



Reducing Vaccine Preventable Disease in Texas: Strategies to Increase Vaccine Coverage Levels

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EXECUTIVE SUMMARY

Raising vaccine coverage levels for Texas' children is one of the highest priorities for the Texas Department of State Health Services.

Vaccines are recognized as one of the top ten public health successes of the twentieth century. Diseases like measles, mumps, rubella, diphtheria, and polio were once common and widespread. Today, vaccine-preventable diseases are relatively rare in the United States due to concerted efforts to vaccinate and protect the public. Yet, every year people in Texas die from vaccine-preventable diseases or suffer from their life changing complications.

Increasing and sustaining high vaccine coverage levels is important because a highly vaccinated population reduces the incidence of disease and safeguards the health of Texans. The Texas Department of State Health Services (DSHS) has worked with stakeholders in the statewide immunization system to improve vaccine coverage levels in children by implementing strategies consistent with higher vaccine coverage levels.

In 2009 the Centers for Disease Control and Prevention (CDC) recognized Texas as the most improved state in the nation. Data from the National Immunization Survey (NIS) from 2004 through 2008 indicated that Texas' coverage level for children 19-35 months of age had increased 13.5 percentage points. In addition, San Antonio was recognized as the most improved city/county grantee of the CDC.

The 2009 NIS coverage level for Texas was 71.3 percent and the national average was 70.5 percent for the 4:3:1:3:0:1:4 combination series, which includes 4 doses of diphtheria/tetanus/pertussis vaccine, 3 doses of polio vaccine, 1 dose of measles/mumps/rubella vaccine, 3 doses of hepatitis B vaccine, 1 dose of varicella vaccine, and 4 doses of pneumococcal conjugate vaccine. The 0 represents *Haemophilus influenzae* type b, which was excluded from the 2009 survey results due to a vaccine shortage which occurred from December 2007 through September 2009. Texas ranked 20th compared to other states. The 2009 level decreased one percentage point from the 2008 NIS level of 72.3 percent.

Texas cases of hepatitis A and B have decreased significantly over the last decade. Incidence of hepatitis A and B dropped to the lowest levels in forty years. In 1999, hepatitis A vaccine was recommended for children in 32 Texas counties along the border with Mexico and was later expanded to 40 counties. In 2005, a statewide childhood recommendation and requirement for children attending childcare were implemented. The number of cases reported in 1998 was 3,537 and in 2009, only 184 cases were reported. The childhood vaccination strategy has been very effective in controlling this disease.

Incidence of hepatitis B has also decreased from 1,960 cases in 1998 to 420 in 2009. The strategy to reduce the burden of hepatitis B disease involves a variety of interventions. Pregnant women should be screened for hepatitis disease prior to giving birth so the newborn may be treated to prevent transmission of the disease. An immunization requirement in childcare facilities and schools has been in place for a number of years and most Texans 20 years of age and younger have been vaccinated. Adults who are high risk are also targeted for vaccination.

The immunization system in Texas is complex. The size, demographics, and division of Texas into 254 counties is challenging. DSHS has worked effectively with stakeholders in the Texas Immunization Stakeholder Working Group to improve the health of Texans.

DSHS has adopted the following nationally proven strategies that are consistent with higher vaccine coverage levels:

- Promoting the medical home;
- Promoting use of the Statewide Immunization Registry and Disaster Preparedness Tracking and Reporting System, known as ImmTrac;
- Advancing the use of Reminder and Recall Systems;
- Educating providers;
- Expanding public/parent education; and
- Advocating for public/private partnerships among stakeholders

Barriers to Immunization

The National Vaccine Advisory Committee (NVAC) identified several key barriers to timely vaccinations. For families and communities, the most significant barriers are related to poverty, or markers of poverty, such as residing in public housing, race/ethnicity disparities, lower education levels, and single parent households.

Texas continues to lead the nation in numbers of uninsured and underinsured children. Lack of insurance is an obstacle as studies have shown that children are more likely to be vaccinated on-time in a medical home, especially when the medical home participates in the federal Vaccines for Children program (VFC). A “medical home” is defined as a respectful partnership between a family and the child’s primary healthcare setting that coordinates comprehensive healthcare services. Children have access to all healthcare services when receiving them in a medical home.

On the contrary, although a large portion of adults hold private medical insurance, there is no broad program to fund immunizations or service delivery for the uninsured or underinsured. No all-encompassing state vaccine purchase and distribution system exists for the benefit of adults. Despite barriers associated with lack of insurance, the federal government’s current efforts on health care reform may soon change the uninsured and underinsured landscape. People that are now uninsured will most likely become insured and vaccines are apt to become a benefit for all adults.

Texas consistently attempts to identify gaps in the statewide immunization system and proactively implement changes to eliminate those gaps. The Texas Immunization Stakeholder Working Group (TISWG) brings all facets of the immunization system together to dialog about both the needs of and successes experienced by members throughout the state. Input from TISWG and collaboration with other partners enables DSHS’ Immunization Branch to overcome barriers and gaps.

Conscientious Exemptions

Unvaccinated individuals put themselves and others in the community at risk. This risk is especially important for people who cannot be vaccinated, such as:

- Children who are too young to be vaccinated
- Individuals who cannot be vaccinated due to medical reasons
- People who do not develop adequate immunity to a disease from the vaccine

Based on information obtained from the *Texas Annual Report of Immunization Status*, the number of conscientious exemptions has increased every year since conscientious exemptions were allowed in 2003. As the number of unvaccinated individuals increases, the risk of outbreak also increases should a vaccine-preventable disease be introduced into the population.

Adult and Adolescent Immunization

Until recently, the focus for immunizations has been on increasing vaccine coverage levels in infants and children. Due to new vaccines, expanding recommendations for older vaccines, and generally low vaccine coverage levels among adolescents and adults, more efforts are necessary to improve coverage levels among adolescents and adults.

The federal Advisory Committee on Immunization Practices (ACIP) recommends the following vaccinations for adolescents: tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap); meningococcal conjugate vaccine (MCV4) and the quadrivalent human papillomavirus (HPV) vaccine. It is also recommended that high risk adolescents receive Pneumococcal vaccine. Some adolescents also need to catch up on childhood immunizations such as hepatitis A, hepatitis B, varicella, measles/mumps/rubella (MMR), and inactivated polio virus (IPV) vaccines.

For adults, ACIP recommends Tdap, HPV, varicella and herpes zoster vaccines. Other vaccines, such as hepatitis A, hepatitis B, pneumococcal and measles/mumps/rubella are recommended for high risk adult groups.

Collaborative Approach

No single intervention alone will raise coverage levels. DSHS incorporates a comprehensive, collaborative approach that includes proven strategies consistent with high vaccine coverage levels and integrates local and statewide partners who play a role in the statewide immunization system. The success Texas has experienced in the childhood program will require continued commitment to improve. Stakeholders, including policy makers, have made childhood immunizations a priority in Texas. This systematic approach is designed to eliminate impediments to vaccination and maximize available resources to the immunization delivery system. High coverage levels and decreased disease incidence are products of the successful merger of science and effective public health policies and procedures.

I. INTRODUCTION

A Texas that is free of vaccine-preventable diseases.

-- Vision Statement, DSHS Immunization Branch

Vaccines are recognized as one of the top ten public health successes of the twentieth century. Not long ago, diseases like measles, mumps, rubella, diphtheria, and polio were common and widespread. In the pre-vaccine era, epidemics killed millions of people around the world annually. In the United States, diphtheria caused nearly 15,000 deaths each year. At the height of the polio epidemic in 1952, nearly 60,000 cases of polio and 3,000 deaths were reported.

- Today, vaccine-preventable diseases are relatively rare in the United States due to concerted efforts to vaccinate and protect the public.
- While vaccines have helped to lower the incidence of many diseases, some vaccine-preventable diseases still exist in Texas.

Every year, people in Texas die from vaccine-preventable diseases or suffer from their life changing complications. Strategies to increase vaccine coverage levels and reduce the burden of disease are critical and must continue to protect individuals and prevent disease outbreaks from occurring.

Reducing Vaccine Preventable Disease - A Multi-faceted Approach

Raising and maintaining vaccine coverage levels requires a sustained, multi-faceted approach and commitment, not only from state programs and agencies, but also from parents, businesses, and schools.

As a leader in the Texas immunization system¹, DSHS will:

- Continue efforts toward proven strategies;
- Reach out to its constituencies to provide technical expertise and support;
- Enhance local ownership;
- Provide data for communities to develop appropriate plans; and
- Increase participation in immunization activities.

DSHS' integrated approach is the foundation for improving the health of Texans.

¹ The Texas immunization system is a complex partnership that integrates federal agencies and programs, state and local governments, schools, health care providers, employers, insurers and health plans, vaccine manufacturers, and others in the private sector.

II. DISEASE INCIDENCE TRENDS IN TEXAS

Texas has significantly reduced vaccine-preventable diseases over the years.

- Table 1 compares the highest 20th century morbidity to morbidity in 2009, and shows that the incidence of diseases has dramatically declined.
- Table 2 shows vaccine-preventable diseases and their incidence over time.
- While the incidence of most of these diseases has decreased, hepatitis B, pertussis, pneumococcal disease and varicella continue to occur at high rates.

Table 1: Comparison of 20th Century Highest Annual Morbidity and Current (2009) Morbidity, Vaccine Preventable Diseases

Disease	Highest Case Count during 20 th century	2009 Cases	Percent Decrease
Measles	88,000 (1958)	1	99.9%
Rubella	8,408 (1970)	0	100%
Congenital Rubella Syndrome	12 (1974)	0	100%
Mumps	32,939 (1950)	40	99.9%
Pertussis	21,588 (1947)	3,358	84.4%
Diphtheria	1,544 (1946)	0	100%
Tetanus	55 (1954)	1	98.2%
Polio (paralytic)	2,778 (1950)	0	100%
Hepatitis A	4,892 (1973)	184	96.2%
Hepatitis B	1,960 (1998)	420	78.6%
<i>Haemophilus influenzae</i> type b	843 (1988)	6	99.3%
Varicella	26,888 (1997)	4,445	83.5%

Table 2: Reported Morbidity & Mortality Cases of Vaccine-Preventable Diseases in Texas 2000-2009

Disease	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Congenital Rubella Syndrome	0	0	0	0	0	0	0	0	0	0
Hepatitis A	1,937	1,154	960	613	624	461	330	264	259	184
Hepatitis B	1,059	714	1,110	965	687	742	833	741	562	420
Hepatitis B, Perinatal	N/A	11	3	1	0	8	1	3	8	1
Hib	4	3	7	5	2	8	11	14	11	7
Measles	0	1	1	0	0	3	0	7	0	1
Meningococcal Disease, invasive	146	203 (20)	130 (15)	105 (10)	72 (2)	61 (8)	45 (3)	55 (3)	70 (11)	53 (10)
Mumps	27	14	15	18	23	25	58	21	20	40
Pertussis	327 (2)	615 (5)	1,240 (4)	670 (6)	1,184 (2)	2,224 (9)	954 (1)	1,051	2,046 (4)	3,358 (3)
Pneumococcal Disease	N/A	N/A	N/A	271 (50)	481 (9)	735 (30)	901 (51)	1,417 (75)	1,884 (112)	1,952 (102)
Rubella	6	2	2	0	1	0	0	0	0	0
Tetanus	5 (1)	3 (1)	2 (1)	1	2	0	1	0	3	1
Varicella (Chickenpox) () Deaths	6,967 (4)	5,741 (1)	6,047 (1)	5,465	8,544	8,336	11,768	10,061	7,839	4,445

Hepatitis A

Texas enjoyed its lowest reports of hepatitis A morbidity in 2009 with only 184 cases reported statewide, an incidence rate of 0.7 per 100,000 population. Hepatitis A disease experienced a decline since vaccines to protect against the illness were first produced in 1995. Since 1999 hepatitis A disease in Texas has decreased by 93% (Figure 1). Incidence of hepatitis A has experienced a decline in Texas. This is due to the introduction of an effective vaccine and subsequent implementation of successful public health policy strategies to combat disease. Specifically, the childhood vaccination strategy is reducing disease incidence for all age groups.

