was reintroduced in 2017.

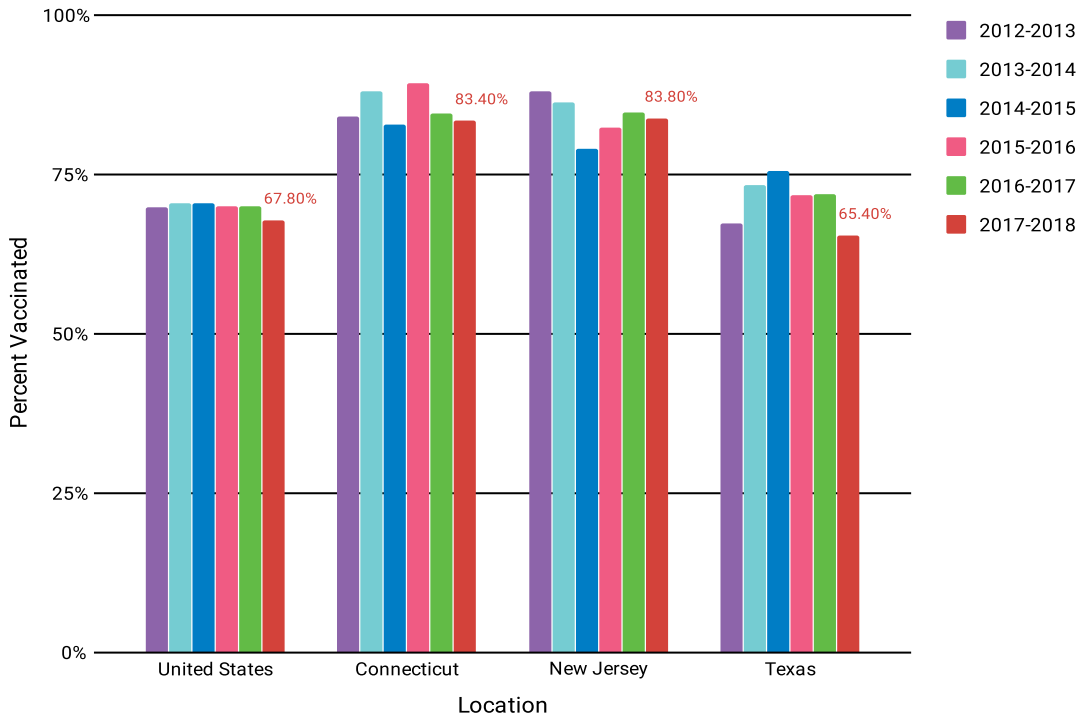
In addition to vaccination coverage rate information at the campus level, not much is known about unvaccinated or undervaccinated populations in Texas. More information on why communities are not getting fully vaccinated and what would allow organizations throughout the state to deploy their resources more efficiently and effectively, including vaccination campaigns and educational initiatives.

Require flu vaccine for children enrolled in Texas child care facilities and schools. Influenza is the deadliest vaccine-preventable disease in the United States right now. The virus is responsible for anywhere from 12,000 to 56,000 deaths per year in recent years and more than 80,000 deaths nationwide during the 2017-2018 flu season.[77,78] Yet the flu shot is not required for school entry or child care facilities in Texas.

While adults make up the largest percentage of those who die from flu, children are also vulnerable. The 2017-2018 flu season was especially brutal. A total of 185 flu-related deaths were reported in children in the United States — at least 17 of which were in Texas — setting a heartbreaking record for a single flu season outside of a pandemic. Approximately 80 percent of these deaths were in children who did not get the flu vaccine.[79,80,81]

The flu vaccine is not required for school children anywhere in the United States, but four states have mandated annual flu vaccination for child care enrollees: Connecticut (2011), New Jersey (2008), Ohio (2015), and Rhode Island (2015).[82] It is still too early to assess the success of Ohio and Rhode Island's requirements, but coverage rates in New Jersey and Connecticut show the mandate appears to be working. Flu vaccination rates among children ages 6 months to 4 years in these two states are consistently higher than the national average.[83] New Jersey's age-adjusted death rate due to influenza and pneumonia is lower than the United States as a whole.[84] And a CDC report on Connecticut's requirement found that the influenza-associated hospitalization rate among children aged 4 years and younger dropped by 12 percent between the 2008 and 2012 flu seasons.[85]

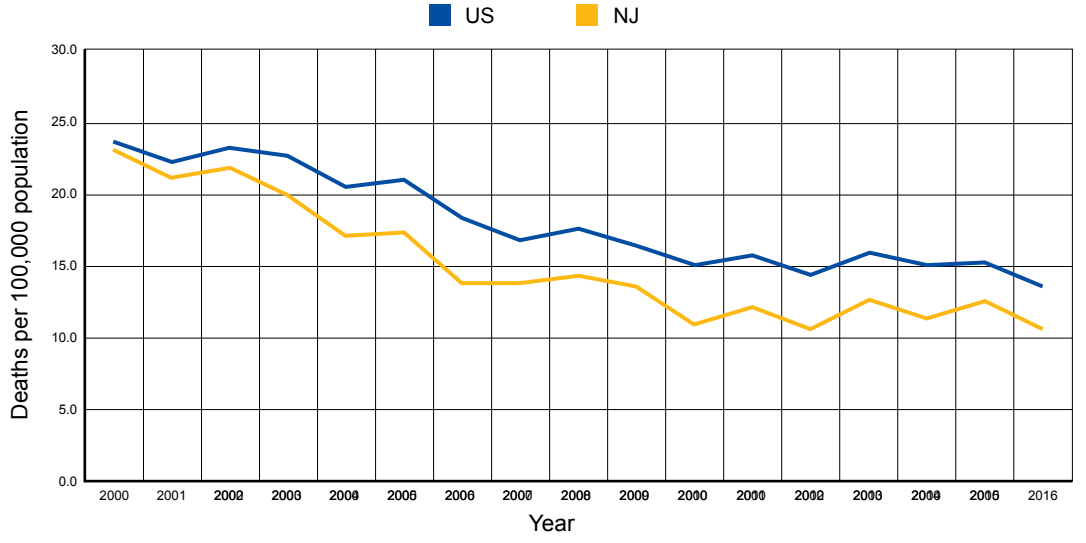
Figure 25. Flu Vaccination Coverage, 6 Months to 4 Years, 2012-2018



Source: Centers for Disease Control and Prevention, FluVaxView[83]

Flu vaccination rates in Connecticut and New Jersey — where the vaccine is required for child care enrollees — have been consistently higher than the national average and in Texas.

Figure 26. Age-Adjusted Death Rate Due to Influenza and Pneumonia by Year, New Jersey and the United States, 2000-2016



Source: New Jersey Department of Health[84]

Age-adjusted death rates for flu and pneumonia are lower in New Jersey than at the national level.

Address Vaccine Hesitancy and Vaccine Refusal

Highlights

- The overwhelming majority of Texas families choose to vaccinate, but the number of families choosing to forgo or delay at least one vaccine appears to be growing.
- Non-medical exemptions to school vaccine requirements grew 25-fold from 2003 to 2018.
- Undervaccinated families tend to cluster in the same schools and neighborhoods, putting their whole community at risk for outbreaks of vaccine-preventable diseases.

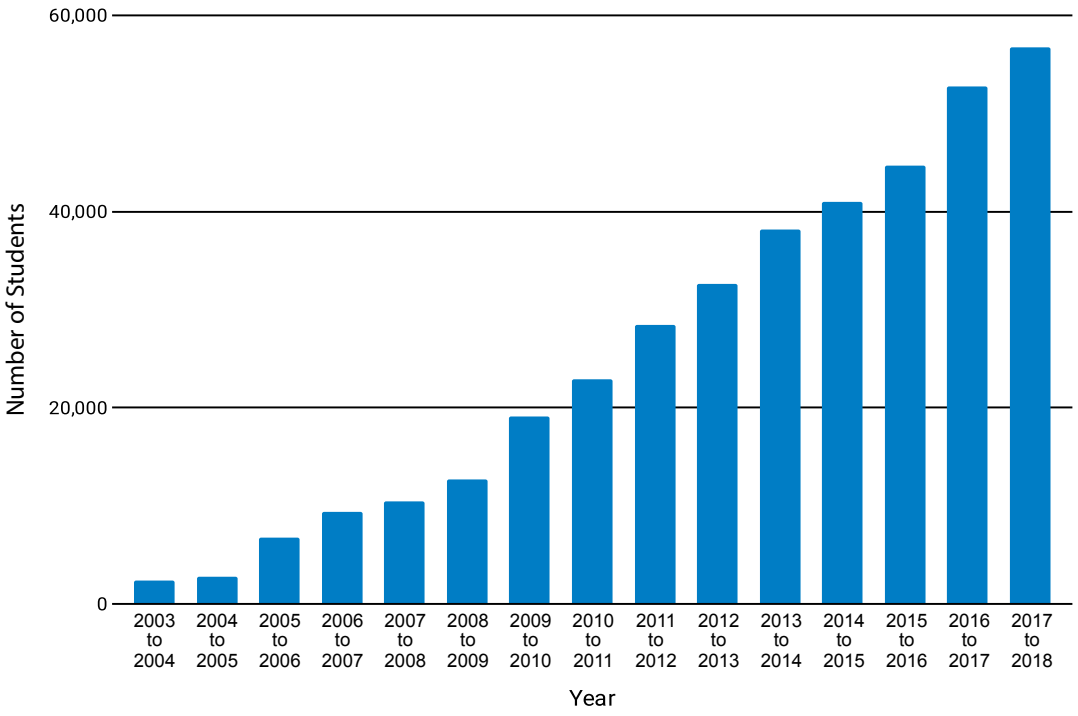
Vaccine hesitancy has been around for as long as vaccines have been. In the early days of Edward Jenner's smallpox vaccine, people worried about the side effects and consequences of injecting themselves with something they did not understand. Because the early vaccine was made from cowpox, people worried getting vaccinated would, among other concerns, turn them into cows. While the specific objections to vaccines have changed a lot over the past 200 years, there are some who continue to question whether vaccines are safe, effective, or necessary.

Studies examining the safety of vaccination have shown time and time again that the benefits of preventing harmful — often deadly — diseases significantly outweigh the mild side effects shown to be linked to vaccines. For the overwhelming majority of parents, a sore leg or fever is well worth the near certainty of protecting against measles or meningitis.

But memories are short. As vaccine-preventable diseases fade from everyday life, a small (but growing) number of families are choosing to forgo or delay vaccines for their kids and themselves. In 2016, 57 percent of health care providers responding to The Immunization Partnership stakeholder survey said they encountered patients or caregivers who refused at least one vaccine "often" or "routinely." In 2018, that number went up to 67 percent.

Since non-medical exemptions were first allowed in Texas, the number of families choosing to opt out of vaccines has skyrocketed from 2,314 in 2003 to 56,738 in 2018 — a 25-fold increase.[86] These exemptions have concentrated in certain communities throughout the state, including in major metropolitan areas like Houston, Austin, Dallas, and Fort Worth.[2]

Figure 27. K-12th Grade Students with a Non-Medical Exemption to School Vaccine Requirements, Texas, 2003-2018



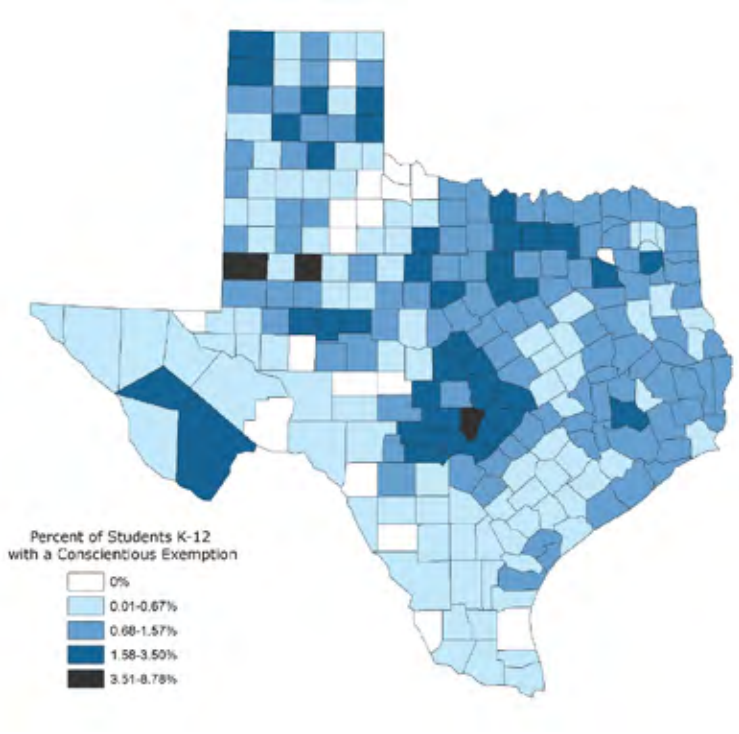
Source: Texas Department of State Health Services, Annual Report of Immunization Status[86]

The number of non-medical exemptions to school immunization requirements increased 25-fold from 2003 to 2018.

"It must be conceded that some laymen, both learned and unlearned, and some physicians of great skill and repute, do not believe that vaccination is a preventive of smallpox. The common belief, however, is that it has a decided tendency to prevent the spread of this fearful disease and to render it less dangerous to those who contract it. While not accepted by all, it is accepted by the mass of the people, as well as by most members of the medical profession… The fact that the belief is not universal is not controlling, for there is scarcely any belief that is accepted by everyone."

— U.S. Supreme Court Decision, Jacobson vs. Massachusetts[64]

Figure 28. Reported Non-Medical Exemptions by County, 2017-2018 School Year



Source: Texas Department of State Health Services, Annual Report of Immunization Status[2]

Even modest changes to vaccination rates can have a profound effect on a community's risk for diseases. One study found that a 5 percent drop in MMR vaccination rates would likely prompt a 3-fold increase in measles cases, amounting to more than $2 million in costs.[87] This is due, at least in part, to the tendency of undervaccinated families to be grouped in the same communities. Studies show that when families with vaccine exemptions cluster, they are at risk for disease outbreaks.[88]

One study found that students opting out of vaccines were 35 times more likely to become infected with measles than those who were vaccinated.[89] The impact extended beyond just the unvaccinated individuals. The same study found that the higher the number of exemptions, the greater the risk to vaccinated individuals who might not have sufficient immunity to protect themselves even after receiving a vaccine.

Recommendations

Encourage obstetricians to discuss childhood vaccines with expectant parents to address concerns before the child is born. Vaccine beliefs are often formed well before the first childhood vaccine is given. A Houston-based study surveying expectant parents found that 8 percent were vaccine hesitant mid-way through their pregnancy, signaling a need for more education during pregnancy.[90]

"I don't understand why the Hep B shot is given at birth, and our pediatrician indicated it could be delayed. Doesn't this put people off vaccines right when they are starting to learn about them?"

— Parent of two in San Antonio

Addressing vaccine hesitancy in pregnancy is not just important for early childhood vaccinations. It is also crucial for vaccinating pregnant women themselves. A 2015 study in Georgia found that while nearly all pregnant women surveyed thought pertussis and influenza were serious risks to them and their babies, fewer than half actually intended to get vaccinated.[91] Actual vaccination rates are a little higher — 54 percent of pregnant women were vaccinated against influenza in the 2016-2017 season and a similar percentage against pertussis was seen the previous year — but are still far below the Healthy People 2020 objective of 80 percent.[92,93,13] Obstetricians, midwives, and other prenatal care providers should discuss concerns about vaccines with pregnant women at the first signs of hesitancy and provide them with more information about early childhood vaccination, in particular hepatitis B.

Train health care providers to utilize value-based vaccination promotion strategies in addition to knowledge-based information sharing. Human minds are hard things to change, and that can go double for parents trying to protect their children. While health care providers and public health personnel like to use facts and statistics to dispel misinformation, beliefs about vaccination are shaped by a complex range of social, cultural, and cognitive pressures — logic is only one piece of the puzzle. For many, handing someone a Vaccine Information Statement or citing a study or two just will not work.[94] Instead, health care providers should try to tailor their messaging to each individual family as part of a shared decision-making approach, where providers discuss with families what is most important to them and frame science-backed vaccine information in those terms.[95,96]

Head to the state capitol during any hearing or vote about vaccines, and you will likely see people chanting "My child. My choice." Texans, in general, do not like being told what to do. To many physicians and researchers with extensive knowledge of vaccines and vaccine-preventable diseases, vaccinating can seem like a no-brainer. But for parents feeling the weight of their child's health and safety on their shoulders, it is not always that easy or that simple. Many vaccine-hesitant families simply want to be a part of the decision-making process and feel like their concerns are heard, acknowledged, and addressed.

Value-based, shared decision-making is not quick, and it is not easy. Physicians and other health care providers might need to invest more of their already limited time and energy into familiarizing themselves with risk communication best practices and getting to the heart of what patients really value. But, while time-consuming, it will likely be much more effective than a quick statistic or Vaccine Information Statement.

Develop and disseminate infographics, blog posts, and other accessible media to communicate better the risks associated with forgoing or delaying vaccination. Humans are inherently bad at assessing risk. People can be terrified of planes while feeling comfortable in a car, despite the indisputable fact that dying in a motor vehicle crash is much more likely.[97] The same disconnect can be found with vaccination.

"There's this wave of people who are willing to stand up very passionately and say 'vaccines are terrible, we shouldn't have them.' And we need the other argument. We need to show tombstones. "

— Stakeholder in Beaumont

Many parents and caregivers know that vaccines are effective, but they often misunderstand the true risks posed by both vaccines and the diseases they prevent. While 95 percent of parents responding to the community survey strongly agreed with the statement "Shots prevent illnesses that are serious and possibly severe," only 81 percent strongly agreed that the benefits of vaccines outweigh the risks.

Yet the worst side effects experienced by nearly all vaccine recipients are mild symptoms like fever, soreness, or fatigue. Serious or life-threatening reactions to vaccines are so incredibly rare that it is often difficult to pinpoint whether vaccination was truly the cause. Consequences of diseases, on the other hand, are significantly worse and much more likely. For example, the chances of having a severe allergic reaction to a vaccine are about 1 in 1 million, whereas the chances of dying from measles — even with good medical care — is 1-2 in 1,000.[98,99]

Misinformation regarding vaccines has consistently been one of the most important barriers identified by stakeholders since 2012. Stakeholders in meetings and in survey responses asked for more resources to help better communicate the risks of spacing out vaccines or not vaccinating at all.

Improve the Quality and Efficiency of the Texas Immunization Registry, ImmTrac2

Highlights

- Texas' statewide registry, ImmTrac2, helps health care providers access immunization histories, even if the patient loses their vaccination records or changes primary care clinics.
- 4 out of every 5 Texas children have immunization records in the statewide registry.
- The current enrollment process for ImmTrac2 is costly and inefficient. The state could save time and money, while still protecting the privacy of its residents, by shifting to an implied consent or "opt-out" system.
- In order to improve the quality of the data for all age groups, stakeholders requested more training and incentives for providers to register and upload data to the platform.

States all across the country use immunization information systems (IIS), also called immunization registries, to store individual vaccination records securely and confidentially. There is a lot of variability from state to state regarding the functionality and processes of each registry, but IIS, in general, have a lot of benefits. For example, in the event an individual loses their immunization history or changes providers, these free-to-use registries allow health care practitioners to continue the patient's care without missing a beat or re-vaccinating them unnecessarily. These registries are also used by public health departments to protect the community in the event of an outbreak or natural disaster by quickly identifying those who might be at risk.

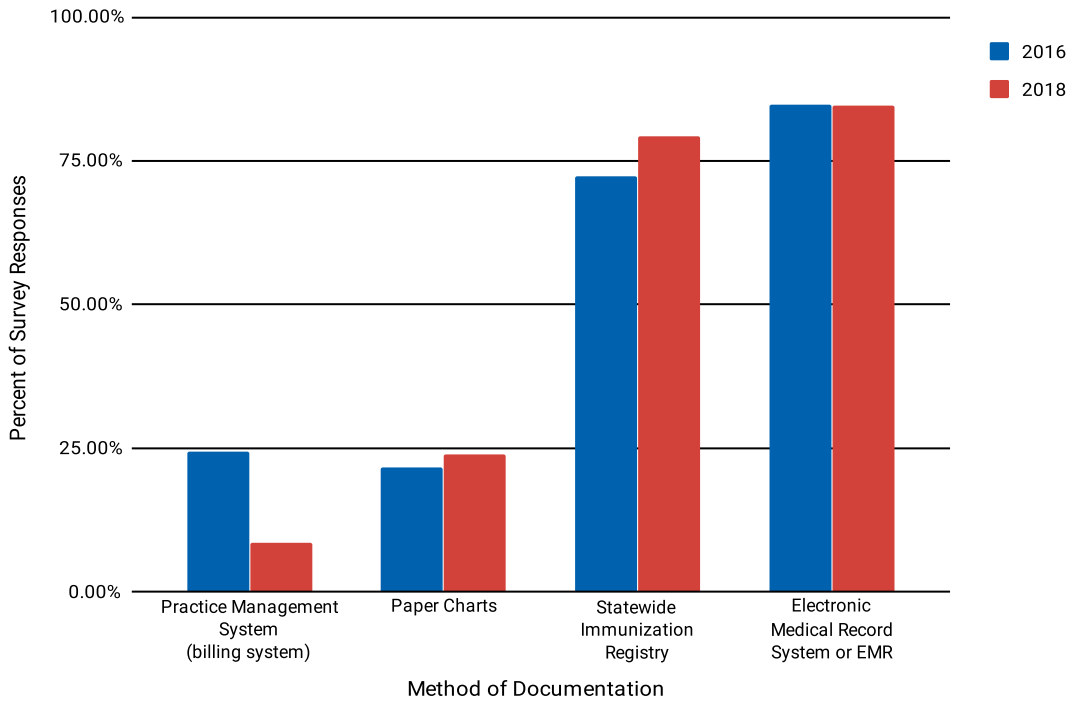
ImmTrac2

Texas' immunization registry, ImmTrac2, replaced the state's older registry, ImmTrac, in April 2017, and is used by roughly 60,000 authorized health care organizations, including public health departments, clinics, schools, and pharmacies.[100] These are the only individuals allowed to access the immunization histories housed in the registry. ImmTrac2's current capabilities include:

- Forecasts for what vaccines will be coming up soon for an individual patient
- Ad hoc reports
- Reminder/recall tools that help identify patients who have upcoming or overdue vaccines
- Data exchange with the registered organization's electronic health record system (EHR)

Electronic medical record systems continue to be the most common location for documenting patient immunization histories, but the percentage of stakeholder survey respondents who use the statewide immunization registry has gone up.

Figure 29. How Health Care Providers Participating in the Stakeholder Survery Document Patient Immunization Histories, 2016 vs 2018



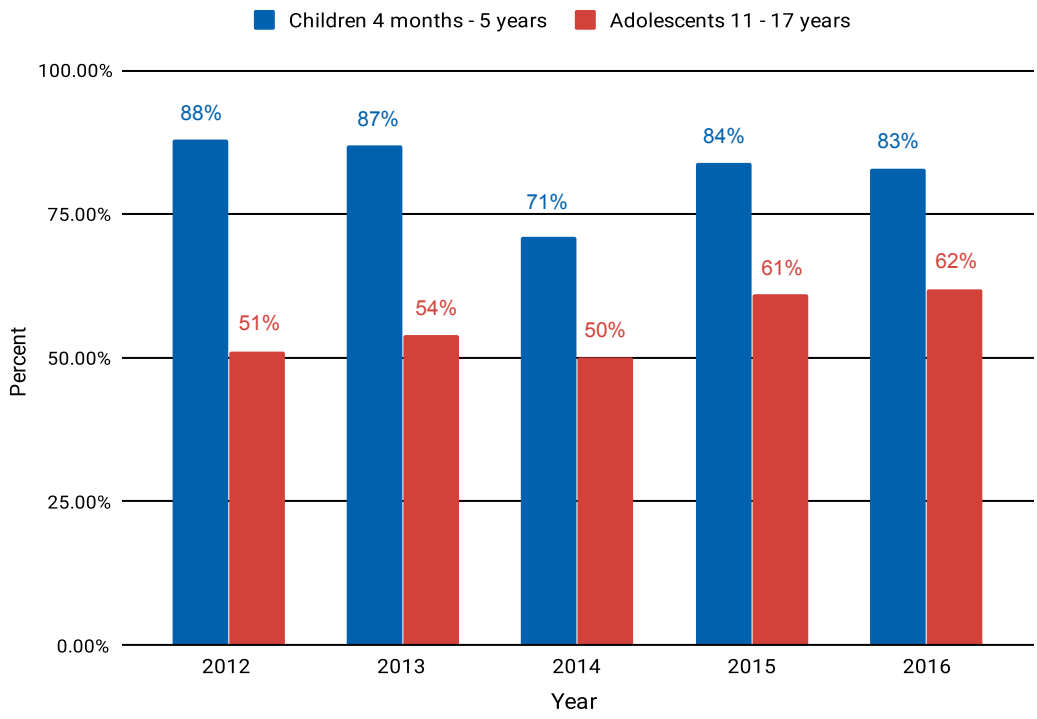
Source: The Immunization Partnership Stakeholder Survey, 2016 and 2018

Enrollment Processes

Unlike most other state registries, ImmTrac2 requires proactive written consent from patients in order to have their records housed in the system. Once a child turns 18, they must re-consent to keep their records in the registry or else their data will be removed. Texas is only one of four states with this type of system (generally referred to as an opt-in registry). Most other states use what is called an implied or implicit consent registration process (or opt-out registries), where individuals are included unless they actively decide not to participate.

The vast majority of young children in Texas are consented to be in ImmTrac2, though participation appears to drop off for adolescents and adults. In 2016, 83 percent of children under 6 years old had at least two immunization records in the registry, compared to 62 percent of adolescents aged 11-17 years. While high, participation in Texas is lower than the national averages of 94 percent and 74 percent, respectively. This is especially true for adult participation, where only 2 percent of Texas adults have at least one record in ImmTrac2, compared to 44 percent nationally.[101] Many stakeholders pointed to the state's reliance on an opt-in system as a major barrier for increasing participation in the registry, especially among adults.

Figure 30. Percentage of Children and Adolescents with Two or More Immunizations Recorded in the Statewide Immunization Registry, 2012-2016



Source: Centers for Disease Control and Prevention, IIS Annual Report, 2012-2016[102]

The vast majority Texas children have at least some of their immunization records housed in the statewide immunization registry, ImmTrac2. Participation among adolescents, however, is substantially lower.

Concerns Regarding Data Quality

One of the biggest — and most persistent — concerns among stakeholders participating in the survey and town hall meetings is the quality of the data housed in the statewide immunization registry. Stakeholders throughout the state said they frequently go to pull a patient's immunization record, only to find that the record is incomplete or inaccurate. While ImmTrac2 does have the capability to interact with most EHR systems, stakeholders complained that this process does not always work or that there is a delay between when the data are sent and when the records appear in the registry. These challenges might explain why 55 percent of survey respondents cited "lack of documentation on patients' immunization histories" as a "very important" barrier to maintaining high vaccination rates.

"We recently had early registration for a group of pre-K to kinder kids and…we had to tell them to come back the following day because their toddler wasn't up to date…the parents will tell you, "Yes they're up to date," but it wasn't up to date in the actual ImmTrac system."

— Stakeholder in Corpus Christi

"Immunizations are suppose to transfer to Imm trac [sic] in a few days, but sometimes it takes up to a month, or they do not transfer at all and we have to go back and enter them in Immtrac."

— Survey respondent in El Paso

Recommendations

Reduce costs while protecting privacy by streamlining the process of obtaining consent for participation in ImmTrac2. Roughly nine out of ten Texas children aged 4 months to 5 years were consented to have their records in the statewide registry in 2016.[102] Under the current enrollment process, this means paperwork has to be done for nearly every Texas child in order for them to participate in the registry. It is costly, inefficient, and time-consuming, especially for medical teams on the ground. Shifting the paperwork burden to focus, instead, on the small number of children not enrolled would cost one-tenth of what it currently takes to enroll children in clinical settings, while still allowing people the option of not participating.[103]

An implied consent process would also help improve adult participation rates in the registry. Currently, when Texas children turn 18, they have until age 26 to re-consent to keep their records in ImmTrac2. During that time, these young adults are frequently moving around from place to place and switching health care providers, making it difficult to locate or contact them. As a result, many do not even realize they have to re-consent until it is too late, and their records are gone.

Shifting the enrollment process to an implied consent (or "opt-out") system has overwhelming support among Texans working with immunizations in the public and private sectors. It has been a chief concern among stakeholders surveyed since 2010 and has been recommended by The Immunization Partnership in every one of its biennial reports since then. Changing the enrollment process to an opt-out system would save time and money while protecting the wishes of those who do not want to enroll.

Allow patients to access a read-only version of their immunization records with the use of a secure username and password. The only people currently able to access immunization records housed in ImmTrac2 are authorized organizations, such as clinics, public health departments, and schools. Some stakeholders recommended expanding that access to allow parents to see a read-only version of their child's record online.

Three-fourths of stakeholders responding to the survey said their patients "routinely" or "often" request a copy of their immunization records, and nearly 69 percent said allowing parents read-only access to their child's records in ImmTrac2 would be "a great deal" useful. When parents were asked if having access to their child's electronic immunization records would make it easier for school registration and participation in extracurricular activities, 95 percent of those surveyed agreed or strongly agreed that it would.