In 2009, 22% of all cases were hospitalized due to this illness. For hospitalized cases, the average age was 50 years with a median age of 54 years (range: 15-90). Average hospital stay was four days (range: 1-10 days). All hospitalized cases indicated they were not previously vaccinated against hepatitis A.

The largest burden of all hepatitis A cases was found in adolescents aged 15-19 years with a rate of 0.94 per 100,000 population (Figure 2). The second highest rate occurred in adults aged 20 years and older with a rate of 0.89 per 100,000 population. Both average and median age for all hepatitis A cases in 2009 was 45 years (range: 1-97 years). Fortunately, no cases of disease were reported in infants less than one year.

Only two percent of all hepatitis A cases in 2009 were previously vaccinated against the disease.

Hepatitis A was reported in only 49 out of 254 counties in Texas (19%).

Figure 1. Hepatitis A Cases and Incidence Rates in Texas, 1990-2009

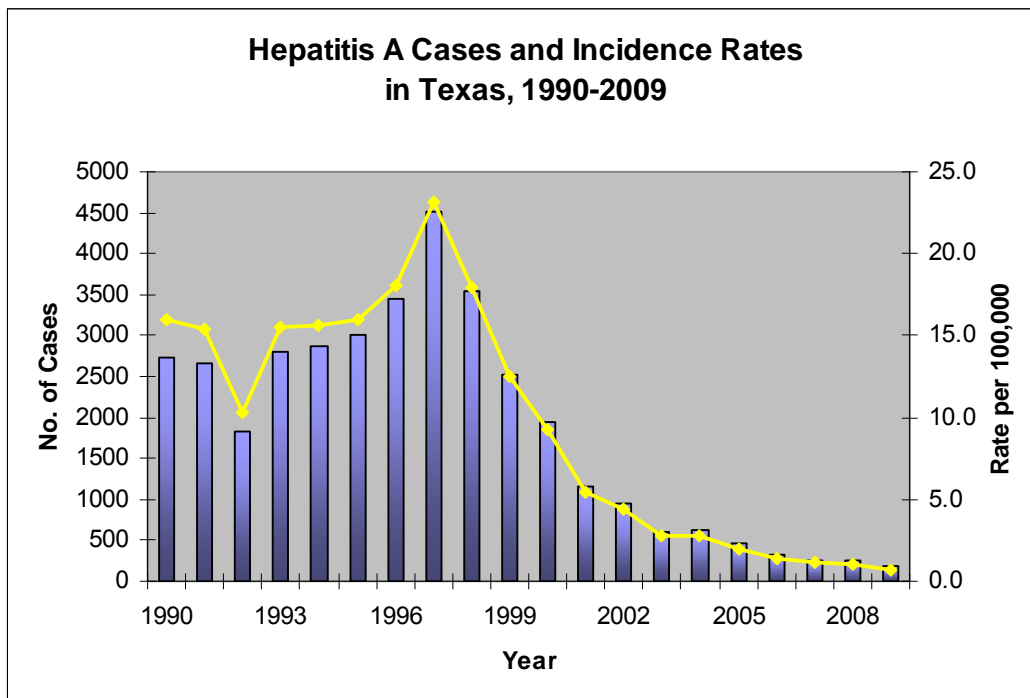


Figure 2. Hepatitis A Cases and Incidence Rates in Texas by Age Group, 2009

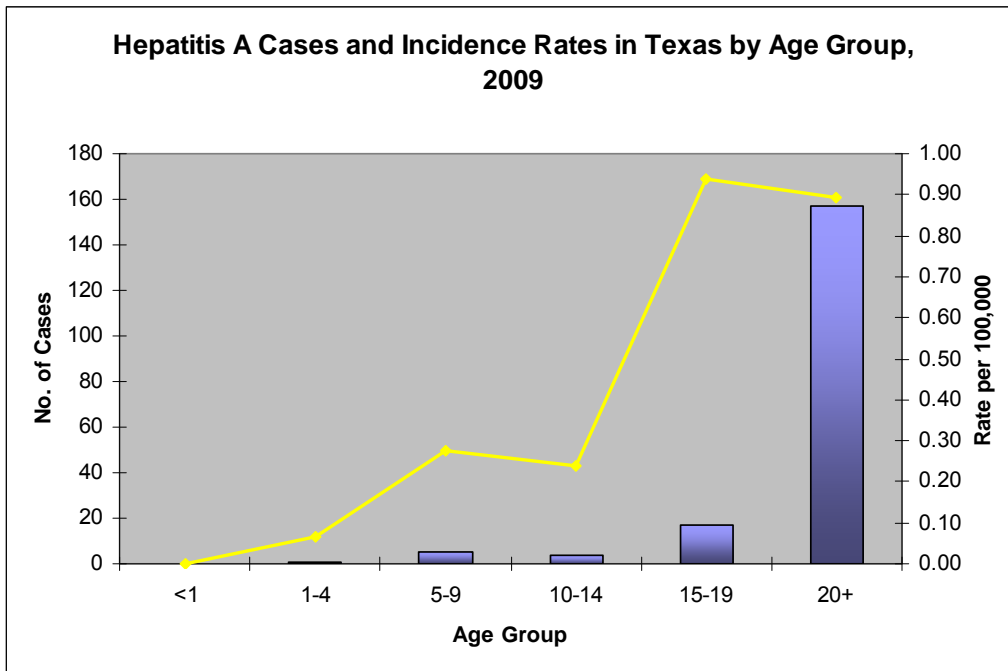
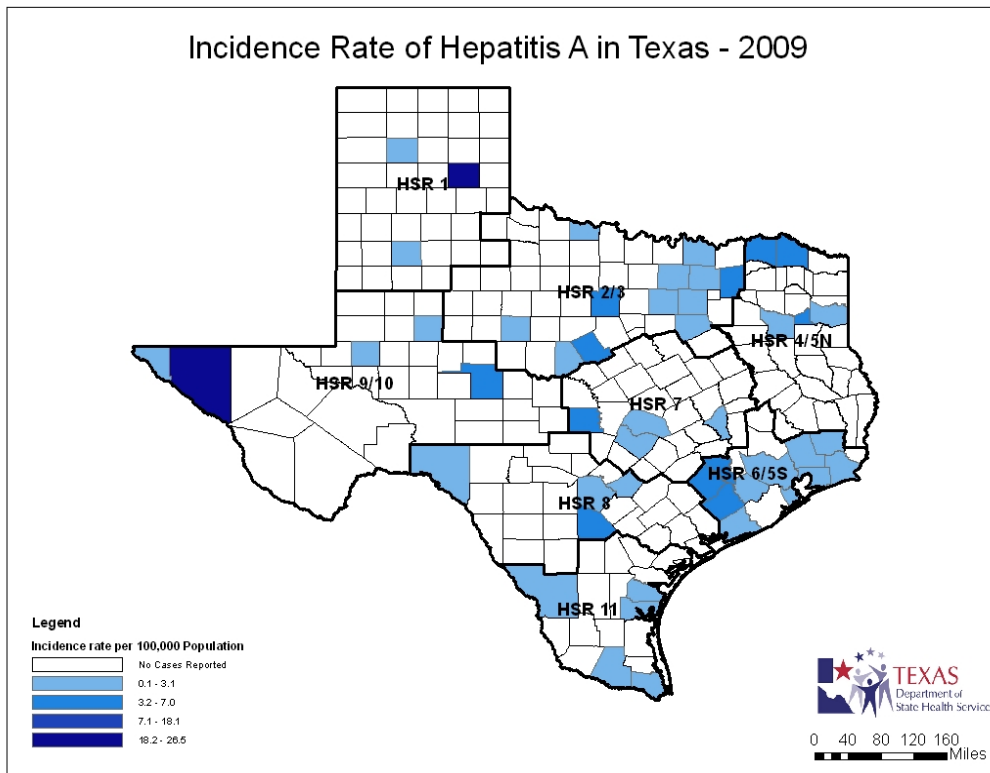


Figure 3. Hepatitis A Incidence Rate Map, 2009



Hepatitis B, Acute

Texas experienced its lowest reported level of acute hepatitis B morbidity in the last two decades with only 420 cases in 2009, an incidence rate of 1.7 per 100,000 population. Since 1990, the incidence rate of acute hepatitis B in Texas has declined by as much as ten times the former rate (Figure 4).

In 2009, 15% of all cases were hospitalized due to acute hepatitis B infection. For hospitalized cases, the average age was 44 years with a median age of 42 years (range: 21-87). The average hospital stay was five days (range: 2-16 days). Only five percent of hospitalized cases indicated being previously vaccinated against hepatitis B.

One case occurred in a young infant less than one year of age; this case was also reported as a perinatal hepatitis b case. Average and median age for all cases in 2009 was 45 years (range: 0-97). The highest rate of acute hepatitis B occurred overwhelmingly among adults aged 20 years and older at a rate of 2.4 per 100,000 population (Figure 5).

Only 2% of all hepatitis B cases in 2009 reported being previously vaccinated against the disease.

Hepatitis B cases occurred in 73 out of 254 Texas counties (29%, Figure 6).