Allowing parents to see their child's immunization history could relieve some of the burden on health clinics to supply the records, and some of the barriers parents experience to meeting minimum immunization requirements for their children.

Improve data quality by allowing for bidirectional data exchange. Over 79 percent of health care providers responding to the stakeholder survey said they document patients' immunizations in the statewide registry — up from 72 percent in 2016. Yet many stakeholders said that they did not think real-time consulting of the registry was a good use of time because the data they find there are poor. Only 48 percent of stakeholder survey respondents said that they routinely refer to the registry to verify patient's immunization history, and just over half (54 percent) said that they found childhood vaccination records in the registry to be incomplete.

Several stakeholders pointed to quality issues in how ImmTrac2 talks with on-site EHR systems. While the data exchange process has made huge leaps in the years since the original statewide registry launched, there are still some health care sites whose EHR does not exchange data with ImmTrac2 or who experience delays or technical issues when trying to send their information to the registry.

Even when health sites are able to send their data seamlessly to the statewide registry, they still have to enter the registry's information manually into their own EHR. Stakeholders recommended making the system much more bidirectional so that when they link with ImmTrac2, the patient's record in the EHR would be updated with any missing doses housed in the statewide registry — making sure both systems had the most up-to-date and accurate patient history. This would be particularly helpful for adult providers, whose patients might receive vaccine doses outside of the clinic, such as at OB-GYN offices or pharmacies.

Identify incentives to encourage better compliance and participation. Stakeholders said another issue that could be affecting the quality of immunization data in the registry is a lack of consistent participation among providers. Tens of thousands of organizations are authorized to participate in the registry, but stakeholders say many do not input vaccine doses when they are given — especially for adults.

One suggestion for encouraging more non-pediatric providers to participate in the registry is by establishing incentives. Health care providers are already encouraged to engage with the statewide immunization registry through Meaningful Use, a set of federal guidelines for using EHR that includes engaging with immunization information systems. Despite the financial incentives for providers to comply with these standards, many places that administer vaccines still do not input patient records into the system.

Stakeholders suggest the state government devise a series of incentives or penalties to encourage providers not only to register to use ImmTrac2, but also to obtain consent for their patients (including adults) to participate in the registry and upload all doses of vaccines administered for those who have enrolled.

Provide further training for providers on utilizing the registry and gaining consent from patients. It was clear from both the stakeholder survey and the town hall meetings that many health care providers do not fully understand what ImmTrac2 is or how it works. More than a dozen training options and resources are available on the state health department website, including information on special features and functionality on the platform.[104] Yet stakeholders indicated that providers either are not aware of these trainings or that they require additional trainings to meet their needs.

For example, some stakeholders were unclear about how to get adults to re-consent to the registry at the age of 18, and once they had, how to merge the childhood record with the adult record. Others expressed confusion regarding how the data exchange process was supposed to work. Stakeholders in the town halls and surveys requested more training on what ImmTrac2 is for, what it can do, and how to use it.

Texas is a huge state with a lot of vaccine providers to reach. In addition to requesting further resources and communication from the state health department, private and nonprofit organizations — such as immunization coalitions, health systems, and the private sector— could also promote the training resources already available on the state health department's website as a means to encourage more providers to learn the basics of the platform.

Forge New Ground in the Fight Against Neglected and Emerging Tropical Diseases

Highlights

- Emerging and neglected tropical diseases (NTDs) affect tens of thousands of people in Texas, especially the most impoverished.
- Texas has a unique opportunity to lead the world in developing vaccines to combat NTDs at home and worldwide.

Neglected tropical diseases (NTDs) are a collection of infections typically found in tropical areas throughout the globe. Some are worms or parasites spread through contaminated food or water. Others spread through animals or insects. The symptoms and severity of these diseases differ from one to the next, but the one thing they all have in common is that they disproportionately affect those living in poverty.[105]

Developing nations bear the brunt of these conditions, but that does not mean they are not present in developed countries like the United States. Every year, hundreds of thousands of Texans are infected with NTDs, many of which can cause long-term harm.

Take, for example, chagas disease. Spread through the bite of a small insect nicknamed the "kissing bug," this parasite (formal name: *Trypanosoma cruzi*) is extremely common all over the world. There are more than 200,000 infections every year in the United States and nearly 37,000 cases are in Texas alone. Roughly 30 percent of those infected will develop potentially serious heart issues, including heart failure.[106,107]

Photo Credit:Content Providers(s): CDC/World Health Organization [Public domain], via Wikimedia Commons

Some (though not all) NTDs can be treated with existing medications — but those treatments only work if infected people are identified and treated. Many NTDs are silent, going unnoticed in infected individuals, sometimes for years. Meanwhile, survivors can face lifelong consequences, especially in the case of children.

Vaccines for NTDs

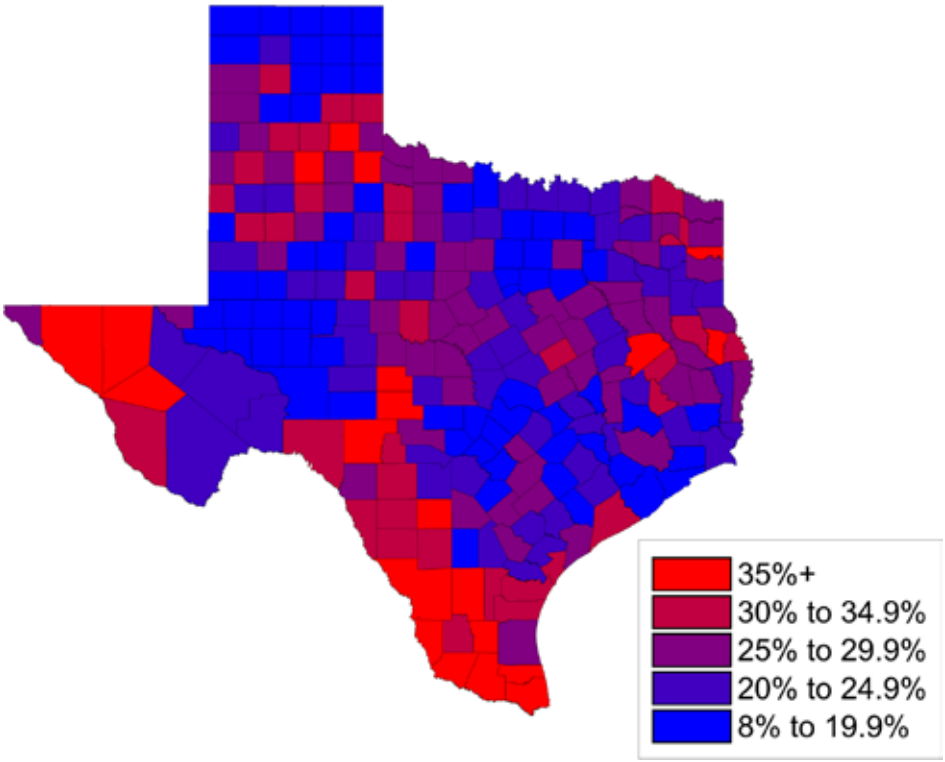
The best way to fight NTDs is to prevent them altogether, but that is a tall order. With the exception of rabies and dengue, none of the 20+ diseases recognized by the World Health Organization as NTDs have approved vaccines to prevent them, though candidates are being tested for some. Currently, the only options available to prevent many NTDs are massive environmental health initiatives, like controlling insect populations and cleaning up water supplies. Safe, effective vaccines would allow for a cheaper — and potentially more permanent — way to prevent these infections and the devastation they cause.

But vaccines are costly to develop, test, and manufacture. Researchers in poorer countries where NTDs are common generally do not have the resources needed to invest in such an expensive endeavor, and for-profit pharmaceutical companies would have a hard time making a business case for taking such vaccines on given the low potential for a good return on investment. Some academic institutions and nonprofit organizations like the Sabin Institute are trying to fill the gap, but more developed countries, corporations, and research organizations need to get involved in order to move the needle on these dangerous diseases.

NTDs in Texas

Texas offers ample opportunity to study NTDs in the United States. Not only do several of the diseases exist within its borders, but the state also has one of the largest populations of children living in poverty in the country, particularly along the Rio Grande Valley where NTDs are often found. There, communities exist without access to clean water or adequate sewage systems — environments where some NTDs could spread far and fast.

Figure 31. Percentage of Children in Poverty Ages 0 to 17 by County in Texas in 2015



Map Source: Hotez PJ (2018) The rise of neglected tropical diseases in the "new Texas"[107]

There are other reasons NTDs could become an even larger problem in Texas. In addition to the state's high prevalence of poverty, it is also home to the *Aedes* mosquito species. These insects are responsible for spreading diseases like dengue virus, as well as zika and West Nile.

NTDs are not far-off diseases affecting far-off people. They exist here, in Texas. The state has an opportunity to lead the world in vaccine development for these infections. Doing so will not be easy, and it will not be quick. But like Jenner's smallpox discovery, it has the potential to save millions — maybe even billions — of lives.

Figure 32. Quick Guide to the Common Neglected Tropical Diseases in Texas

Neglected Tropical Disease	Prevalence[107]	Transmission	Symptoms	Prevention
Toxocariasis (Roundworm)[108]	700,000+ current cases	Most commonly through contact with cat or dog feces	• Most cases don't have symptoms • Vision loss or eye swelling • Flu-like symptoms • Abdominal pain	• Hand-washing • Cleaning pet waste carefully • Deworming pets
Trichomoniasis[109]	~450,000 current cases	Sexual activity	• ~70% of cases don't have symptoms • Genital itching, burning, and discharge • Discomfort or pain when urinating	• Abstinence • Use of latex condoms during sexual activity
Chagas Disease[110]	36,977 current cases	Primarily via triatomine bug bites ("Kissing bugs")	• Mild flu-like symptoms or no symptoms at all • ~30% of long-term infections can cause heart problems or digestive complications[106]	• If living in a mud, thatch, or adobe house, use bed nets soaked in insecticide and spray home to remove any bugs[111]
Intestinal Parasites*	~1,000 cases reported annually	Contaminated food, water, or objects	• Stomach cramps or pain • Nausea and vomiting • Diarrhea • Fever • Dehydration	• Hand-washing • Safe food preparation • Clean Water

**Include cryptosporidiosis, cyclosporiasis, amebiasis[112, 113, 114]*

Recommendations

Improve data collection on where emerging and neglected tropical diseases are within Texas' borders and who they are most impacting. There is a lot of work to do before vaccines can be developed for many emerging or neglected tropical diseases. And it all starts with gaining a better understanding of where these diseases are and who is being affected.

Currently, 12 emerging and neglected tropical diseases are reportable in Texas, but stakeholders indicated there might be some confusion about what that process entails, and there is still much we do not know about the true prevalence of these diseases in the state. Over 56 percent of stakeholders surveyed said they believed "a great deal" that there needs to be better data collection for NTDs and emerging diseases in Texas, and 63 percent said there needs to be a clear understanding of how to report them. It is clear more data are needed to understand the size and scope of NTDs in the state.

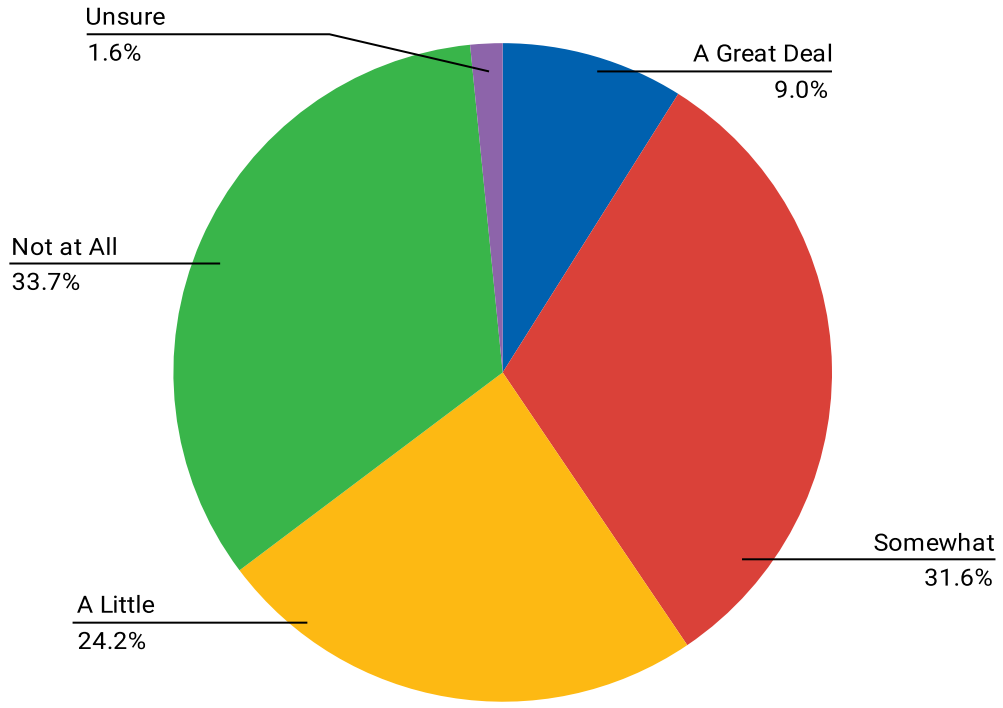
The majority of immunization stakeholders surveyed supported such improvements; 67 percent said that they believed more research is needed to work towards developing vaccines for NTDs. By improving data collection and reporting on these diseases, those working toward vaccine development can better prioritize resources, solicit and justify funding, and recruit partners to collaborate on vaccine development, testing, and — one day — distribution.

Educate providers on how to recognize emerging and neglected tropical diseases. One of the reasons NTDs might be underreported is that many providers do not know how to look for, diagnose, or report emerging and tropical diseases when they encounter them. Some NTDs have vague symptoms that look a lot like other conditions, which could cause cases to be misdiagnosed or overlooked.

More than 95 percent of health care providers responding to the stakeholder survey said emerging tropical diseases could have an impact on the public's health in the wake of a natural disaster, yet few said they were "a great deal" familiar with key emerging and neglected tropical diseases, like zika (30 percent said they were familiar), chagas (9 percent), and dengue fever (15 percent).

When asked what format was preferred to receive such education, 40 percent of health care providers surveyed said webinars were the best method for training, followed by lunch and learns (26 percent) and conferences (17 percent).

Figure 33. How Familiar Health Care Providers Say They Are With Chagas Disease, 2018



Source: The Immunization Partnership Stakeholder Survey, 2018

Fewer than 1 in 10 health care providers responding to the stakeholder survey said they were "a great deal" familiar with chagas disease, a neglected tropical disease currently affecting an estimated 36,977 people in Texas.

Gather a coalition of partners from throughout the state to improve capacity and support for research and treatment of emerging and neglected tropical diseases. Organizations like the Sabin Vaccine Institute, Texas Children's Hospital, and Baylor College of Medicine have already begun the work needed to develop vaccines for some of the most dangerous and pervasive NTDs.[115] Through their hard work and others', vaccines and vaccine candidates are being tested for chagas, dengue, hookworm, leishmaniasis, onchocerciasis (river blindness), and schistosomiasis.[116]

As the world saw with the 2014 ebola outbreaks, the process of developing vaccines is slow — and not solely because of the limitations of technology. As physician and researcher Peter Hotez and his colleagues wrote in 2016, "[O]ur technical abilities outpaced the social, political, economic, and financial institutions for making vaccines for the extremely poor."[116] The world knew how to make an ebola vaccine long before the outbreak, but it took people dying in large numbers — and the fear of the virus entering developed nations — to bring the vaccine into the final stages.

Let's not wait. Texas is not just home to several emerging and neglected tropical diseases, it is also where many of the world's leading medical researchers and institutions frequently break new ground. By bringing these organizations together to combat NTDs, the state could lead the world in the next generation of life-saving vaccines.

Conclusions and Limitations

Conclusions

Vaccines are one of the world's most important public health victories, resulting in huge drops in diseases that once caused widespread death and disability. The overwhelming majority of Texans vaccinate, but there are signs that progress could be lost as more and more families choose to delay or forgo vaccines for their children.

Immunization professionals and parents from across the state shared their insights into the biggest hurdles Texas must overcome to maintaining high vaccination rates among young children, and increasing coverage in adolescents and adults. This report detailed their concerns, as well as outlined key recommendations to address them. These recommendations included reducing barriers that keep Texans from vaccinating themselves and their children, preventing deadly conditions like flu and HPV-related cancers, protecting school vaccine requirements that keep our communities safe, improving the way we store confidential immunization records, and breaking new ground on the next generation of vaccines.

The recommendations laid out in this document are ambitious — but doable. We as a state must come together to protect the progress we have made in the fight against diseases, and continue to improve coverage rates of life-saving vaccines where we can.

Limitations

This report is not without limitations. We tried to talk to as many stakeholders and community members as possible, and that meant casting a wide net in the form of a convenience sample. We accepted any and all feedback that individuals were willing to provide. As a result, the responses in this document only reflect the opinions of those who responded to our requests for participation and are not statistically representative of all Texans or all immunization stakeholders in the state. Likewise, the information presented in this report is not an exhaustive depiction of views expressed by community members, parents, health professionals, or any other immunization stakeholders.

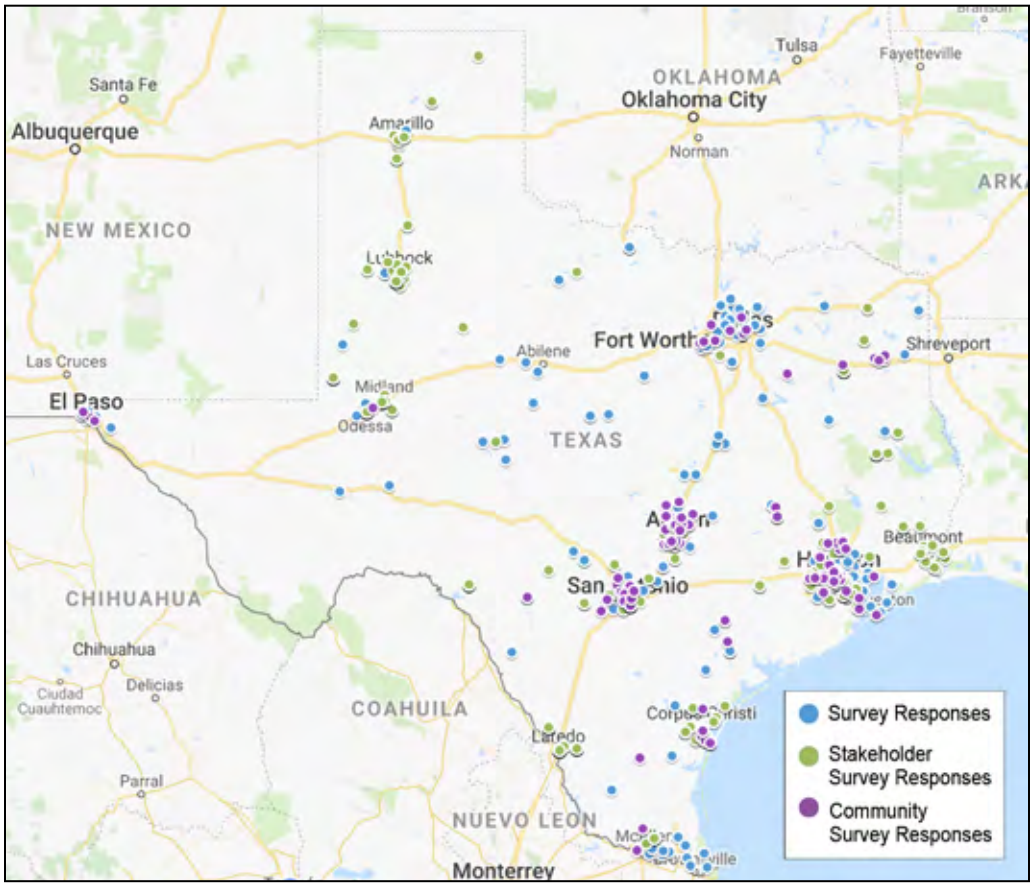
Another limitation is that individuals had the opportunity to participate in both the stakeholder meetings and surveys, resulting in duplicate individuals participating in both. Previous interactions or a prior relationship with The Immunization Partnership or partners assisting sharing the survey also might have influenced some responses, especially for those who completed the survey following a stakeholder meeting and vice versa.

Lastly, while we stand by our recommendations in this report, the opinions expressed by individual stakeholders might not necessarily reflect those of The Immunization Partnership, its Board, or the report's author.

Methodology

A convenience sample of 942 responses from Texas immunization stakeholders and parents was collected through town hall-style meetings, a survey of immunization stakeholders, and a survey of community members. The research protocol was approved by an institutional review board (IRB) before any responses were collected.

Figure 34. Zip Codes of Stakeholders Attending TIP's Town Hall Meetings And Survey Respondents, 2018



Source: The Immunization Partnership

Methodology

Target Populations

This project targeted immunization stakeholders and community members throughout Texas. "Immunization stakeholder" was defined as any individual directly or indirectly involved in vaccine service delivery and immunization promotion or education. This included:

- Clinicians
- Nurses
- Medical Assistants
- Pharmacists
- Public Health Department Staff
- Hospital System Administrators
- Community Health Workers
- School Nurses and Administrators
- Health Educators
- Immunization or Health Coalition Members
- Pharmaceutical Company Representatives
- Students
- Legislators and Policymakers

"Community member" was defined in similarly broad terms, though recruitment strategies were strongly geared toward parents.

Stakeholder Meetings

From March to May of 2018, nine meetings were held throughout Texas. The purpose of these meetings was two-fold:

1. Educate immunization stakeholders on updates to the routine vaccination schedule and the laws and policies related to immunizations in Texas.

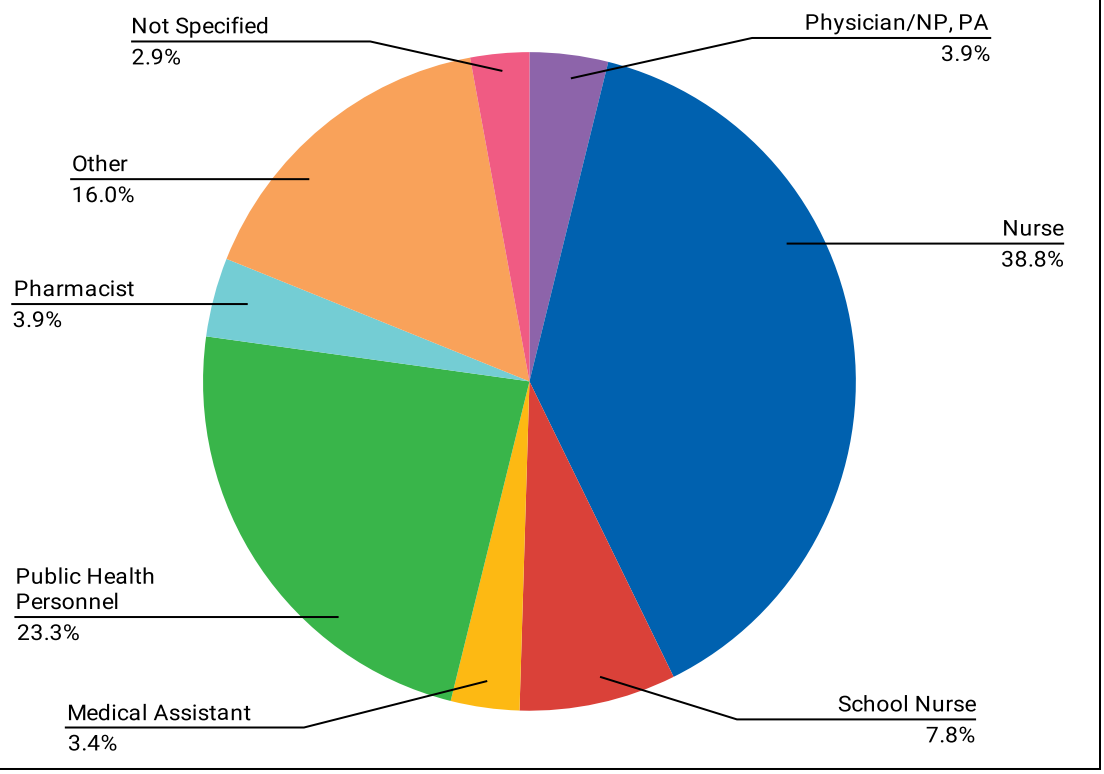
2. Gather feedback from stakeholders on issues related to immunizations.

Participation:

- A combined total of 323 attendees participated, representing nine rural and metro areas in Texas.
- Meeting attendees included health care practitioners, public health personnel, and pharmacists, as well as representatives from educational institutions, the pharmaceutical industry, and nonprofit associations.

Since 2008, The Immunization Partnership has held 49 stakeholder meetings in 16 cities, engaging a combined total of more than 1,900 participants.

Figure 35. Occupation of Stakeholder Meeting Attendees, 2018



Source: The Immunization Partnership Stakeholder Meeting Evaluations, 2018

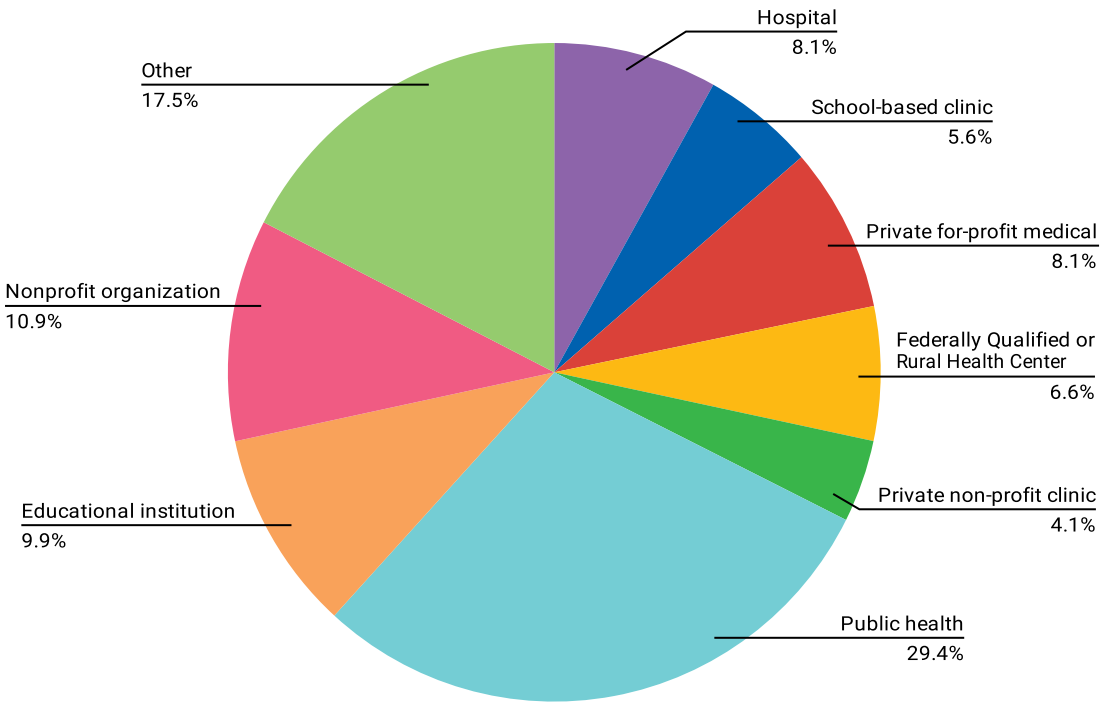
Stakeholder Survey

The Immunization Partnership administered a survey to Texas stakeholders from March to July of 2018. The purpose of the survey was to assess the knowledge, attitudes, beliefs and practices of stakeholders with regards to immunization-related issues, priorities, and recommended practices.

Participation:

- A total of 449 responses for the survey were collected with a completion rate of 70 percent.
- Thirty-two percent of respondents reported working in health care settings.
- Among the survey respondents who identified themselves as a health care provider, 15 percent identified themselves as physicians, 72 percent as a nurse or nurse practitioner, 10 percent as medical assistants, and 3 percent as some other type of provider.