Figure 4. Acute Hepatitis B Cases and Incidence Rates in Texas, 1990-2009

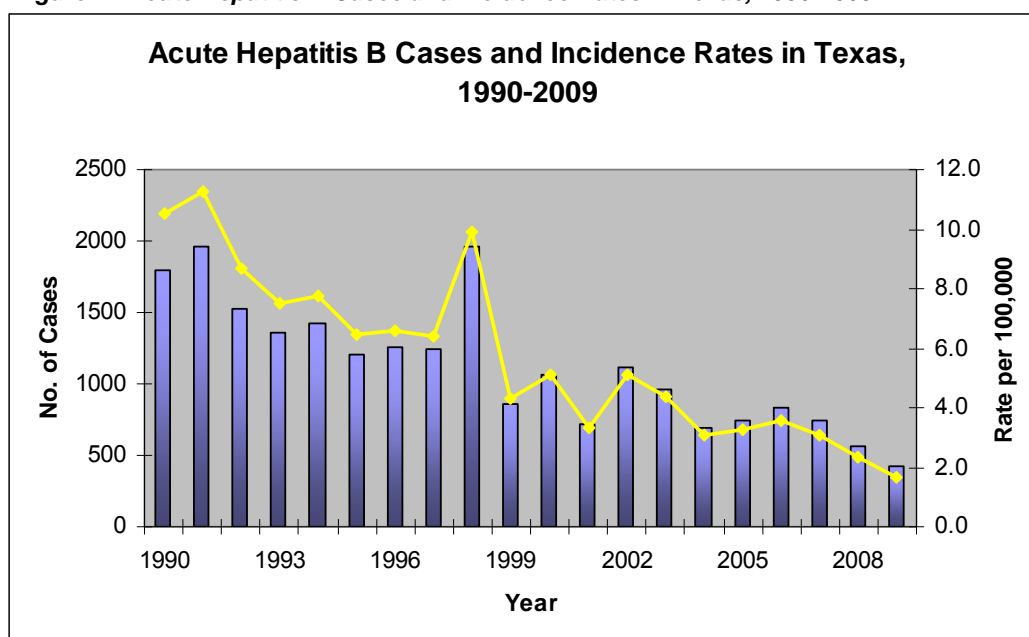


Figure 5. Acute Hepatitis B Cases and Incidence Rates by Age Group in Texas, 2009

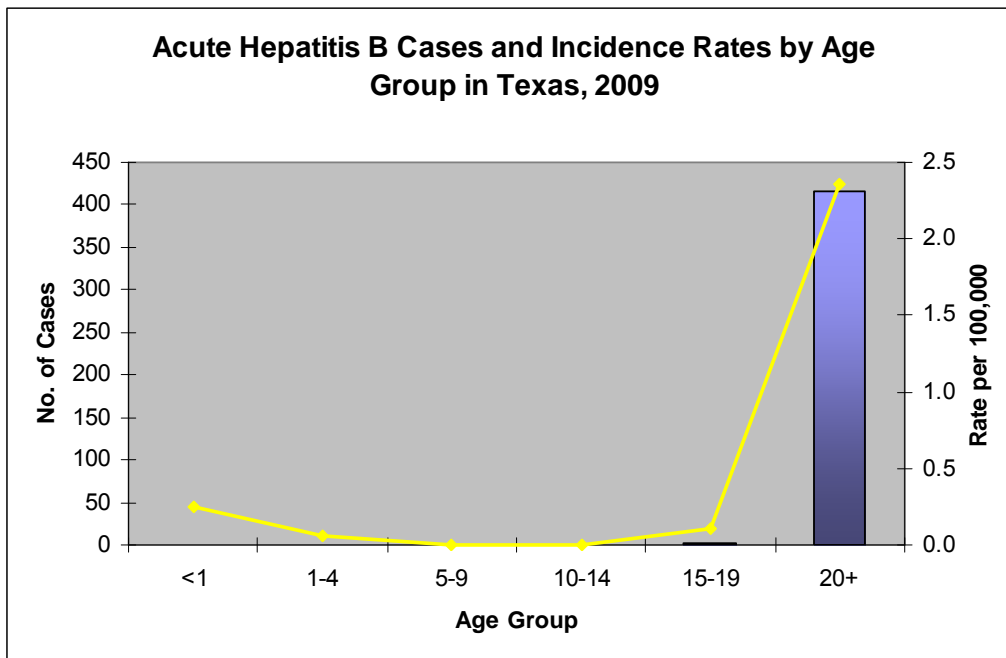
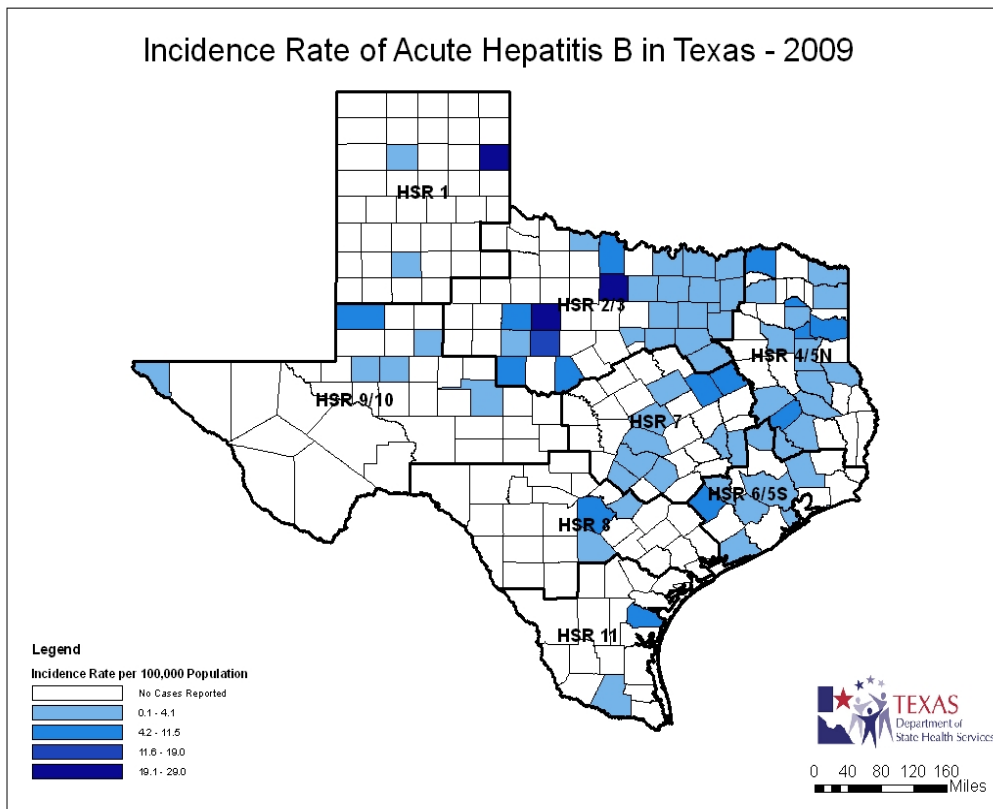


Figure 6. Map of Incidence Rates of Acute Hepatitis B in Texas, 2009



The National Health and Nutrition Examination Survey (NHANES) estimates that 800 to 1,200 infants are born to hepatitis B surface antigen (HBsAg) positive women in Texas each year. In 2008, hospitals and delivery centers reported a total of 616 infants born to HBsAg positive women. Although this number is significantly less than the NHANES estimate, it represents a 12% increase in the number of infants reported in 2004 which was 548.

As vaccination coverage levels continue to rise in Texas, it is anticipated that the number of U.S. born women of childbearing age that are infected with HBsAg will decline over time. This demographic will shift towards the foreign-born population, particularly countries in which hepatitis B is endemic.

Perinatal hepatitis B is a notifiable condition in Texas and in 2008, the year in which data is most complete, a total of one perinatal hepatitis B case was reported as compared to five cases in 2007. It is anticipated that with increased universal administration of the hepatitis B vaccine birth dose including administration of hepatitis B immune globulin to at-risk infants and successfully completing the hepatitis B vaccine series, the number of infants diagnosed with perinatal hepatitis B will continue to decrease.

Pertussis

Pertussis, more commonly known as whooping cough, is an acute bacterial infectious disease characterized by severe coughing attacks. The “whoop” of whooping cough is caused by extreme respiratory effort required to draw a breath after a prolonged coughing episode. Clinical features of pertussis include three stages: catarrhal stage, with cold-like symptoms lasting one to two weeks; paroxysmal stage, lasting one to six weeks involving persistent coughing episodes; and the convalescent stage, which can last several months. Secondary bacterial pneumonia is the most common complication and cause of death in pertussis patients. Infants are at highest risk for complications. Pertussis is transmitted through the air via infected droplets.

In 2009, Texas experienced its highest pertussis incidence rate in nearly 50 years. With a total of 3,358 reported pertussis cases, the disease incidence rate was 13.5 per 100,000 population. The incidence rate has not been this high in Texas since 1963. Pertussis disease patterns in Texas have followed a cyclical pattern where the disease peaks every three to four years followed by subsequent declines. Pertussis data for 2009 represented a peak data year. Over the last decade, Texas experienced a significant resurgence in pertussis incidence (Figure 7).

Since 2000, Texas has had a total of 36 deaths attributed to pertussis. Three of those deaths occurred in 2009. All three deaths were among infants less than three months of age--too young to be fully vaccinated. Each infant was hospitalized for an average of 19 days (range: 2-30) before succumbing to pertussis disease.

In 2009, nine percent of all cases were hospitalized. Infants under one year of age accounted for 83% of hospitalized cases. Median age of hospitalized cases was two months and an average age of two years (range: 0-67 years). Average hospital stay for all cases was 12 days (range: 1-44).

The majority of the disease burden in 2009 occurred among infants less than one year of age at a rate of 164.2 per 100,000 population. Infant rates were nearly four times higher than the next largest group; children ages 5-9 years at 41.3 per 100,000 population (Figure 8). The average age of all cases in 2009 was 14 years and the median age was nine years (range: 0-90 years).

Of all cases less than 18 years of age, 65% reported being previously vaccinated against pertussis with an average of four doses of pertussis vaccine. For cases less than 18 years of age, 13% reported having never received any previous pertussis vaccine. The remaining 22% were unsure of their vaccination status for pertussis.

Pertussis was reported in all regions of the state, including 121 of 254 counties in the state in 2009 (Figure 9). The highest disease incidence took place in Central Texas where a large multi-county

outbreak took place. Travis and Williamson counties accounted for 59% of all cases reported in the state in 2009.