Figure 36. Types of Organization Where Survey Respondents Work



Source: The Immunization Partnership Stakeholder Survey, 2018

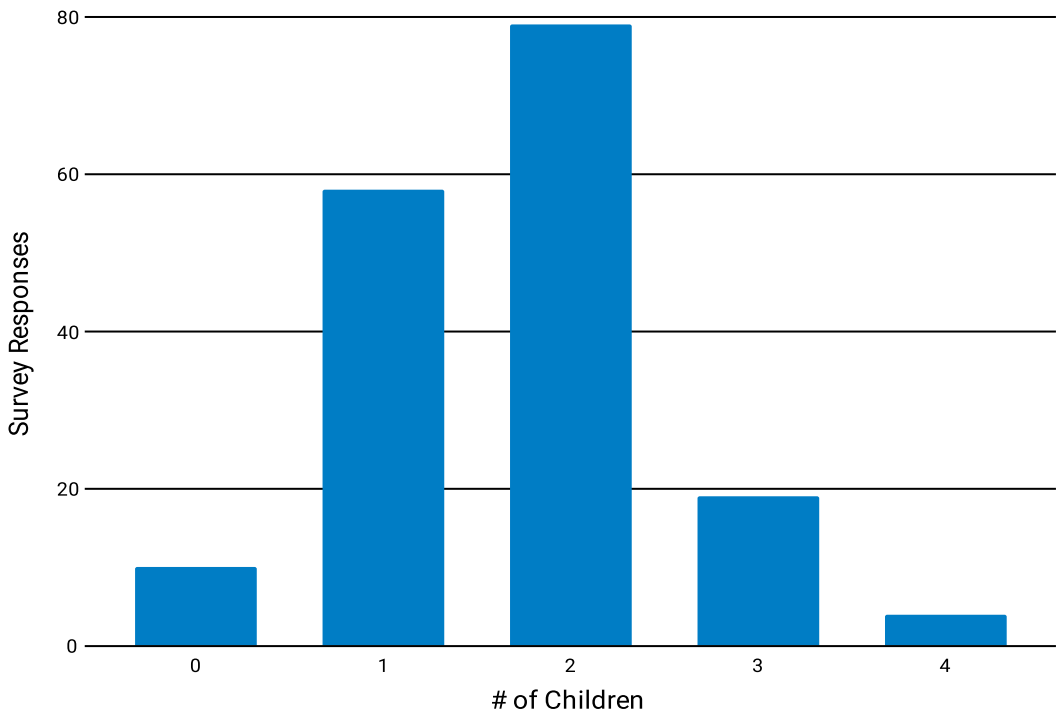
Community Survey

In addition to surveying stakeholders actively working in the field of immunizations, The Immunization Partnership administered a survey to Texas community members from March to July of 2018 to assess the knowledge, attitudes, beliefs and practices of parents and others with regards to immunization-related issues, priorities, and recommended practices. This was the first time The Immunization Partnership conducted a survey of this kind

Participation:

- A total of 196 responses for the survey were collected with a completion rate of 88 percent.
- Respondents represented 103 Texas zip codes.
- 4 percent of respondents were parents, 20 percent of whom were likely first-time parents — that is, had one child age 5 or under.

Figure 37. Number of Children Living With Survey Respondents



Source: The Immunization Partnership Stakeholder Community Survey, 2018

Methodology

Recruitment

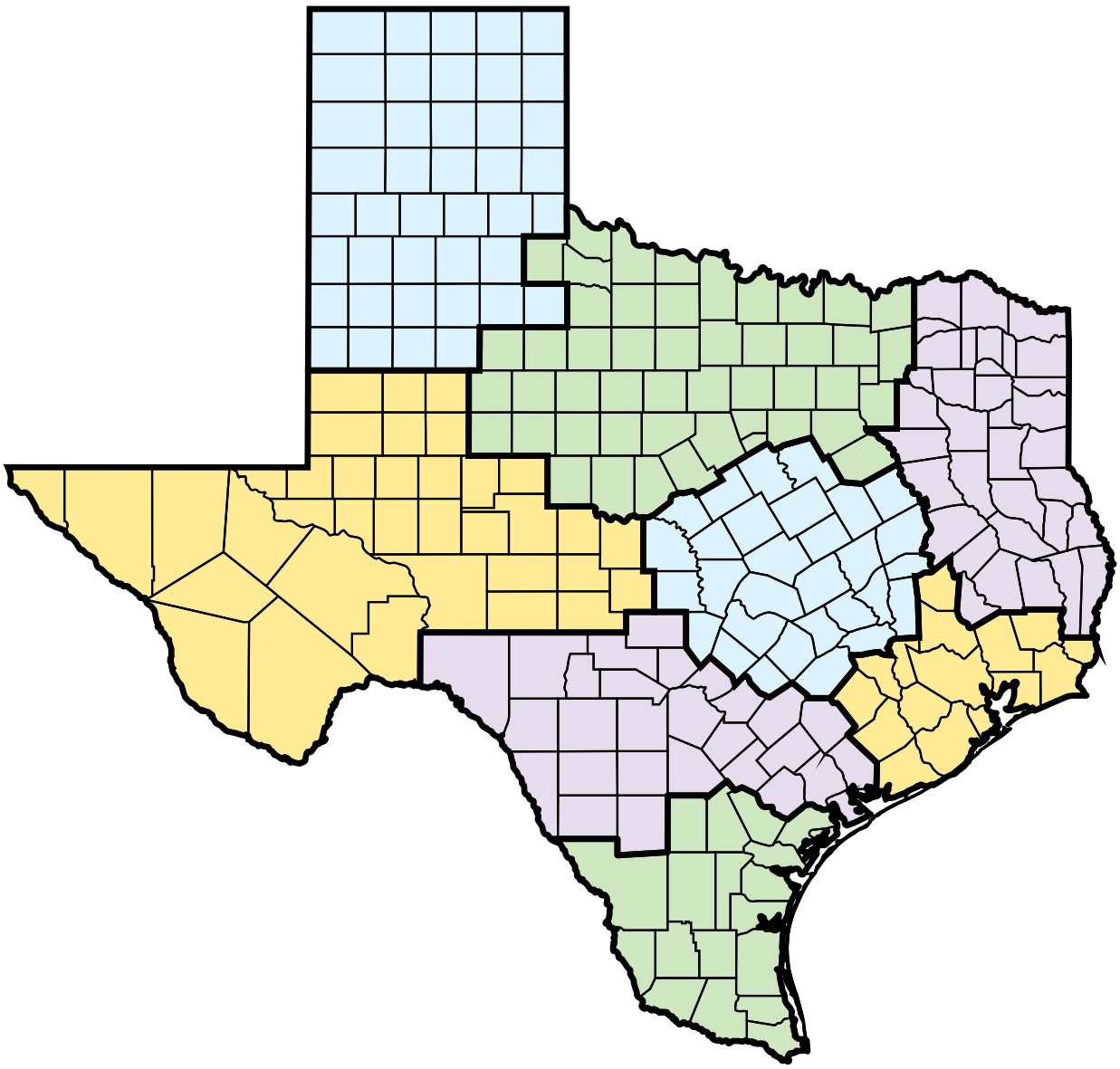
Participants for both the surveys and stakeholder meetings were recruited through a variety of electronic and in-person methods. These included:

- Email blasts through The Immunization Partnership's supporter database
- Events hosted by The Immunization Partnership — for example, attendees of educational events and stakeholder meetings were invited to participate in the community and stakeholder surveys
- Partner events, such as community health fairs, clinics, and community meetings
- Social media platforms
- Direct mailing to immunization providers in select rural counties
- Word of mouth and partner networks
- Follow-up emails to TIP event attendees
- Mention in an article by the Rivard Report

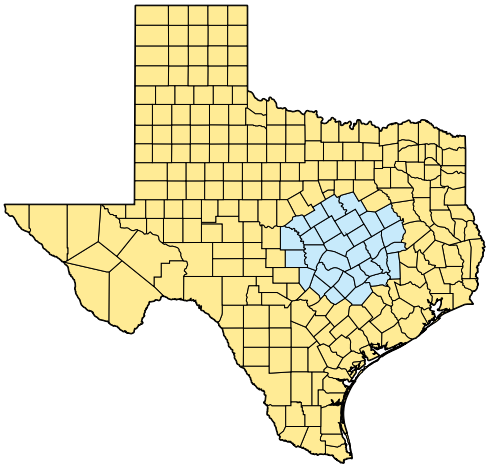
Incentives

Those attending in-person stakeholder meetings received refreshments, such as a light breakfast or lunch, as well as one contact hour of continuing nursing education credits (if applicable). Survey respondents were given the opportunity to enter a drawing for a $100 gift card.

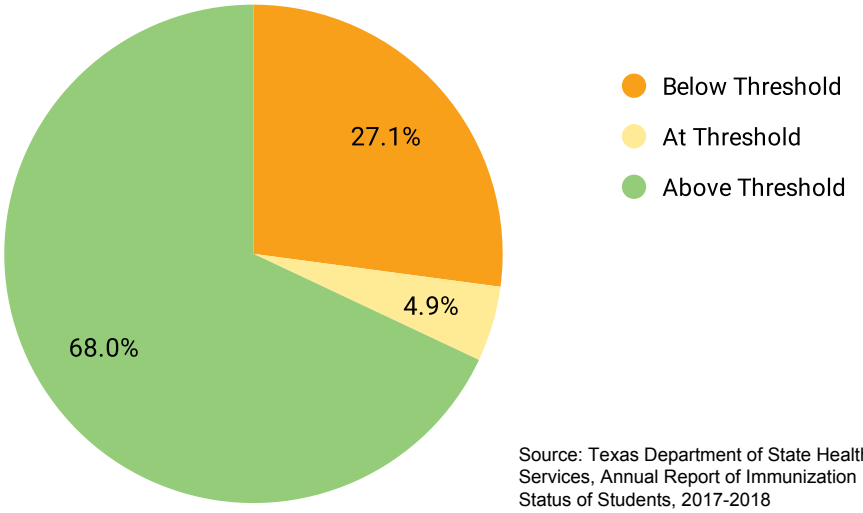
Regional Dashboards



Central Texas



Community Immunity Threshold for Measles: Percent of ISDs in Central Texas



Source: Texas Department of State Health Services, Annual Report of Immunization Status of Students, 2017-2018

Percent of Students with a Non-Medical Exemption Filed

State Average	0.57%	0.64%	0.76%	0.79%	0.84%	0.97%	1.07%
County	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Bastrop	**0.88%**	**0.91%**	**0.96%**	**1.29%**	**1.08%**	**1.37%**	**1.39%**
Bell	0.37%	0.37%	0.49%	0.58%	0.71%	0.79%	0.91%
Blanco	**2.08%**	**2.89%**	**3.61%**	**4.57%**	**3.06%**	**3.46%**	**3.52%**
Bosque	0.57%	0.50%	0.49%	0.58%	0.68%	0.93%	0.78%
Brazos	0.38%	0.48%	0.49%	0.63%	0.76%	0.76%	0.76%
Burleson	0.22%	0.19%	0.11%	0.19%	0.19%	0.19%	0.40%
Burnet	**1.25%**	**1.55%**	**1.75%**	**2.37%**	**2.21%**	**2.44%**	**2.64%**
Caldwell	0.35%	0.49%	0.66%	0.76%	**1.07%**	**1.26%**	**1.35%**
Coryell	0.36%	0.41%	**1.21%**	**0.96%**	0.74%	0.47%	1.01%
Falls	0.09%	0.09%	0.00%	0.14%	0.23%	0.43%	0.14%
Fayette	**0.69%**	**0.68%**	**0.94%**	**1.05%**	**0.92%**	0.89%	0.49%
Freestone	0.54%	**0.65%**	0.70%	**0.87%**	0.76%	0.86%	0.99%
Grimes	0.42%	0.30%	0.48%	0.57%	0.61%	0.85%	0.95%
Hamilton	**1.00%**	**1.79%**	**1.05%**	**1.12%**	**0.87%**	0.69%	0.96%
Hays	**0.83%**	**1.39%**	**1.57%**	**1.75%**	**1.96%**	**2.20%**	**2.09%**
Hill	0.43%	**0.71%**	0.48%	0.47%	0.54%	0.66%	0.75%
Lampasas	**0.77%**	**0.83%**	**5.02%**	**1.19%**	**1.46%**	**1.74%**	**2.02%**
Lee	0.54%	0.45%	0.57%	0.61%	0.76%	0.65%	0.81%
Leon	0.36%	0.33%	0.37%	0.26%	0.26%	0.78%	0.90%
Limestone	0.13%	0.12%	0.23%	0.28%	0.32%	0.36%	0.47%
Llano	**0.86%**	**1.21%**	**1.19%**	**1.39%**	**1.38%**	**1.35%**	**1.28%**
Madison	0.33%	0.39%	0.46%	0.48%	0.40%	0.40%	0.71%
McLennan	0.27%	0.26%	0.31%	0.33%	0.35%	0.48%	0.56%
Milam	0.27%	0.55%	0.46%	**0.89%**	0.73%	0.66%	0.64%
Mills	**0.98%**	**1.09%**	**0.86%**	**1.08%**	**1.65%**	**1.61%**	**1.97%**
Robertson	0.30%	0.34%	**4.14%**	0.11%	0.26%	0.35%	0.29%
San Saba	**0.67%**	**1.21%**	**0.89%**	0.68%	0.67%	**1.11%**	**1.85%**
Travis	**1.53%**	**1.74%**	**1.75%**	**2.08%**	**2.30%**	**2.45%**	**2.72%**
Washington	0.09%	0.27%	0.30%	0.66%	0.79%	0.43%	0.83%
Williamson	**1.55%**	**1.79%**	**2.11%**	**2.12%**	**1.83%**	**2.66%**	**2.68%**

Note: Red figures indicate the exemption rate is higher than that year's state average

Source: Texas Department of State Health Services, Conscientious Exemptions Data - Vaccination Coverage

My oldest daughter was born with a congenital heart defect. For the first six months of her life, we couldn't vaccinate until we were sure she didn't have DiGeorges syndrome. In the meantime, various outbreaks of measles and whooping cough left us scared to death. Luckily, she does not have DiGeorges and can get all of her vaccines now. But it thoroughly cemented my faith in herd immunity. Glad that we can be a part of the herd and help protect other medically fragile kids.

— Parent in Austin

Our laws need to be changed to where it only allows medical exemptions. Putting other kids at risk because a parent makes a personal choice to not vaccinate theirs is very concerning. We work and get our kids vaccinated to prevent only to have our kids around the kids that aren't vaccinated who could be a danger.

— Survey Respondent in Austin

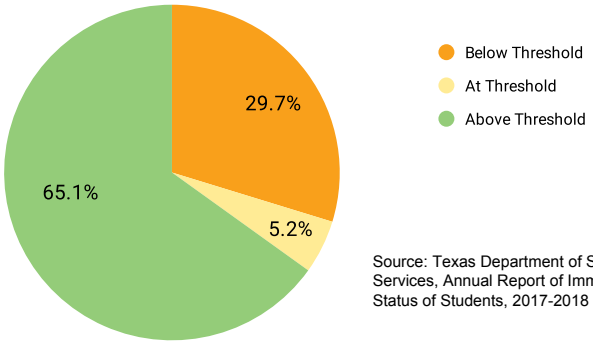
I would love to see a mandatory vaccination policy nationwide not only for schools, but also for extracurricular activities.

— Parent in Bryan

I just have questions about the long-term effects of immunizations. I know they accomplish the job they are designed to do — but is it at the cost of some other health area? And are some of these immunizations necessary if the disease has not had a major outbreak?