Figure 7. Pertussis Cases and Incidence Rates in Texas, 1990-2009

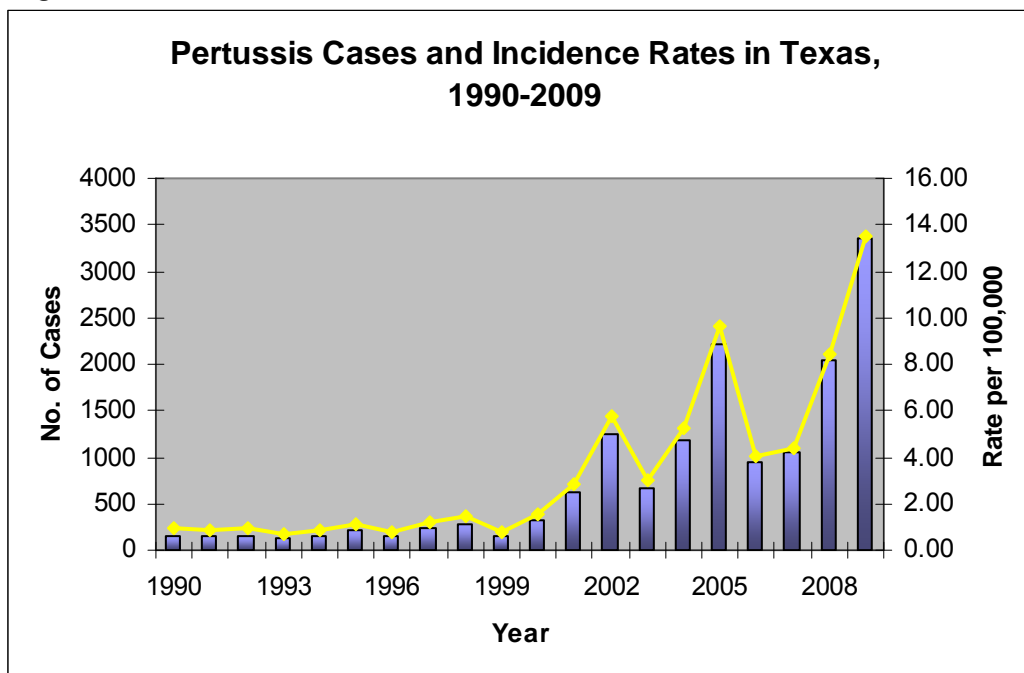


Figure 8. Pertussis Cases and Incidence Rates, by Age Group in Texas, 2009

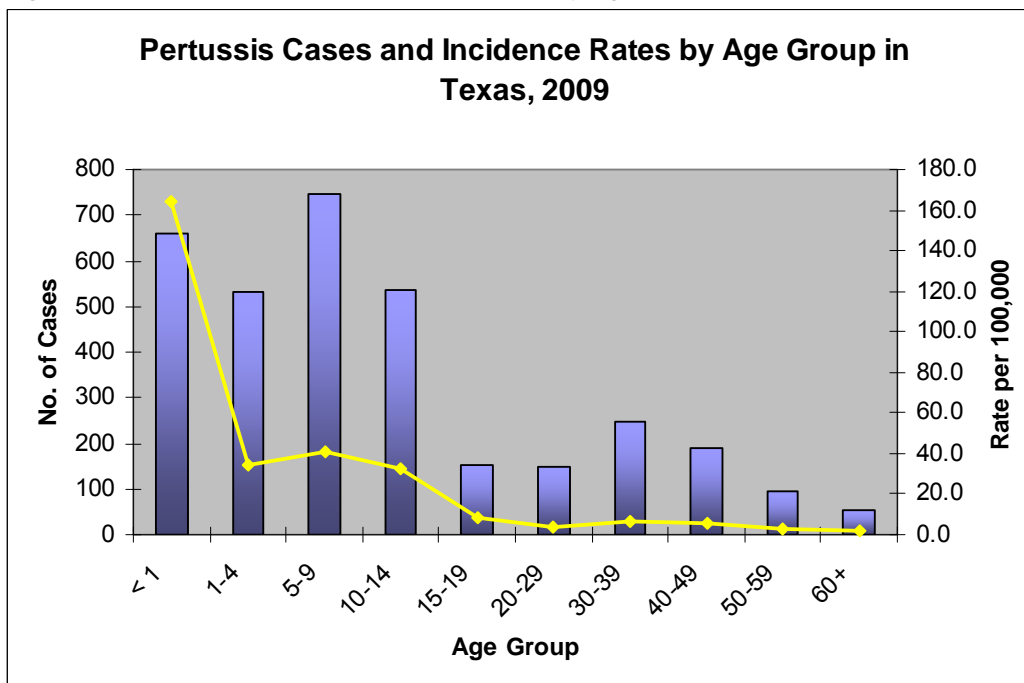
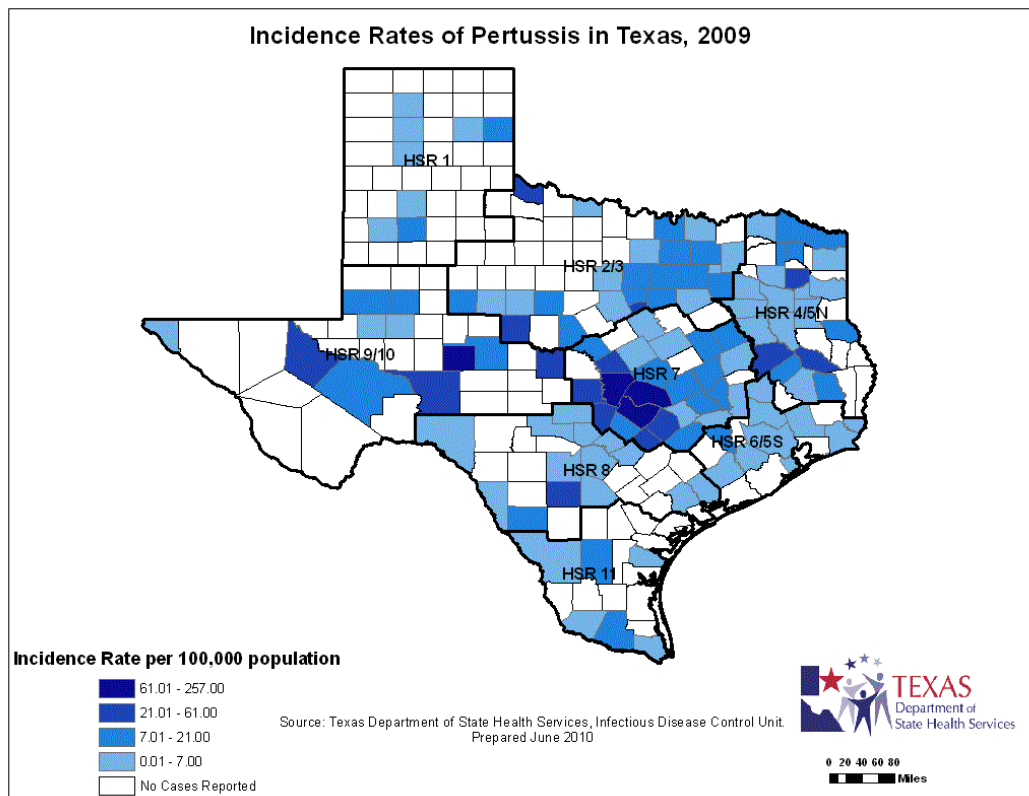


Figure 9. Map of Incidence Rates of Pertussis in Texas, 2009



Pertussis and Prevention Strategies

Cocooning

Pertussis is a serious concern in Texas. In 2005, there were nine pertussis deaths out of 2,224 reported cases and eight of those were in infants. Deaths due to pertussis have dropped since 2005; nonetheless, the total cases rose to over 3,000 in 2009. The vast majority of pertussis cases are in infants; however, CDC data shows that 75% of cases originate from family members. There is a concern and evidence both nationwide and in Texas that adults are passing on pertussis to children. Logically, adults should be immunized against pertussis so that infant deaths decline and are eventually eliminated.

Even though pertussis follows a three to four year cycle, peaks are increasing. Based on 2009 data, the case count was 3,358 with an incidence rate of 13.5 per 100,000 population. This case count is a 51% increase over 2005.

According to the 2009 Texas Behavioral Risk Factor Surveillance System, the percentage of adults 18 and older who were certain that they were vaccinated against pertussis with the Tdap vaccination was 13.9%. However, Tdap was only licensed in 2005 and 45.8% of those surveyed were not sure if they received Tetanus, Td or Tdap. However, 40.3% were certain that they were vaccinated solely with Td. Data indicates the Texas adult population is moving towards vaccination through Tdap. Nevertheless, the numbers are not yet clear enough to determine how many adults are definitively vaccinated against pertussis.

To combat pertussis, the DSHS Immunization Branch (Immunization Branch) has developed plans to promote vaccination against the disease in adults through an educational campaign based on

“cocooning” in order to prevent future deaths in newborns. The cocooning campaign is a prevention strategy to educate providers, family members and close contacts of infants to protect these infants by vaccinating everyone in their circle of care with a pertussis containing vaccine (i.e., Tdap). The Immunization Branch will leverage American Recovery and Reinvestment Act (ARRA) or “stimulus” funding to support this project. There is also a Birth Certificate heirloom fund that contributed to this project, in 2009, by funding medical societies to introduce cocooning as a public health strategy, stress the importance of vaccine, educate their membership and try to create a sustainable program to combat pertussis.

The cocooning concept began with the Global Pertussis Initiative in 2001. The Initiative claimed that a cocooning strategy encompasses “immunization of family members and close contacts of the newborn.” Kathie Lloyd of the Renown Regional Medical Center in Reno, Nevada has championed this strategy and brought it to the attention of many health professionals including staff at the DSHS Immunization Branch. Although her strategy only involved a city-wide effort, Kathie Lloyd was very successful. In addition, recent studies suggest that cocooning is both cost effective and that “routine adult vaccination could control the disease even with relatively low coverage rates of 40% for routine vaccination of all adults every 10 years, or 65% for a targeted vaccination of close contacts of newborns completed by one booster dose for all adults.”

4th DTaP

Data from the *National Immunization Survey* indicate that one of the vaccines where Texas can improve, is the fourth dose of the DTaP vaccine. It is recommended to be given at 15 through 18 months of age, however, can be given as early as 12 months of age. This is an issue nationwide and Texas has routinely consulted with other states which have demonstrated success with improving this vaccine coverage, however, data indicate that a gap continues to exist with this vaccine.

DSHS conducted the activities below to increase coverage for the fourth dose of DTaP:

- Improved capacity in regional and LHDs which ensured that vaccine data was completed in the statewide immunization registry and focused attention especially on children missing the fourth DTaP.
- Conducted a survey of children in ImmTrac who did not receive the fourth DTaP to learn more about the population that is not receiving this dose.
- Assessed data in ImmTrac to verify that the first three doses of DTaP are being administered on time. Late vaccinations for the first three doses could delay timing of the fourth dose.
- Continued parent education campaigns and incorporated emphasis on importance of the fourth DTaP into all training courses.
- Increased educational efforts to providers not enrolled in the Texas Vaccines for Children Program (TVFC), emphasized the fourth DTaP message in provider quality assurance visits for providers enrolled in TVFC, and worked with the Texas Pediatric Society (TPS) and Texas Medical Association (TMA) to promote physician emphasis on the fourth DTaP.
- Polled other states with higher coverage levels for best practices. Texas' fourth DTaP provider education campaign was initiated and is underway.
- Continued work with stakeholders in the statewide immunization system which increased participation.

Barriers Parents Face To Timely Immunization

In 2009, Texas achieved the Healthy People 2010 childhood immunization goal of 90% coverage for all measured vaccines with the exception of the fourth DTaP, for which coverage is only 82%. While many barriers are well-recognized nationally, the Immunization Branch was concerned that there might be unrecognized barriers responsible for holding back progress in Texas.

To explore this possibility, DSHS interviewed over 2,000 parents of children under age three who appeared behind in ImmTrac. After interviews were completed, health departments contacted physicians and parents to verify immunization status.

Among these Texas families, over one third of children had experienced a substantial gap in insurance and nearly half the parents stated that cost was a problem during that time. A key finding was that most parents did not know that free and low-cost immunization resources were available to them. The leading logistic barriers were:

- Time off work – regardless of economic status; and
- Childcare denial of entry to children with fever after immunization.

Finding a doctor, transportation and proof of income were also problems. Almost all parents of children who were behind for DTaP immunization mistakenly believed the child was up-to-date. Only 20% of parents had chosen to skip or delay vaccination, and while safety was the leading reason, over one third did so because the child was ill at the time. Findings suggest that there are opportunities to improve parent's awareness of resources available to them.

Varicella

Varicella-zoster virus, also known as chicken pox, has an incubation period of two weeks to 21 days. Symptoms of the disease include: fatigue, itching, low-grade fever, nerve pain and a rash of lesions that first appear on the head and move downward to the trunk and the extremities. Secondary infections, especially in older patients, can be severe and require hospitalization.

The lowest incidence of varicella disease in Texas in the last two decades was reported in 2009 with 4,445 cases, an incidence rate of 17.9 per 100,000 population (Figure 10). In comparison to 2006, the last peak year, varicella reports declined by 62% (2006, n=11,768). In comparison to 1990, varicella decreased by 83% (1990, n=26,636).

Over the last decade, a total of six deaths have been caused by varicella disease in Texas. In comparison to the previous decade which experienced 47 deaths, the number of deaths attributed to varicella has declined by 87% in Texas. No varicella related deaths have been reported in Texas since 2002.

Less than 1% of all varicella cases were hospitalized in 2009. Average age for those hospitalized was 15 years with a median of nine years (range: 0-59). Of those hospitalized 38% were less than one year of age, too young to be vaccinated against varicella.

The most affected age group was five to nine year olds with a rate of 102.2 per 100,000 population. They represented nearly twice the rate of the second largest group; 10-14 years of age with a rate of 68.6 per 100,000 population (Figure 11). Average age of all cases was 11 years and a median age of eight years (range: 0-98 years).

Of those cases less than 18 years of age, 70% reported having previously received at least one dose of varicella vaccine.

In 2009, varicella cases were reported in 167 out of 254 counties in Texas (66%, Figure 12).

Figure 10. Varicella Cases and Incidence Rates in Texas, 1990-2009

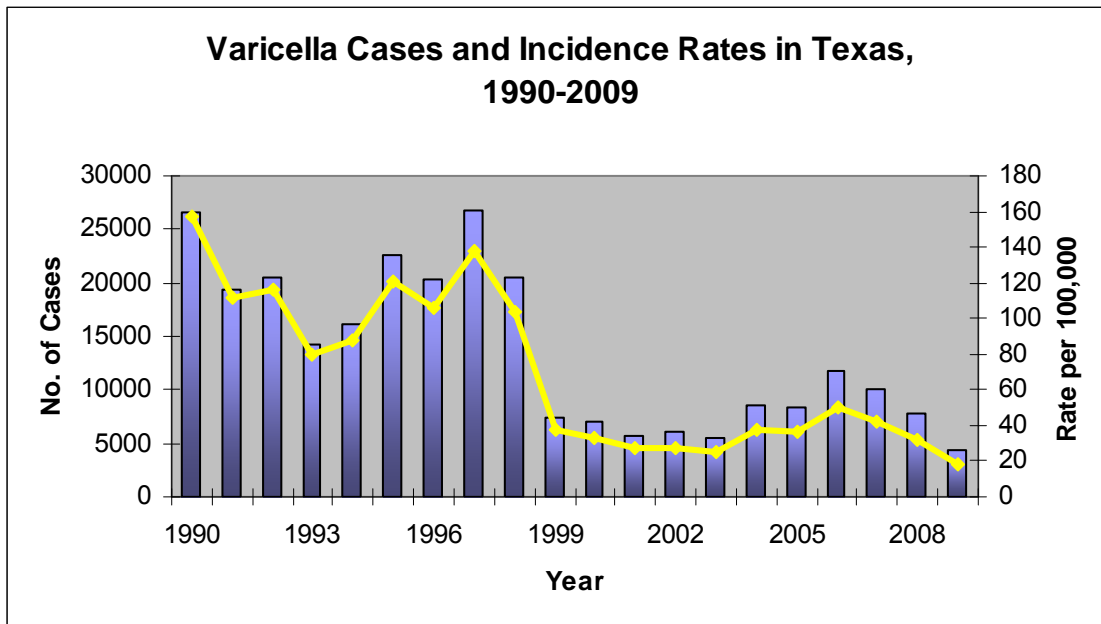


Figure 11. Varicella Cases and Incidence Rates by Age Group in Texas, 2009

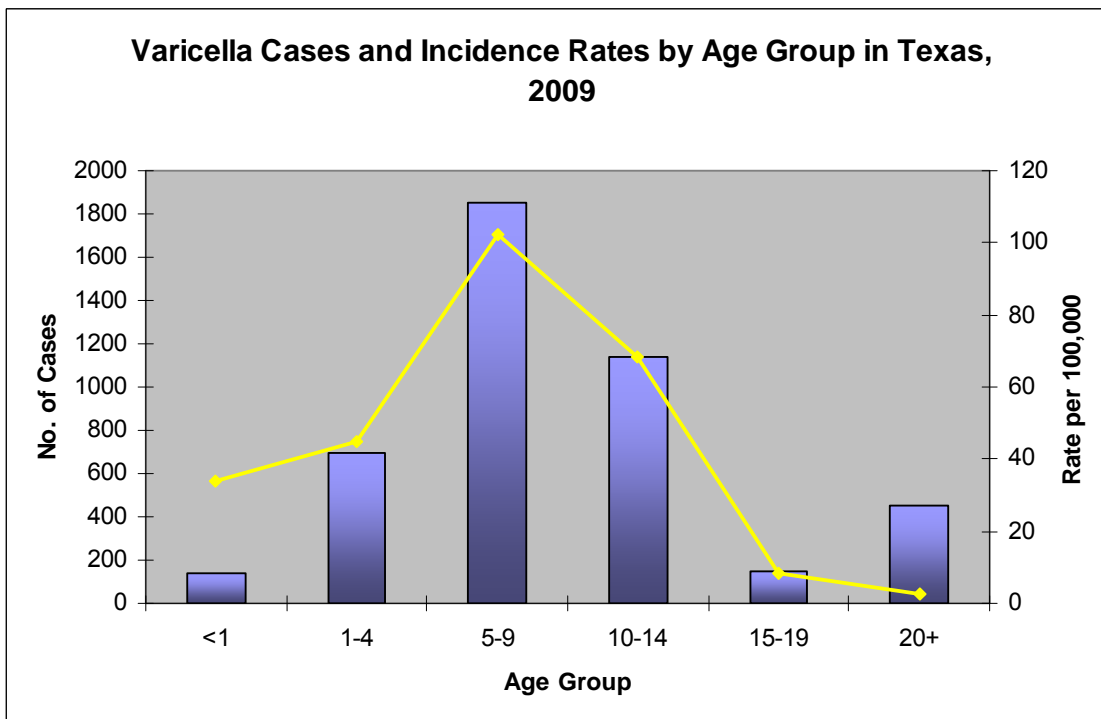
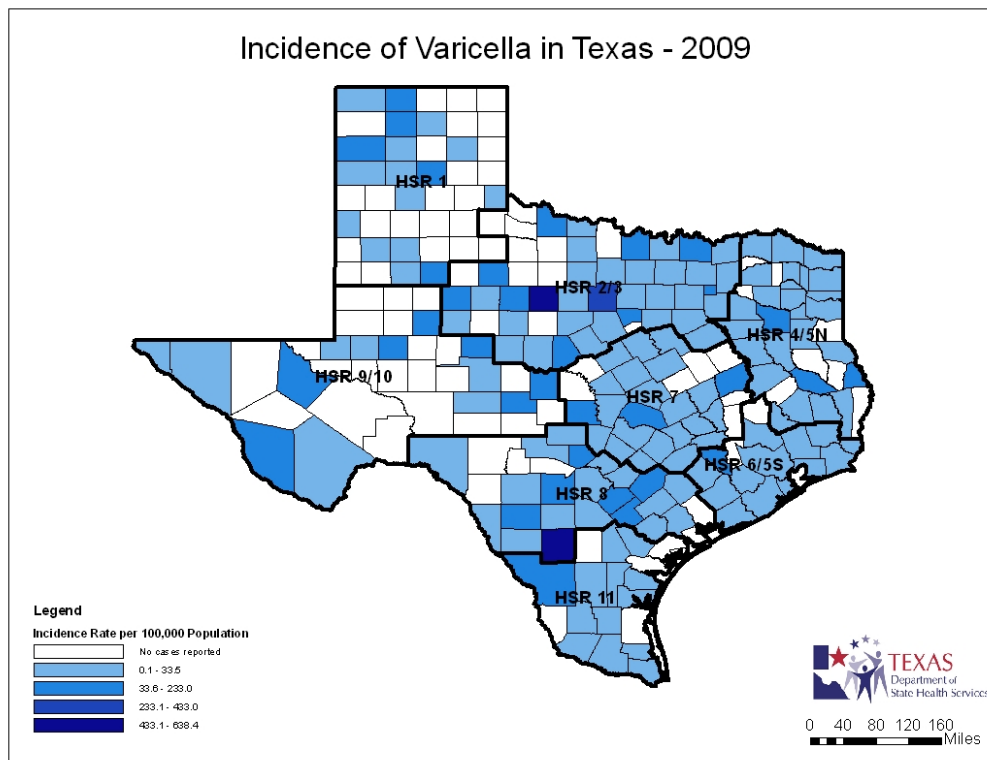


Figure 12. Incidence of Varicella Cases in Texas, 2009.



Seasonal Flu

Influenza, also known as the flu, causes moderate to severe disease among persons of all ages. Flu is a highly infectious viral disease. Symptoms last two to five days and include: fever, body aches, sore throat, nonproductive cough, headache, and runny nose. The most frequent secondary complications are pneumonia and although rare, myocarditis. Complications from flu are more serious for older patients with the majority of influenza-related deaths (90%) occurring in patients over 65 years of age. Transmission is from person-to-person via droplets containing the virus or direct contact with contaminated surfaces. Flu is communicable the day before onset of symptoms to five days after in adults or ten days after symptoms appear in children. Rates of infection are highest among children, but risks for complications, hospitalizations, and deaths from seasonal influenza are higher among adults greater than 65 years old, children less than five years old, and persons of any age who have medical conditions that place them at increased risk for complications from influenza.