— Parent in College Station

Community Immunity Threshold for Measles: Percent of ISDs in North Texas



Source: Texas Department of State Health Services, Annual Report of Immunization Status of Students, 2017-2018

Percent of Students with a Non-Medical Exemption Filed

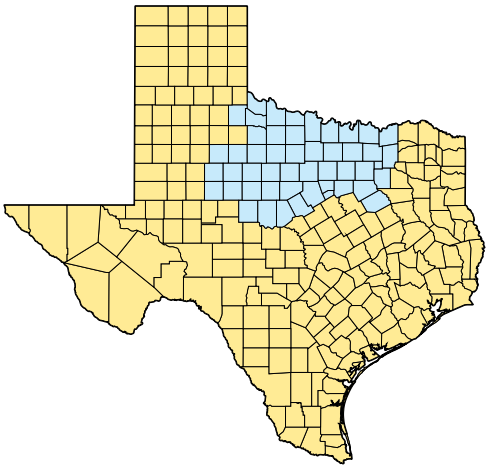
State Average	0.57%	0.64%	0.76%	0.79%	0.84%	0.97%	1.07%
County	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Archer	0.49%	0.61%	0.33%	0.56%	0.61%	0.45%	0.81%
Baylor	1.28%	1.43%	1.52%	3.36%	1.23%	0.70%	0.36%
Brown	1.07%	1.43%	0.60%	0.70%	0.62%	0.99%	1.15%
Callahan	1.38%	1.24%	1.12%	1.75%	1.39%	1.81%	1.46%
Clay	0.24%	0.38%	0.37%	0.42%	0.52%	0.33%	0.73%
Coleman	0.23%	0.00%	0.00%	0.16%	0.28%	1.16%	0.66%
Collin	1.17%	1.39%	1.61%	1.74%	1.92%	2.08%	2.21%
Comanche	1.17%	1.39%	1.61%	1.74%	1.92%	2.08%	2.21%
Cooke	0.89%	0.78%	0.68%	0.82%	0.87%	1.04%	1.02%
Cottle	0.00%	0.00%	--	0.00%	0.00%	0.00%	0.00%
Dallas	0.35%	0.41%	0.45%	0.53%	0.60%	0.64%	0.74%
Denton	3.17%	3.50%	4.07%	2.07%	2.05%	2.92%	2.22%
Eastland	0.98%	1.34%	1.74%	1.66%	1.51%	2.12%	2.09%
Ellis	0.57%	0.69%	0.79%	0.97%	0.99%	1.21%	1.48%
Erath	0.25%	0.55%	0.45%	0.75%	1.32%	0.91%	1.08%
Fannin	0.98%	0.91%	0.86%	0.93%	0.91%	1.07%	1.14%
Fisher	1.51%	1.07%	1.94%	--	0.57%	0.59%	0.99%
Foard	0.00%	0.00%	0.00%	0.00%	0.00%	0.44%	0.00%
Grayson	0.63%	0.89%	0.85%	0.95%	0.97%	1.17%	1.46%
Hardeman	0.43%	0.44%	0.86%	1.37%	1.68%	2.84%	0.00%
Haskell	0.00%	0.12%	0.25%	0.24%	0.40%	0.37%	0.65%
Hood	1.17%	1.34%	0.80%	1.13%	1.73%	2.19%	2.07%
Hunt	0.50%	0.58%	0.72%	0.80%	0.77%	0.82%	0.98%
Jack	0.07%	0.65%	0.26%	0.39%	0.78%	1.05%	0.95%
Johnson	0.70%	0.74%	0.89%	0.95%	1.26%	1.55%	1.76%
Jones	0.20%	0.30%	0.22%	0.43%	0.59%	0.66%	0.50%
Kaufman	0.41%	0.49%	0.49%	0.63%	0.67%	0.85%	0.98%
Kent	1.35%	1.48%	1.56%	2.65%	2.65%	0.00%	0.00%
Knox	0.41%	0.26%	0.51%	0.25%	0.24%	0.28%	0.27%
Mitchell	0.30%	0.42%	0.67%	0.62%	0.21%	0.22%	0.08%
Montague	0.64%	3.94%	0.49%	0.73%	0.78%	1.46%	2.30%
Navarro	0.25%	0.24%	0.35%	0.35%	0.35%	0.28%	0.30%
Nolan	0.25%	0.46%	0.45%	0.32%	0.54%	0.45%	0.61%
Palo Pinto	0.79%	1.07%	0.95%	0.92%	0.96%	1.10%	1.48%
Parker	0.75%	0.80%	1.14%	1.40%	1.30%	1.61%	1.78%
Rockwall	1.16%	1.33%	1.44%	1.41%	1.49%	1.77%	2.00%
Runnels	0.41%	0.98%	0.91%	0.88%	1.06%	1.03%	0.79%
Scurry	0.25%	0.00%	0.13%	0.21%	0.25%	0.26%	0.35%
Shackelford	1.82%	1.86%	0.60%	1.42%	1.61%	2.35%	2.37%
Somervell	0.66%	0.82%	0.97%	1.42%	1.66%	1.99%	2.61%
Stephens	0.07%	0.27%	0.35%	0.29%	0.35%	0.43%	1.19%
Stonewall*	--	0.43%	0.00%	1.87%	0.00%	0.00%	0.52%
Tarrant	0.79%	0.80%	0.78%	1.11%	1.10%	1.27%	1.45%
Taylor	0.42%	0.33%	0.65%	0.76%	0.65%	0.80%	0.93%
Throckmorton	0.00%	0.67%	1.40%	0.00%	0.66%	0.33%	1.69%
Wichita	0.37%	0.46%	0.49%	0.55%	0.53%	0.76%	0.75%
Wilbarger	0.00%	0.08%	0.00%	2.07%	0.22%	0.17%	0.00%
Wise	0.58%	0.73%	0.82%	1.02%	0.86%	1.12%	1.72%
Young	0.06%	0.35%	0.41%	0.62%	0.77%	0.96%	0.83%

Notes: Red figures indicate exemption rate is higher than that year's state average

Source: Texas Department of State Health Services, Conscientious Exemptions Data - Vaccination Coverage

**Stonewall County's percentage point difference is from 2012-2018.*

North Texas



We need stricter laws in Texas to prevent parents from opting out of vaccines. Too many parents can easily apply for the waiver — jeopardizing our entire community. While I understand vaccines are counter-indicated for a small number of people, the vast majority of those receiving immunization waivers have nothing medically wrong with them. Please help push our state leaders to tighten up this loophole... It's just a matter of time before our state is hit with an epidemic of a preventable disease.

— Parent in Fort Worth

Vaccine clinics in schools should be able to give ALL vaccines, not just a few the school board okays.

— RN in Fort Worth

Public education is the key. Countering the misinformation head-on is the only way. Tip-toeing around the issue is a weak way to proceed.

— Physician in Dallas

TX lawmakers are visited regularly by anti-vax groups with a lot of funding, touting their stories of vaccine "side effects." I have not seen the response as strong from the pro-vax or public health side, and it's hurting us. They need to hear the numbers and facts, but they also need to hear the stories of those affected by VPDs to counteract these powerful and damaging claims from the anti-vax crowd.

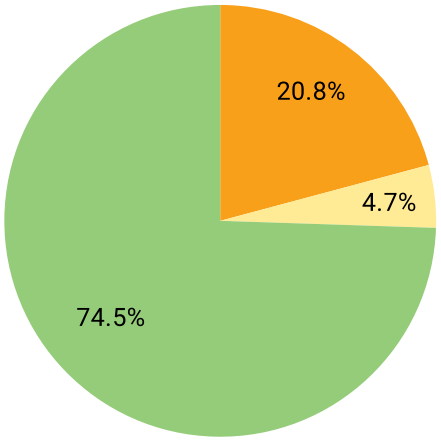
— Stakeholder in Denton

Families that have private insurance should be able to go to Public Health Clinics for immunizations.

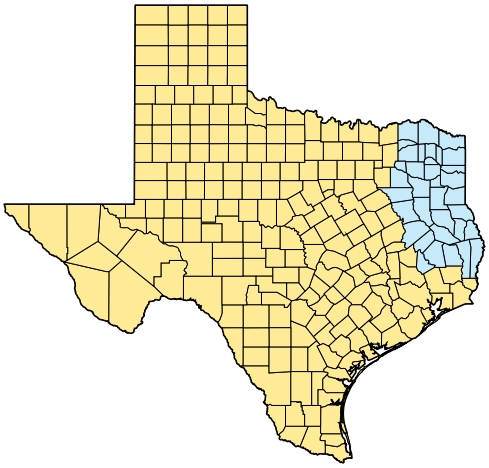
— Stakeholder in Stephenville

Northeast Texas

Community Immunity Threshold for Measles: Percent of ISDs in Northeast Texas



Source: Texas Department of State Health Services, Annual Report of Immunization Status of Students, 2017-2018



Percent of Students with a Non-Medical Exemption Filed

State Average	0.57%	0.64%	0.76%	0.79%	0.84%	0.97%	1.07%
County	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Anderson	0.24%	0.33%	0.29%	0.29%	0.35%	0.50%	0.75%
Angelina	0.44%	0.46%	0.55%	0.49%	0.70%	0.63%	0.67%
Bowie	0.66%	0.97%	1.12%	1.17%	1.17%	1.30%	1.28%
Camp	0.04%	0.13%	0.08%	0.04%	0.00%	0.04%	0.04%
Cass	0.32%	0.23%	0.32%	0.23%	0.57%	0.56%	0.74%
Cherokee	0.18%	0.26%	0.24%	0.30%	0.36%	0.39%	0.49%
Delta	0.81%	0.97%	0.81%	1.06%	1.61%	1.68%	1.17%
Franklin	0.53%	0.26%	0.38%	0.50%	0.75%	0.83%	0.64%
Gregg	0.69%	1.28%	0.61%	0.63%	0.95%	0.87%	1.11%
Harrison	0.40%	0.42%	0.49%	0.66%	0.49%	0.62%	0.78%
Henderson	0.31%	0.44%	0.66%	0.71%	0.84%	1.10%	1.30%
Hopkins	0.43%	0.52%	0.59%	0.56%	0.77%	0.94%	1.02%
Houston	0.17%	0.17%	0.17%	0.15%	0.57%	0.77%	1.07%
Jasper	0.51%	0.50%	0.47%	0.52%	0.64%	1.02%	1.38%
Lamar	0.36%	0.27%	0.30%	0.43%	0.75%	0.90%	1.11%
Marion	0.17%	0.17%	0.18%	0.17%	0.42%	1.00%	1.14%
Morris	0.08%	0.05%	0.07%	0.10%	0.11%	0.16%	0.28%
Nacogdoches	0.43%	0.60%	0.66%	0.54%	1.25%	1.32%	0.80%
Newton	0.49%	0.46%	0.72%	0.22%	1.35%	1.10%	1.48%
Panola	0.20%	0.41%	0.32%	0.25%	0.49%	0.65%	0.78%
Polk	0.31%	0.32%	0.48%	0.55%	0.54%	0.48%	0.76%
Rains	0.06%	0.31%	0.45%	1.16%	2.85%	1.96%	0.00%
Red River	0.80%	1.06%	1.19%	1.16%	1.21%	1.15%	0.85%
Rusk	0.25%	0.14%	0.16%	0.22%	0.27%	0.41%	0.50%
Sabine	0.05%	0.32%	0.31%	0.32%	0.67%	0.83%	1.33%
San Augustine	0.38%	0.43%	0.71%	0.45%	0.49%	0.58%	0.37%
San Jacinto	0.68%	0.53%	0.33%	0.50%	0.58%	0.62%	0.57%
Shelby	0.20%	0.08%	0.11%	0.15%	0.17%	0.19%	0.41%
Smith	0.61%	0.64%	0.76%	0.89%	0.92%	1.14%	1.42%
Titus	0.28%	0.25%	0.28%	0.37%	0.50%	0.33%	0.36%
Trinity	0.57%	0.41%	0.61%	0.47%	0.45%	0.41%	0.90%
Tyler	0.32%	0.76%	0.79%	0.72%	0.65%	1.01%	1.07%
Upshur	2.20%	1.92%	0.91%	1.01%	0.91%	1.08%	1.57%
Van Zandt	0.86%	0.99%	1.09%	1.59%	1.22%	1.59%	1.65%
Wood	0.79%	0.90%	0.68%	1.16%	1.08%	0.98%	0.96%

Note: Red figures indicate the exemption rate is higher than that year's state average

Source: Texas Department of State Health Services, Conscientious Exemptions Data - Vaccination Coverage

Some families have to travel over 30 minutes to get vaccines. ImmTrac is not updated as well as should be, and families move often and their immunization record is not updated.

— RN in Marshall

Adults 19 and older who[se] insurance does not cover vaccines should qualify for ASN vaccines.

— Stakeholder in Tyler

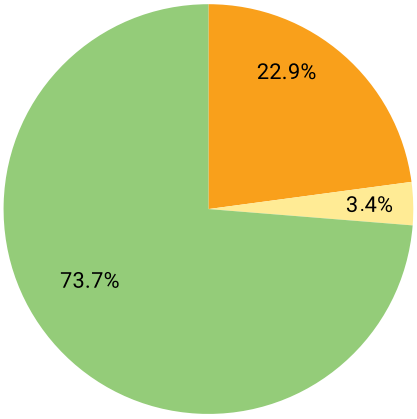
I agree with the standard sched[ule] of vaccines. I do not, nor do my children take the flu nor HPV vaccine due to personal neg[ative] experience with flu vaccine & lack of coverage of HPV strains / side effects of HPV. All others are administered.

— Parent in Tyler

Parents do not want HPV for their children. Parents only follow up on vaccines needed when pressured by the schools.