- The number of influenza-associated hospitalizations in the United States ranges from approximately 55,000 to 431,000 annually.
- The estimated annual economic burden of seasonal influenza in the United States (using 2003 population and dollars) is \$87.1 billion, including \$10.4 billion in direct medical costs.

In July 2010, ACIP/CDC announced that influenza vaccine is now routinely recommended for all persons greater than or equal to six months of age annually.

In the United States, seasonal strains of influenza occur typically during late fall through early spring. In August 2010, the CDC published its most recent findings. The results show that influenza epidemics were associated with estimated annual averages of approximately 23,607 deaths during 1976–2007 and approximately 226,000 hospitalizations during 1979–2001.

Annual influenza vaccination is the most effective method for preventing influenza virus infection and its complications.

Summary of influenza vaccination recommendations, 2010²

- All persons aged greater than six months should be vaccinated annually.
- Protection of persons at higher risk for influenza-related complications should continue to be a focus of vaccination efforts as providers and programs transition to routine vaccination of all persons aged greater than six months.
- When vaccine supply is limited, vaccination efforts should focus on delivering vaccination to persons who either are or have:
 - Aged six months to four years (59 months);
 - Aged greater than 50 years;
 - Chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus);
 - Immunosuppressed (including immunosuppression caused by medications or by human immunodeficiency virus);
 - Pregnant or plan to be during the influenza season;
 - Aged six months to 18 years and receiving long-term aspirin therapy and who therefore might be at risk for experiencing Reye syndrome after influenza virus infection;
 - Residents of nursing homes and other chronic-care facilities;
 - American Indians/Alaska Natives;
 - Morbidly obese (body-mass index greater than 40);
 - Health-care personnel;
 - Household contacts and caregivers of children aged less than five years and adults aged greater than 50 years, with particular emphasis on vaccinating contacts of children aged less than six months; and
 - Household contacts and caregivers of persons with medical conditions that put them at higher risk for severe complications from influenza.

In the 2010-2011 influenza season, it is recommended that all individuals be vaccinated.

Novel Influenza A (H1N1)

In March of 2009, public health officials reported the first known cases of the 2009 influenza A subtype H1N1 virus, otherwise known as novel influenza A (H1N1). By June, CDC decided that state health departments across the country would be responsible for distribution of H1N1 vaccine within their state boundaries. In Texas, DSHS would serve as the H1N1 distribution coordinator to providers across the state.

This task was an unprecedented challenge for the public health immunization system. While TVFC distributes vaccine to 3,500 pediatric providers in the state, effective distribution of H1N1 vaccine would require a wider, more comprehensive approach and involvement of multiple non-VFC healthcare providers especially those serving adults. Success would be predicated on the response of the state immunization system as a whole.

² Source: Centers for Disease Control and Prevention. *Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2010*. MMWR Early Release 2010;59

In order to make H1N1 vaccine available to any providers who wished to participate, DSHS developed a web-based vaccine ordering and reporting system (known as VORS) that had the capacity to manage the anticipated number of providers and greatly increased volume of vaccine.

DSHS worked closely with software development contractors to customize an inventory management system. To provide customer support, DSHS established a customer service call center. DSHS also added a section to the website devoted to provider's vaccine-related needs, including an online ordering orientation module, a tool kit of useful immunization resources, and any important policies. Summary updates were periodically distributed by email to all registered providers, and these were also posted on the website.

Despite the challenges, the response to H1N1 was successful. Overall, DSHS served more than 11,000 Texas providers, who placed around 41,000 orders for a grand total of over 8.5 million doses of H1N1 vaccine.

Looking ahead, while DSHS now has an ordering system that can be used for any future response, another positive outcome of the H1N1 experience is an improved communications network that was established during the event. The Immunization Branch has historically communicated with healthcare providers enrolled in TVFC about any important changes that might affect their practice, such as emailed briefings on new vaccines, school rules, and the upcoming influenza season. Using this improved communications network, DSHS will now be better able to reach adult immunization providers, such as pharmacies, obstetricians/gynecologists (OB/GYN), physicians, and other alternative or community vaccinators in a timely manner with important immunization information.

III. STRATEGIES TO REDUCE DISEASE INCIDENCE

Multiple barriers exist that prevent timely access to vaccination, and no single intervention strategy alone is successful. National Vaccine Advisory Committee (NVAC) identified several key barriers to timely vaccinations. For families and communities, the most significant barriers continue to be those related to poverty or markers of poverty such as:

- Residing in public housing;
- Race/ethnicity;
- Lower education levels;
- Single mother households; and
- Being uninsured or underinsured.

To raise vaccine coverage levels across Texas, DSHS uses a comprehensive, collaborative approach that includes proven strategies for raising vaccine coverage levels such as integrating local involvement and the commitment of other public programs, private organizations, and community groups.

The following sections describe DSHS' comprehensive approach to promote strategies to increase vaccine coverage levels. This systematic approach is designed to eliminate barriers to vaccination and expand immunization delivery:

- A. Promoting the Medical Home;**
- B. Promoting the Use of the Statewide Immunization Registry and Disaster Preparedness Tracking and Reporting System, ImmTrac;**
- C. Promoting the Use of the Reminder and Recall Systems;**
- D. Educating Providers;**
- E. Expanding Public/Parent Education; and**
- F. Advocating for Public/Private Partnerships.**

A "medical home" is defined as *a respectful partnership between a child, the child's family, and the child's primary health care setting that coordinates comprehensive health care services*. The strategies listed above emphasize that the medical home is the foundation for providing children with the necessary, age-appropriate vaccinations. The medical home supports, and is supported by, other important strategies such as using ImmTrac, the statewide immunization registry, and reminder/recall systems. Likewise, provider education, media campaigns targeting parents and the general public on the importance of childhood and adult immunizations, and public/private partnerships are critical components of statewide strategies.

A. Promoting the Medical Home

The medical home concept is an active partnership intended to encompass all of a child's health care needs in a proactive way.

- Therefore, at a medical home, the child's family and healthcare experts are a team. They work together to find and access all medical and non-medical services the child and family need.

- The medical home concept supports quality healthcare that is accessible, family-centered, continuous, comprehensive, coordinated, compassionate, and culturally competent.

Examples of medical homes include:

- ❖ Physician's office;
- ❖ Hospital outpatient clinic;
- ❖ School-based clinic;
- ❖ Community health center;
- ❖ Health department clinic; and
- ❖ Primary care clinics.

Benefits of the Medical Home

Studies support that under-utilization of preventive healthcare services is associated with not being adequately vaccinated. Consequently, a consistent medical home may help to raise vaccination coverage levels.

In a policy statement on increasing immunization coverage, the American Academy of Pediatrics (AAP) promotes the medical home concept where all children receive comprehensive healthcare, including immunizations.

Benefits of children's access to medical homes include the following:

- The medical home is the best method for maintaining a child's medical and immunization records.
- Among VFC-eligible children, those with a medical home were more likely to be up-to-date than those without.³ Children who used their medical home to receive all of their vaccination doses were more likely to be up-to-date than children who did not receive all of their doses in their medical home.⁴ Early continuity of care at the initial source of care may also be important.
- According to another study, the longer children in a poor minority community continued care with their initial healthcare provider, the more likely they were to be up-to-date at 18 months of age.⁵

According to data presented in the *2007 National Survey of Children's Health*, conducted by the United States Department of Health and Human Services:

Only 50% of children in Texas have a personal doctor or nurse and receive care that is accessible, comprehensive, culturally sensitive, and coordinated; 26% of Texas children have lacked consistent insurance coverage in the past year.

Current Activities to Promote the Medical Home

1) Local Health Department Contracts

Immunization contracts with local health departments (LHDs) and federally qualified health centers (FQHCs) require activities that support the medical home.

LHDs should vaccinate children who come to public clinics for immunization services and assist them in applying for Medicaid or Children's Health Insurance Program (CHIP) as appropriate. They should explain benefits of a medical home and refer them to possible medical home providers for future care.

³ Smith, P.J., et al. (2005)

⁴ Ibid.

⁵ Irigoyen, M., et. al. (2004). Early Continuity of Care and Immunization Coverage. *Ambulatory Pediatrics* 2004;4:199-203.

LHDs report on the number of children referred to Medicaid, CHIP, and medical homes three times per year.

2) Partnership Activities

To raise vaccine coverage levels and improve immunization service delivery, The Immunization Branch uses the strength of partnerships to help promote the medical home concept for Texas children to receive timely, age-appropriate vaccines. Promotion of the medical home concept is supported by the partnerships between DSHS' Immunization Branch and the following organizations:

a) DSHS Medical Home Workgroup

- The Medical Home Workgroup is made up of family members with children with special healthcare needs and representatives from state agencies, family advocacy organizations, community physicians and other healthcare providers, training and technical assistance providers, and other partners.
- The Medical Home Workgroup works to develop and implement strategies to enhance access to or participation in medical homes for all Texas children.

b) Texas Health & Human Services Commission (HHSC) Office of Early Childhood Coordination

- Presently, the Medical Home Workgroup activities are incorporated in the Texas Early Childhood Comprehensive Systems Initiative (TECCS) grant addressing medical homes.
- DSHS partners with HHSC's Office of Early Childhood Coordination, which is leading the TECCS Initiative, to promote the medical home concept and ensure that immunizations are available in the child's medical home.
- TECCS, a "school readiness" initiative, is designed to promote best practices and increase coordination among health and early childhood services for children birth to five years of age. This initiative advocates for optimal development of young children in Texas through common vision, united sectors of government, common goals, and coordinated services for effectively serving the birth through five populations.

TECCS Initiative supports a coordinated, comprehensive system that includes the following initiatives:

- Access to medical home (including access to timely, age-appropriate vaccinations);
- Social emotional development and mental health;
- Early care and education; and
- Parent education and family support.

c) Texas Health Steps (THSteps)

- THSteps is the Texas version of the Early Periodic Screening Diagnosis & Treatment (EPSDT) benefit for persons under 21 years of age on Medicaid.
- This program promotes medical home concepts and coordination of care through provider training and education.

- To ensure that eligible young people in Texas receive medical and dental care before health problems become chronic and irreversible, the program proactively expands client awareness of existing services.
- The program recruits and retains a qualified provider pool to assure that comprehensive, preventive health and dental services are available through public and private providers.
- THSteps providers are required to enroll as TVFC providers to receive vaccine for Medicaid children, as well as other eligible children, at no cost.

d) Title V—Maternal and Child Grant

- The Title V Maternal and Child Grant contains a national performance measure on vaccine coverage levels. The Immunization Branch contributes to the Title V federal report by providing updates on the statewide immunization registry, ImmTrac, partnership activities, and statewide vaccine coverage levels.

A. Promoting Use of the Statewide Immunization Registry and Disaster Preparedness Tracking and Reporting System, ImmTrac

DSHS considers a medical home incomplete without access to an effective, statewide immunization registry available to all immunization providers across the state.

- A fully functional registry helps the medical home provider ensure that a child is neither under-vaccinated nor over-vaccinated. A fully populated and broadly used immunization registry provides data to target interventions at provider and community levels.

ImmTrac is the Texas immunization registry that consolidates immunization records from multiple reporters and stores immunization information electronically in one secure, central system.

Advantages of ImmTrac include:

- The ImmTrac Web application allows for easy setup and use at any provider site having access to a computer and the Internet.
- Providers may report immunizations directly to ImmTrac online via the web application or by submitting batch data through a file transfer process, or on the ImmTrac paper reporting form.
- Providers access ImmTrac immunization history data through the web or by requesting immunization histories by mail or fax.

Significant business improvements to ImmTrac have resulted in:

- Faster registry data access;
- Streamlined processes for verification of consent and addition of new clients to the registry;
- Key enhancements to improve ImmTrac security, ease-of-use, and functionality; and

- Increased usability of ImmTrac as a clinical tool.

These enhancements make the registry more useful to DSHS, LHD, and other providers. (See *Appendix B* for more details about efforts and plans to increase provider participation in ImmTrac.)

The immunization registry rules provide a formal complaint process for requests for exclusion from the registry and incidents of discrimination resulting from exclusion requests.

- Since DSHS began tracking complaints in 2004, no complaints for failure to comply with requests for exclusion of individuals from the registry or reports of discrimination for requesting exclusion from the registry have been received.
- No complaints have been received for failure to remove information from the registry on expiration of the period following the end of a disaster, public health emergency, terrorist attack, hostile military or paramilitary action, or extraordinary law enforcement emergency.

DSHS continues to place the highest priority on ensuring the security, privacy, and confidentiality of ImmTrac data.

Registry Growth

From 2008 through 2009, ImmTrac has experienced:

- Significant growth in provider, health plan, and other user registration for access to registry data.
- Increased immunization reporting through online data entry and electronic import, online user activity, online generation of immunization history reports, and immunizations reported through Medicaid and health plans.
- Increased enrollment of first responder and first responder family members in the registry.
- Growth due to expansion of reporters associated with H1N1.

Data below demonstrates that the number of records in the registry has increased (Figure 13), and providers are using registry data in greater numbers (Figures 14, 15, 16).

Figure 13. Immunization Records, Total Vaccine Doses Recorded By Quarter, 2003-2009

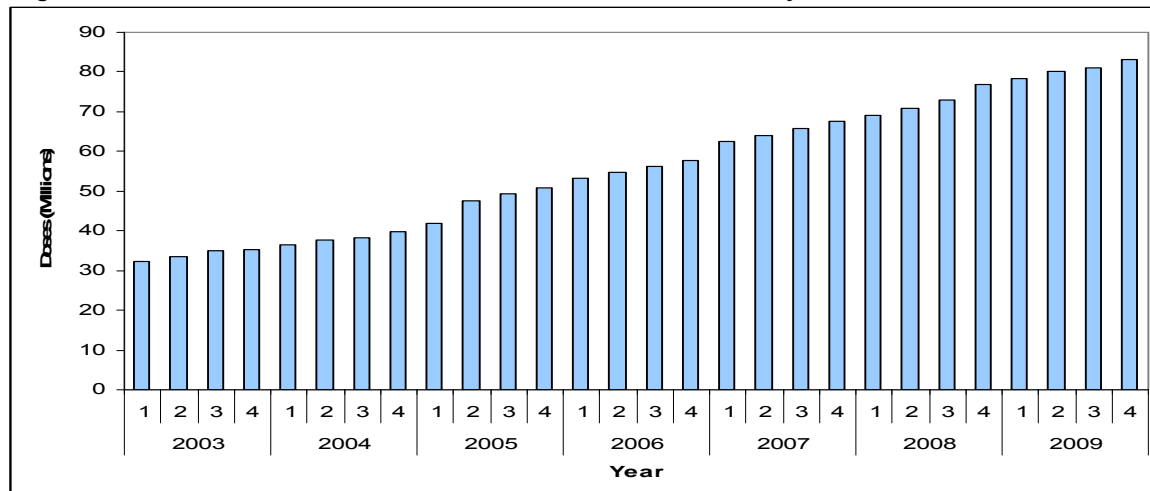
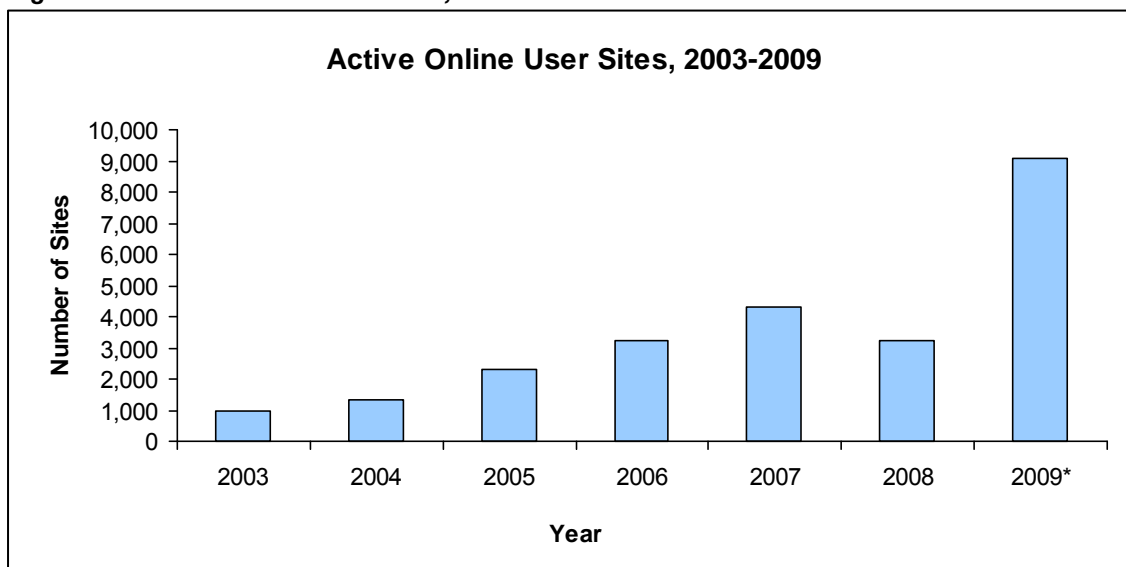


Figure 14. Active Online User Sites, 2003-2009



*Large increase due to H1N1

Figure 15. Immunization Online Reports, 2000-2009

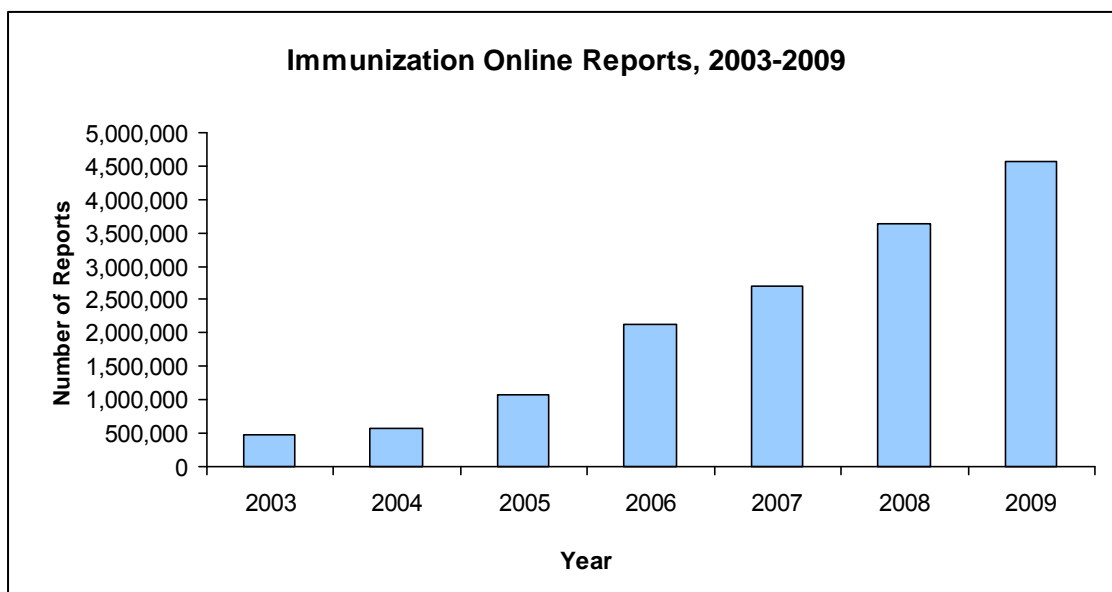
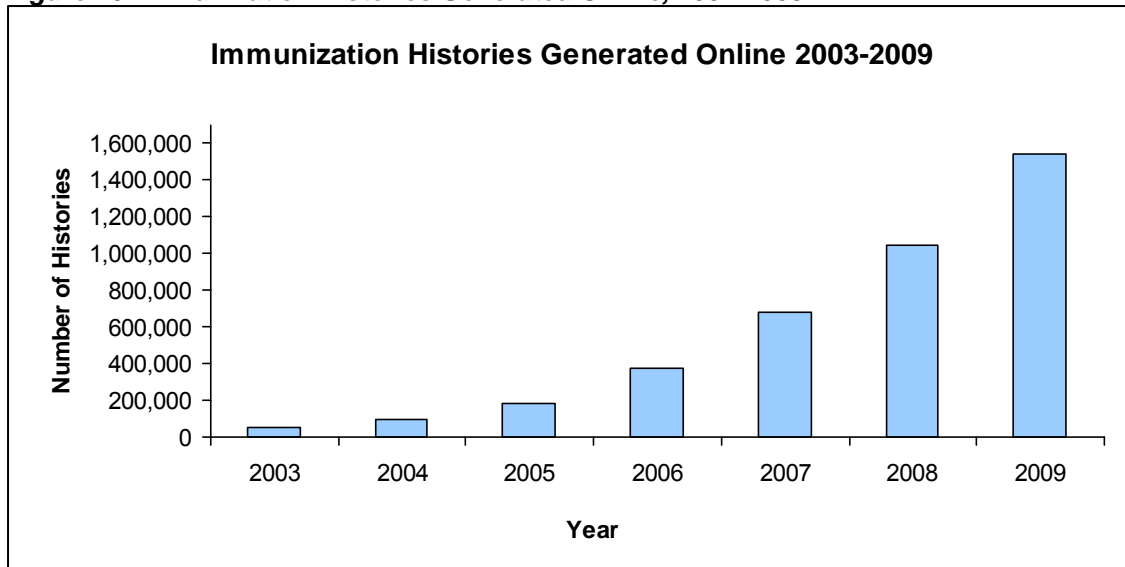


Figure 16. Immunization Histories Generated Online, 2002-2009



ImmTrac and H1N1

In 2009, ImmTrac responded quickly to the H1N1 Pandemic. In accordance with Senate Bill 11, 80th Legislative Session, ImmTrac deployed its tracking database for Antivirals, Immunizations, and Medications (AIMs), allowing providers to comply with reporting requirements for the H1N1 event. In addition, ImmTrac used the following processes as part of the H1N1 response:

- The ImmTrac help desk and records management teams were augmented with temporary staff, allowing the program to provide the level of support necessary to respond to the mass of newly enrolled providers, and assist in data quality and reporting activities.
- Mass enrollment process for new sites.
- New reporting formats designed for new provider reporting during and after the event.