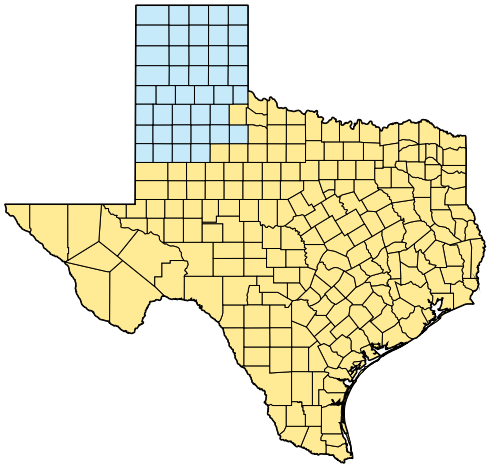
— RN in Mount Pleasant

Community Immunity Threshold for Measles: Percent of ISDs in the Texas Panhandle



Source: Texas Department of State Health Services, Annual Report of Immunization Status of Students, 2017-2018

Panhandle



Percent of Students with a Non-Medical Exemption Filed

State Average	0.57%	0.64%	0.76%	0.79%	0.84%	0.97%	1.07%
County	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Armstrong	1.43%	1.44%	1.98%	2.06%	0.59%	1.90%	1.44%
Bailey	0.57%	0.58%	0.75%	0.68%	0.67%	0.74%	0.89%
Briscoe	4.12%	2.56%	2.86%	2.16%	3.55%	3.26%	2.02%
Carson	0.48%	0.77%	0.95%	1.20%	1.26%	1.44%	1.94%
Castro	0.00%	0.00%	0.22%	0.07%	0.00%	0.38%	0.44%
Childress	0.18%	0.09%	0.00%	0.09%	0.09%	0.18%	0.19%
Cochran	0.44%	0.90%	0.38%	0.39%	0.29%	0.29%	0.30%
Collingsworth	2.05%	2.02%	2.31%	2.89%	1.16%	1.32%	1.99%
Crosby	0.69%	0.70%	0.60%	1.07%	0.99%	0.72%	1.02%
Dallam	0.43%	0.21%	0.75%	0.68%	1.41%	1.13%	1.66%
Deaf Smith	0.13%	0.09%	0.05%	0.07%	0.00%	0.13%	0.19%
Dickens	0.00%	1.11%	0.26%	0.69%	0.52%	0.00%	0.00%
Donley	0.18%	0.74%	0.75%	1.36%	0.52%	0.53%	1.48%
Floyd	0.08%	0.00%	0.09%	0.00%	0.16%	0.17%	0.23%
Garza	0.45%	0.54%	0.59%	0.30%	0.60%	0.60%	0.42%
Gray	0.29%	0.21%	0.28%	0.28%	0.12%	0.30%	0.18%
Hale	0.17%	0.20%	0.29%	0.28%	0.17%	0.40%	0.45%
Hall	0.00%	0.00%	0.00%	0.21%	0.16%	0.61%	0.31%
Hansford	1.09%	1.04%	0.97%	1.19%	1.33%	1.11%	1.03%
Hartley	1.48%	1.47%	1.50%	1.10%	2.24%	4.06%	2.69%
Hemphill	1.47%	1.00%	0.62%	0.86%	1.03%	0.63%	1.35%
Hockley	0.46%	0.59%	0.56%	0.47%	0.59%	0.88%	0.58%
Hutchinson	0.52%	0.42%	0.67%	0.81%	0.89%	0.77%	1.29%
King	1.96%	0.00%	0.00%	0.89%	0.87%	2.80%	0.00%
Lamb	0.03%	0.07%	0.00%	0.05%	0.07%	0.19%	0.35%
Lipscomb	0.00%	0.00%	0.65%	0.43%	0.15%	0.13%	0.49%
Lubbock	0.59%	0.64%	0.85%	1.01%	1.11%	1.31%	1.31%
Lynn	0.65%	0.98%	0.87%	1.07%	0.88%	0.88%	1.49%
Moore	0.12%	0.16%	0.18%	0.17%	0.19%	0.12%	0.15%
Motley	0.55%	0.00%	0.00%	--	0.00%	0.65%	0.62%
Ochiltree	0.22%	0.35%	0.43%	0.21%	0.13%	0.26%	0.42%
Oldham	0.55%	1.45%	0.94%	1.45%	1.28%	1.13%	1.21%
Parmer	0.43%	0.59%	0.63%	0.53%	0.95%	0.93%	0.85%
Potter	0.80%	0.92%	0.94%	0.95%	0.90%	1.17%	1.21%
Randall	1.27%	1.30%	1.47%	1.67%	1.66%	1.75%	1.85%
Roberts	0.00%	1.46%	0.00%	0.00%	0.00%	0.00%	0.00%
Sherman	0.86%	0.85%	1.07%	0.29%	0.43%	0.28%	0.41%
Swisher	0.46%	0.40%	0.58%	0.52%	0.07%	0.32%	0.79%
Terry	0.15%	0.04%	0.05%	0.04%	0.00%	0.40%	0.53%
Wheeler	0.75%	0.82%	1.09%	2.39%	1.87%	1.95%	1.83%
Yoakum	0.57%	0.38%	0.74%	0.64%	1.03%	0.60%	0.74%

Note: Red figures indicate the exemption rate is higher than that year's state average

Source: Texas Department of State Health Services, Conscientious Exemptions Data - Vaccination Coverage

Allowing families to choose an arbitrary exemption to NOT vaccinate puts the entire population at risk. People that are immunocomprimised, elderly, or infant/toddlers have little or no immunity. The choice to not vaccinate puts everyone at risk to spread diseases that should have died off due to vaccinations.

— Stakeholder in Amarillo

We have these middle class people who are working and have insurance, but they have $2000 deductibles and they three or four children. So they can't afford to come in and get the vaccines, and we can't do it for them at the reduced rate [because] they're not eligible for TVFC. So to me that pushes them to: "Well lets just get a c onscientious exemption."

— Stakeholder in Amarillo

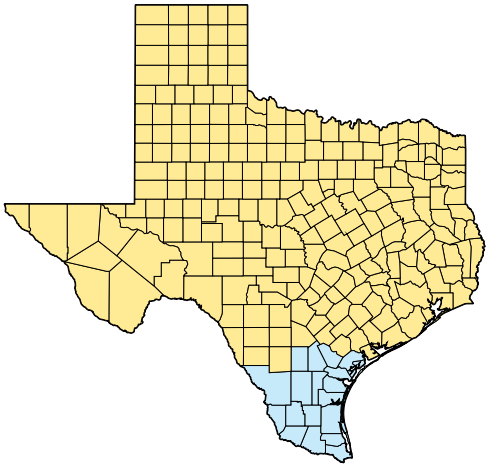
Here in this area a lot of our clinics are very much 8 to 5 so for some parents having to take off work to go get their kids vaccinated, and they're being paid hourly, gives them hardship.

— Stakeholder in Amarillo

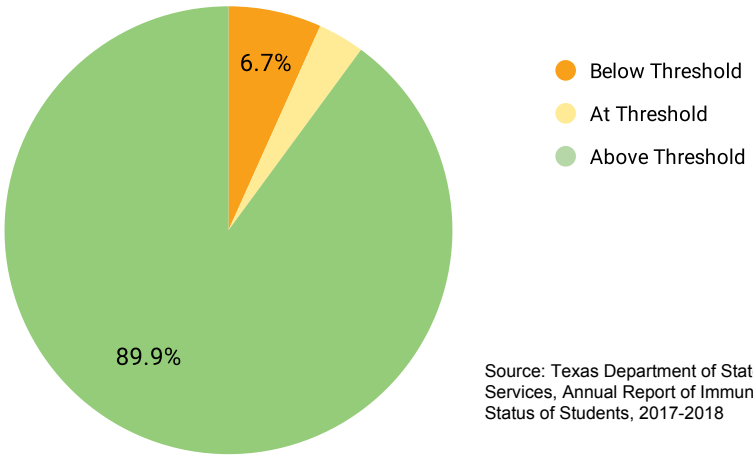
Seems like many young parents are opting to forego immunizations on their children, primarily due to fears. Most of these fears are unsubstantiated.

— RN in Lubbock

Rio Grande Valley



Community Immunity Threshold for Measles: Percent of ISDs in the Rio Grande Valley



Source: Texas Department of State Health Services, Annual Report of Immunization Status of Students, 2017-2018

Percent of Students with a Non-Medical Exemption Filed

State Average	0.57%	0.64%	0.76%	0.79%	0.84%	0.97%	1.07%
County	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Aransas	0.46%	0.52%	**0.98%**	**1.20%**	**1.22%**	**1.39%**	**1.49%**
Bee	0.27%	0.23%	0.46%	0.52%	0.24%	0.23%	0.26%
Brooks	0.13%	0.00%	0.00%	0.00%	0.00%	0.06%	0.19%
Cameron	0.08%	0.10%	0.54%	0.10%	0.12%	0.13%	0.13%
Duval	0.00%	0.00%	0.05%	0.04%	0.04%	0.12%	0.08%
Hidalgo	0.05%	0.07%	0.10%	0.05%	0.10%	0.14%	0.19%
Jim Hogg	0.00%	0.28%	0.29%	0.18%	0.09%	0.00%	0.09%
Jim Wells	0.09%	0.07%	0.07%	0.12%	0.16%	0.21%	0.20%
Kenedy	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Kleberg	**0.62%**	0.51%	0.62%	0.69%	0.44%	0.47%	0.64%
Live Oak	0.36%	0.52%	0.40%	0.49%	0.34%	0.41%	0.63%
Mcmullen	**0.97%**	**0.88%**	0.00%	0.40%	0.81%	**1.21%**	0.41%
Nueces	0.25%	0.35%	0.35%	0.47%	0.52%	0.59%	0.69%
Refugio	**0.75%**	**0.76%**	**0.89%**	**0.91%**	0.81%	0.97%	**1.38%**
San Patricio	0.33%	0.57%	0.62%	0.41%	0.45%	0.49%	0.50%
Starr	0.01%	0.00%	0.00%	0.00%	0.01%	0.02%	0.02%
Webb	0.04%	0.05%	0.06%	0.05%	0.08%	0.10%	0.12%
Willacy	0.05%	0.11%	0.13%	0.18%	0.02%	0.02%	0.05%
Zapata	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Note: Red figures indicate the exemption rate is higher than that year's state average

Source: Texas Department of State Health Services, Conscientious Exemptions Data - Vaccination Coverage

For our rural communities, the lack of a provider in the area severely limits the vaccination rates. Most do not have a PCP for the same reason (lack of transportation; distance to providers; etc) so the only time they receive immunizations is when we hold a clinic in their communities.

— Stakeholder in Laredo

I think part of the issue is just trust. People don't understand what the CDC is doing…and they don't know who those people are. They think that they're scary.

— Stakeholder in Corpus Christi

I do have concerns about the HPV vaccine, and I find it saddening how ineffective the flu vaccine has been.

— Parent in Corpus Christi

In our area there are many undocumented children whose parents are sometimes scared to get their children vaccinated because they believe they will be deported.

— Stakeholder in Edinburg

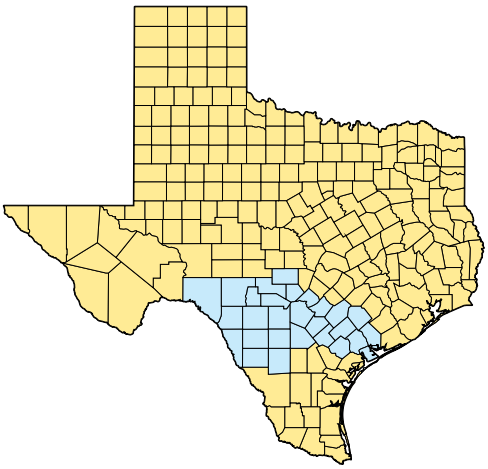
Client's have to be seen at their physicians office and wait long periods of time for a vaccine and often don't go cause they don't have co-pay for services. If they would allow health departments to see clients if they are not able to meet co-pay or deductible we could increase rates.

— Stakeholder in Kingsville

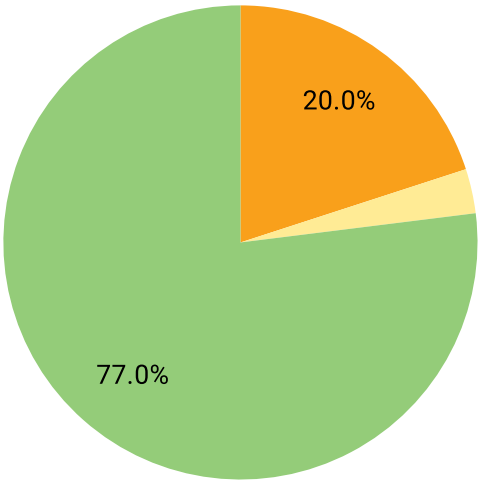
As a health care provider, I know that not ALL children are medically cleared to receive all immunizations. I believe there should only be medical waivers for children who attend public schools, including public charter schools.

— Parent in Corpus Christi

South Central Texas



Community Immunity Threshold for Measles: Percent of ISDs in South Central Texas



Source: Texas Department of State Health Services, Annual Report of Immunization Status of Students, 2017-2018

Percent of Students with a Non-Medical Exemption Filed

State Average	0.57%	0.64%	0.76%	0.79%	0.84%	0.97%	1.07%
County	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Atascosa	0.23%	0.23%	0.26%	0.30%	0.16%	0.20%	0.24%
Bandera	0.35%	**0.67%**	**1.00%**	**1.03%**	**1.44%**	**2.24%**	**2.26%**
Bexar	0.32%	0.36%	0.45%	0.52%	0.67%	0.69%	0.80%
Calhoun	0.46%	0.56%	0.51%	0.47%	0.39%	0.47%	0.59%
Comal	**0.98%**	**1.09%**	**1.56%**	**1.40%**	**1.60%**	**1.77%**	**2.07%**
DeWitt	0.42%	0.29%	0.36%	0.30%	0.48%	0.52%	0.53%
Dimmit	0.00%	0.04%	0.04%	0.00%	0.00%	0.00%	0.00%
Edwards	0.35%	0.19%	0.19%	0.19%	0.00%	0.38%	0.35%
Frio	0.10%	0.07%	0.10%	0.19%	0.06%	0.03%	0.16%
Gillespie	**1.40%**	**1.53%**	**1.75%**	**1.64%**	**1.77%**	**2.04%**	**2.92%**
Goliad	0.16%	0.23%	0.38%	0.49%	0.46%	0.71%	0.45%
Gonzales	0.19%	0.16%	0.26%	0.20%	0.22%	0.15%	0.20%
Guadalupe	0.49%	0.56%	0.73%	0.55%	0.68%	0.63%	0.87%
Jackson	0.51%	0.61%	0.41%	0.51%	0.55%	0.76%	0.60%
Karnes	0.10%	0.48%	0.47%	0.58%	0.38%	0.46%	0.49%
Kendall	**1.73%**	**2.10%**	**2.41%**	**2.97%**	**2.50%**	**2.95%**	**3.04%**
Kerr	**1.00%**	**1.36%**	**1.33%**	**1.44%**	**1.58%**	**1.70%**	**1.95%**
Kinney	0.00%	**0.68%**	0.00%	0.62%	0.00%	0.00%	0.00%
LaSalle	0.00%	0.34%	0.22%	--	0.31%	0.31%	0.15%
Lavaca	0.24%	0.15%	0.27%	0.38%	0.47%	0.52%	0.55%
Maverick	0.02%	0.03%	0.06%	0.03%	0.03%	0.07%	0.05%
Medina	0.22%	0.30%	0.34%	0.42%	0.34%	0.30%	0.44%
Real	**0.75%**	**0.92%**	**1.05%**	**1.07%**	**1.55%**	**1.26%**	0.76%
Uvalde	0.20%	0.21%	0.23%	0.34%	0.48%	0.69%	0.68%
Val Verde	0.11%	0.08%	0.14%	0.16%	0.18%	0.23%	0.19%
Victoria	0.21%	0.08%	0.07%	0.21%	0.27%	0.18%	0.15%
Wilson	0.52%	0.48%	0.48%	0.66%	0.82%	**1.05%**	**1.30%**
Zavala	0.17%	0.04%	0.00%	0.00%	0.09%	0.18%	0.18%

Note: Red figures indicate the exemption rate is higher than that year's state average

Source: Texas Department of State Health Services, Conscientious Exemptions Data - Vaccination Coverage

We can only administer vaccines to children who meet the VFC guidelines and to adults who are not insured. This is a rural community and more people would receive vaccines if we could make them available to everyone.

— RN in Goliad

As a parent of a child with a medical condition, I rely on herd immunity to help keep him protected.

— Parent in Victoria

I wonder at reactions of some children to vaccines and would like research-based evidence showing the reasons for those reactions. Sometimes I think VARS [sic] is used as a weapon by anti vaxxers.

— Parent in San Antonio

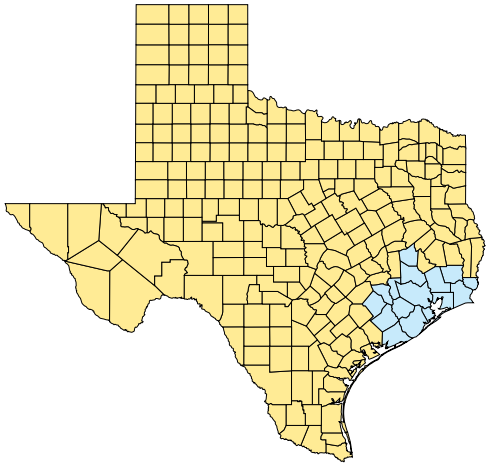
I don't understand why the Hep B shot is given at birth, and our pediatrician indicated it could be delayed. Doesn't this put people off vaccines right when they are starting to learn about them?

— Parent in San Antonio

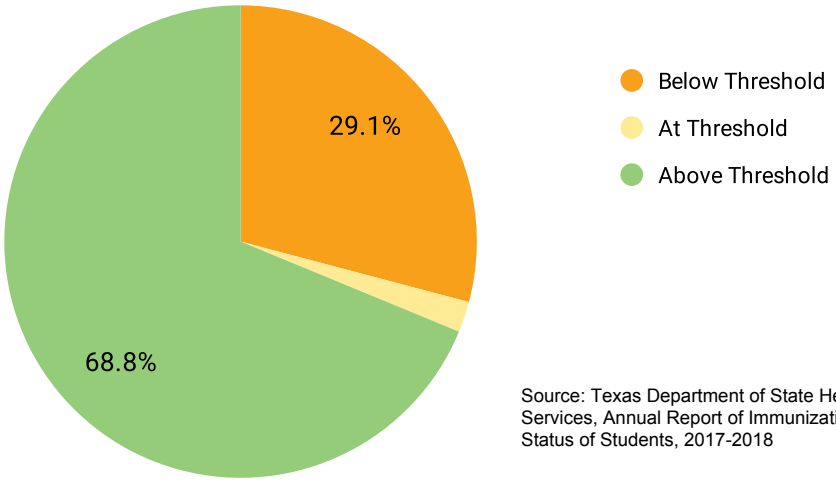
We have become a nation where providers will only see the patient for one illness or one disease. They may have six things going on with them, but they only see you for one thing, and then they ask to make an appointment to come back to the second thing, or back to the third thing. Those things aren't getting fixed, and vaccines are at the end of the totem pole.

— Stakeholder in San Antonio

Southeast Texas



Community Immunity Threshold for Measles: Percent of ISDs in Southeast Texas



Source: Texas Department of State Health Services, Annual Report of Immunization Status of Students, 2017-2018

Percent of Students with a Non-Medical Exemption Filed

State Average	0.57%	0.64%	0.76%	0.79%	0.84%	0.97%	1.07%
County	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Austin	0.28%	0.56%	0.27%	0.53%	0.74%	0.85%	1.05%
Brazoria	0.43%	0.46%	0.60%	0.70%	0.80%	0.79%	0.93%
Chambers	0.19%	0.48%	0.44%	0.57%	0.80%	**1.07%**	**1.16%**
Colorado	0.43%	0.30%	0.30%	0.34%	0.39%	0.06%	0.35%
Fort Bend	0.39%	0.45%	0.57%	0.50%	0.45%	0.54%	0.58%
Galveston	**0.69%**	**0.78%**	**0.91%**	**1.07%**	**0.99%**	**1.19%**	**1.26%**
Hardin	0.52%	0.60%	0.63%	0.48%	0.84%	0.96%	1.02%
Harris	0.39%	0.43%	0.57%	0.59%	0.62%	0.72%	0.83%
Jefferson	0.19%	0.30%	0.37%	0.41%	0.53%	0.49%	0.66%
Liberty	0.34%	0.29%	0.39%	0.35%	0.52%	0.57%	0.73%
Matagorda	0.27%	0.46%	0.59%	0.51%	0.67%	0.69%	0.91%
Montgomery	**1.06%**	**1.17%**	0.72%	**1.74%**	**1.73%**	**1.76%**	**1.94%**
Orange	**0.81%**	0.45%	0.29%	0.75%	0.66%	**1.01%**	0.94%
Walker	0.16%	0.24%	0.50%	0.52%	**1.00%**	0.50%	0.79%
Waller	0.30%	0.33%	0.55%	**0.98%**	0.71%	0.75%	0.82%
Wharton	0.16%	0.17%	0.19%	0.21%	0.20%	0.22%	0.21%

Note: Red figures indicate the exemption rate is higher than that year's state average

Source: Texas Department of State Health Services, Conscientious Exemptions Data - Vaccination Coverage

I wish that vaccines were required for admission to day care/preschool. It has been impossible to find a day care provider that does not allow for philosophical exemptions. I would like the choice to send my child to a facility that requires vaccinations for all children and staff.

— Parent in Houston

Pediatricians are there after the decisions been made. I can tell you seeing newborns, that a lot of those families already made those decisions. They're not going to get the Hepatitis B before I ever walk in the door. It's the fear and anxiety in pregnancy is way up here and vaccines just adds to that. We need to address pregnant women.

— Stakeholder in Houston

I have kept my child away from other children whose parents have chosen not to vaccinate. I believe it is a public hazard to not vaccinate (when someone is medically able to be vaccinated). And I find it highly hypocritical when people use modern medicine to make it viable to have children yet shun vaccines.

— Parent in Houston

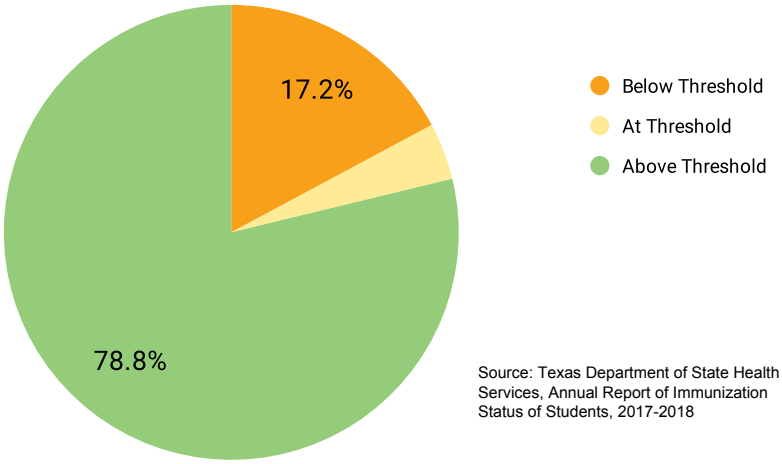
As the parent of a now 19 year old transplant recipient. He was 2 when he was transplanted. I worried every day he was in school that someone who was unvaccinated would unknowingly give him some measles or something because my child could not receive both MMRs. As a pediatric RN, I think vaccines are a community responsibility. Some of these diseases may not amount to much to many kids but to many others they can cause death in some of the other children that have some sort of chronic medical condition.

— Parent in Santa Fe

You're not gonna give 'em a vaccination at the same time they're going in for that acute treatment. And it's not money that they've got. They need to fix their problem or take care of their children. They're not worried about getting their flu shot or their pneumonia shot.

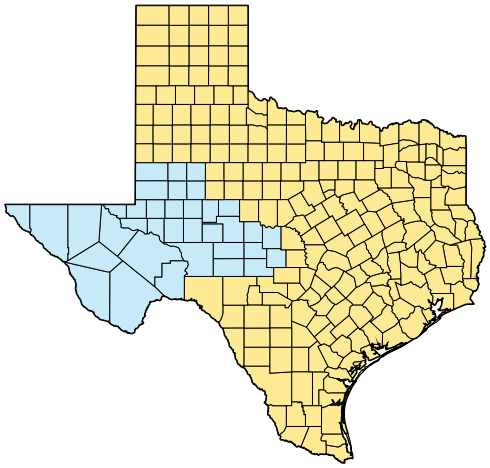
— Stakeholder in Beaumont

Community Immunity Threshold for Measles: Percent of ISDs in West Texas



Source: Texas Department of State Health Services, Annual Report of Immunization Status of Students, 2017-2018

West Texas



Percent of Students with a Non-Medical Exemption Filed

State Average	0.57%	0.64%	0.76%	0.79%	0.84%	0.97%	1.07%
County	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Andrews	0.52%	0.63%	0.66%	**0.82%**	0.75%	0.90%	1.07%
Borden	**0.95%**	**0.84%**	**1.17%**	**1.63%**	**2.04%**	**3.15%**	**4.24%**
Brewster	0.49%	**1.68%**	**1.46%**	0.54%	**1.36%**	**1.56%**	**1.72%**
Coke	0.00%	0.41%	**1.24%**	**1.37%**	0.79%	**1.93%**	**2.72%**
Concho	0.00%	0.00%	0.00%	0.51%	0.00%	**1.40%**	0.66%
Crane	0.10%	0.09%	0.35%	0.52%	0.44%	0.29%	0.37%
Crockett	0.42%	0.40%	0.65%	**1.25%**	0.52%	0.54%	0.42%
Culberson	0.00%	--	0.00%	--	0.00%	0.00%	0.51%
Dawson	0.28%	0.28%	0.26%	0.63%	0.47%	0.64%	0.54%
Ector	0.32%	0.37%	0.46%	0.47%	0.52%	0.64%	0.59%
El Paso	0.15%	0.14%	0.22%	0.21%	0.24%	0.23%	0.30%
Gaines	**2.94%**	**3.72%**	**4.32%**	**4.35%**	**4.83%**	**6.26%**	**8.78%**
Glasscock	0.00%	0.00%	0.00%	0.34%	0.00%	0.00%	**1.68%**
Howard	0.28%	0.37%	0.59%	0.75%	0.71%	0.90%	0.86%
Hudspeth	0.00%	0.00%	0.00%	0.00%	0.00%	0.78%	0.18%
Irion	**0.92%**	**1.33%**	**1.24%**	**1.80%**	0.62%	0.77%	**1.08%**
Jeff Davis	**2.03%**	**2.17%**	**3.07%**	**2.03%**	0.30%	0.31%	**3.19%**
Kimble	0.48%	0.63%	0.16%	0.48%	0.00%	0.00%	0.87%
Loving	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Martin	**1.01%**	0.47%	0.74%	**3.23%**	0.75%	0.74%	**1.14%**
Mason	**0.80%**	**0.92%**	**1.36%**	**1.90%**	**1.89%**	**1.35%**	**2.17%**
Mcculloch	0.28%	0.47%	0.32%	0.54%	0.47%	0.36%	0.65%
Menard	0.00%	0.00%	0.00%	0.00%	0.71%	0.36%	0.00%
Midland	0.20%	0.39%	0.67%	0.51%	0.79%	0.94%	0.84%
Pecos	0.18%	0.15%	0.31%	0.20%	0.23%	0.35%	0.37%
Presidio	0.11%	0.06%	0.06%	0.12%	0.17%	0.12%	0.33%
Reagan	0.00%	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%
Reeves	0.18%	0.34%	0.38%	0.36%	0.31%	0.39%	0.37%
Schleicher	0.36%	0.18%	0.18%	0.35%	0.18%	0.56%	0.00%
Sterling	0.00%	0.00%	0.33%	0.31%	0.00%	0.00%	
Sutton	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%	0.52%
Terrell	0.00%	0.00%				0.00%	0.00%
Tom Green	0.27%	0.23%	0.39%	0.51%	0.68%	0.72%	0.84%
Upton	0.00%	0.00%	0.62%	0.49%	0.37%	0.53%	0.49%
Ward	0.14%	0.22%	0.34%	0.17%	0.17%	0.33%	0.44%
Winkler	0.06%	0.08%	0.76%	0.45%	0.06%	0.53%	0.40%

Note: Red figures indicate the exemption rate is higher than that year's state average

Source: Texas Department of State Health Services, Conscientious Exemptions Data - Vaccination Coverage

There are outskirts, rural counties — the health departments may go up there, like DSHS may have an office a couple days a month — but there's nobody to provide for people who've been transferred. They still have to drive two hours because they don't qualify for vaccine for children or for an adult safety net because they're insured.

— Stakeholder in Midland

There are a few that are going to get exemptions because they're not willing to wait in line an hour or two hours to get these [vaccines] and they can't get into their doctor.

— Stakeholder in Midland

I feel as though patient's rely heavily on social media in reference to immunizations rather than the facts that are presented to them by their health care professionals. The things that they see on social media make a huge impact on their opinion of vaccinations.

— LVN in Fort Stockton

One of the problems that I see is that a lot of the patient's parents are refusing to vaccinate their child for HPV when they come in at 11-12 years of age for Tdap & Meningitis. A lot of them refuse the vaccine, because it is not required by the school and because they are concerned about whether or not the vaccine is safe.

— LVN in Fort Stockton

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Resources

For more information on immunization, please visit the following websites:

American Academy of Pediatrics
http://www2.aap.org/immunization/

Center for Vaccine Awareness and Research at Texas Children's Hospital
http://www.texaschildrens.org/vaccine/

Centers for Disease Control and Prevention: Vaccines and Immunizations
http://www.cdc.gov/vaccines/

College Vaccine Requirements
http://www.CollegeVaccineRequirements.com/

ImmTrac: Immunization Information System for Texas
http://www.dshs.state.tx.us/immunize/immtrac/default.shtm

Immunization Action Coalition: Vaccination Information for Healthcare Professionals and the Public
http://www.immunize.org/

Immunization Branch, Texas Department of State Health Services
http://www.dshs.state.tx.us/immunize

The Immunization Partnership (TIP)
http://www.immunizeUSA.org/

Immunize Texas
http://www.immunizetx.com/

PKIDs (Parents of Kids with Infectious Diseases)
http://www.pkids.org/

Texas Immunization Stakeholder Working Group (TISWG)
http://www.dshs.state.tx.us/immunize/partners/tiswg.shtm

Texas Vaccines for Children Program
http://www.dshs.state.tx.us/immunize/tvfc/default.shtm

Vaccinate Your Baby
http://www.vaccinateyourbaby.org/

Vaccinate Your Family
https://www.vaccinateyourfamily.org/

The Vaccine Education Center at The Children's Hospital of Philadelphia
http://www.chop.edu/service/vaccine-education-center/home.html

THE
IMMUNIZATION
PARTNERSHIP

OUR VISION

A community free from vaccine-preventable diseases

OUR MISSION

To eradicate vaccine-preventable diseases by educating the community, advocating evidence-based public policy, and supporting immunization best practices.

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