C. Promoting Use of Reminder and Recall Systems

Reminder/recall systems are proven strategies for raising vaccine coverage levels.

Reminder and recall notices sent to parents participating in a medical home encourage return to the medical home and decrease the likelihood that shots will be missed. DSHS works with stakeholder groups, including professional organizations and managed care organizations, to promote reminder/recall systems and use of ImmTrac. DSHS provides reminder cards at no cost to any provider and emphasizes reminder/recall systems as a key approach to raising vaccine coverage levels.

Reminder/recall functionality is a feature of the statewide immunization registry, ImmTrac.

- Providers and public health sites use the registry to generate reminder/recall lists as well as bilingual letters and mailing labels.

- DSHS uses reminder cards to notify parents when their child is due for the fourth DTaP dose or when their child is overdue for the fourth DTaP dose.

Reminder/recall activities are promoted during annual site visits to clinics enrolled in the TVFC program through a contract with the Texas Medical Foundation Health Quality Institute. Clinic reminder/recall activities are evaluated and clinic staff is educated about the value of reminder/recall systems. Assessment of clinic immunization records also emphasizes reminder/recall systems.

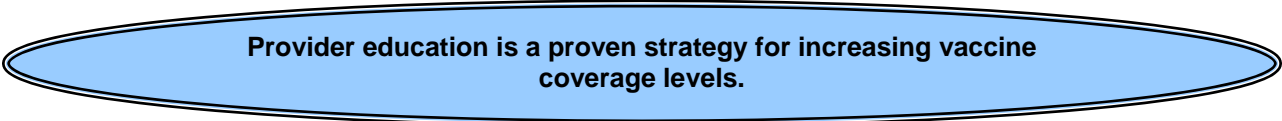
- During site visit follow-up, additional education on use of reminder/recall systems is provided for every clinic that does not have such a system in place.

D. Educating Providers

The immunization schedule, describing the increased numbers of doses of routinely recommended childhood vaccines, is a valuable tool for both providers and parents to help them determine when shots are due.

Attitudes and beliefs of parents who are hesitant about vaccines can also be significant barriers to vaccinations.

- The most critical of these factors are a belief that timing of vaccinations is unimportant and parents not knowing when vaccines are due.



Provider education is a proven strategy for increasing vaccine coverage levels.

- Provider education focusing on immunization education helps physicians stay current on changes to the complex immunization schedule, number of vaccines that can be administered during one visit, and vaccine contraindications.
- DSHS conducts provider education through a toll-free hotline, a provider newsletter, and routine communication with Texas Immunization Stakeholder Work Group (TISWG.)
- Provider education reinforces other proven strategies such as benefits of the statewide immunization registry, reminder/recall systems, TVFC enrollment, and the medical home concept.

Texas Vaccines for Children (TVFC)

Texas is among the states with the highest percentage of uninsured and underinsured children.

- Over three million (3,020,474) Texas children (0-18 yrs of age) are on Medicaid (Federal Fiscal Year 2009 data). Many of these children are not receiving the complete series of immunizations required to protect them from vaccine-preventable diseases on time.

Texas participates in the federal VFC Program as the TVFC Program.

- Since its inception in 1994, more than 6,000 Texas providers in 3,600 clinic sites have enrolled.
- The program guarantees that vaccines are available at no cost to providers to immunize children who meet eligibility requirements. DSHS actively recruits providers to enroll in the TVFC Program.
- One of the most important benefits of the TVFC Program is removing barriers to immunizations.

- Providers no longer have to refer an uninsured child to a public health center for immunizations.

Through the TVFC Program, the following groups of children receive vaccines for free:

- Uninsured or underinsured children;
- Children who are covered by CHIP;
- Children who are of Native American or Native Alaskan heritage; and
- Children on Medicaid.

Benefits of the TVFC Program include the following:

- TVFC removes the financial cost of vaccines.
- A TVFC provider may not charge for the vaccine itself but is permitted to charge a reasonable administration fee.
- The TVFC Program does not tell enrolled providers whom they must see or dictate that they accept Medicaid clients.
- TVFC automatically covers all vaccines recommended by the Advisory Committee on Immunization Practices (ACIP) and approved by CDC.
- Children are kept in their medical home, which is a benefit to providers, families, and people of Texas. Therefore, more children receive their complete series of immunizations.

Since 2001, quality assurance of providers enrolled in the TVFC Program has been a priority for the DSHS Immunization Branch.

- DSHS contracts with TMF Health Quality Institute to conduct site visits in the private sector.
- In 2009, a total of 3,199 site visits were conducted, which is approximately 91% of all active TVFC providers in the state.
- An assessment of immunization records is conducted during site visits using the Clinic Assessment Software Application (CASA) developed by CDC.
- Purpose of the assessment is to give the clinic their vaccine coverage level and identify areas for improvement.

A standardized educational tool kit and provider manual is delivered to all enrolled clinic sites.

- Tool kits include information on the *Standards for Pediatric Immunization Practices, General Recommendations on Immunization Practices*, vaccine storage and handling guidelines, reportable diseases in Texas, the statewide immunization registry, school requirements, and reminder/recall systems.
- The provider manual is a TVFC guidance document outlining provider responsibilities and program operating procedures.
- Follow-up of all deficiencies identified during visits are referred to health service regions (HSR) and LHD staff to reinforce education provided during the visit and to offer technical assistance.
- DSHS plans to continue quality assurance services and education activities with public and private providers.

TVFC also supports a safety-net program for adults seeking immunizations through LHD and HSR.

- Private providers are not authorized to provide vaccine to adults 19 years of age or older with one exception: any person who was TVFC-eligible and started a series before their 19th birthday may finish the series.
- In 2007, the Immunization Branch received CDC funds to expand the Adult Safety-net Vaccine Program. Expansion included both addition of new adult vaccines, and broadening of eligibility criteria for adult vaccines that were already available. These funds will end in 2011.
- From 2007 to 2009, over 116,000 doses of various vaccines were administered to people over the age of 19 in the 32 Texas border counties as part of the safety-net program.
- In conjunction with ACIP recommendations, the safety-net program added Human Papillomavirus (HPV) Vaccine, Meningococcal Conjugate (MCV4), tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap), and herpes zoster vaccine to the adult safety-net program.
- Hepatitis A and B, measles/mumps/rubella, varicella and other vaccines traditionally thought of as routine for children are also available for adults for catch-up purposes.

Hepatitis B Prevention Provider Education

Focus of the Perinatal Hepatitis B Prevention Program is to increase the number of pregnant women screened for hepatitis B surface antigen (HBsAg) and report positive and unknown results to DSHS. NHANES estimates that 800 to 1,200 infants are born to HBsAg positive women in Texas each year.

Since 2007, the Perinatal Hepatitis B Prevention Program has maintained standardized educational materials for presentation to all labor and delivery hospitals in Texas.

A module on hepatitis B is included on DSHS' Immunization Branch web-based Vaccine Education Online. Intent is to increase provider knowledge using a user-friendly medium. Vaccine Education Online is also available to the public.

Additional Methods DSHS uses to educate providers

- **VACCINE EDUCATION ONLINE** - In 2008, the Immunization Branch launched an online immunization education program consisting of 21 modules. Modules include TVFC vaccine storage and handling, vaccine administration, ImmTrac, surveillance, *Perinatal Hepatitis B Prevention*, *Standards of Immunization Practices* for infants, children, adolescents, and adults, general vaccine information, and school and childcare immunization requirements.
- **THE UPSHOT** - The Immunization Branch electronically publishes a quarterly newsletter, *The Upshot Online*. It targets public and private sectors that are part of the Texas immunization system. It provides information on new educational publications, new vaccines, upcoming immunization observances, education campaigns, and other subjects to providers and the general public.
- **THE VACCINE ADVISORY** - This electronic publication provides public and private collaborators the latest vaccine information. *The Vaccine Advisory* is published when new ACIP recommendations are posted and for other hot topics.
- **CONFERENCES** - The Immunization Branch is present in over 25 state-wide conferences during the calendar year. ImmTrac or TVFC will exhibit at each of the conferences.

- **SATELLITE DOWNLINK BROADCASTS** - CDC sponsors three immunization training events for providers. These are electronic events via satellite downlink or web cast. These events are also electronically archived and can be accessed at any time after the live event.
- **LAMINATED IMMUNIZATION SCHEDULE** - The immunization schedule is published with a redesigned format. A limited number of schedules were laminated and distributed to TVFC providers in both private and public practice. Easy access to the schedule makes it easier for providers to appropriately administer vaccines and not miss opportunities due to complexities.
- **EDUCATION MATERIALS ONLINE.** The Immunization Branch has over 20 publications specific for immunization providers. They range from how to administer a vaccine to how to talk to parents about the benefits and risks of vaccines and offer comfort to a child who has just received a vaccine. These are available both electronically and in hard copy.

E. Expanding Public/Parent Education

The complex task of increasing Texas' vaccine coverage levels cannot be accomplished without the nationally proven strategy of public education, particularly parent education.

DSHS remains committed to public/parent education and continues to allocate funds for immunization media campaigns designed to target underserved populations, general populations, and private providers.

While media campaigns play critical roles in the public/parent education initiatives, regional and LHDs provide immunization information through the Women, Infants, and Children (WIC) program and other community based programs.

Tools and efforts below support public/parent education:

- **VACCINE EDUCATION ONLINE** - In 2008, DSHS activated an online learning system. Twenty-one individual modules cover TVFC, ImmTrac, vaccine-preventable diseases, and other information for the public and for providers. Two additional modules have been developed. Since 2008 over 2000 healthcare professionals, school nurses, school administrators, childcare workers and parents have taken at least one of the modules in the online system.
- **HPV VACCINE EDUCATION** - The Immunization Branch provides education to parents on the advantages of HPV vaccine for their children. The Immunization Branch leads a work group to implement two pieces of Texas legislation requiring parent education on benefits of the new HPV vaccine. The workgroup is composed of four DSHS programs, one other state agency, and the collaboration of several medical organizations. As a result of the work group:
 - Information on the HPV disease and vaccine appears on four websites;
 - HPV fact sheet is available; and
 - Information will appear in revised state publications.
- **PERINATAL HEPATITIS B PREVENTION PROGRAM** – In 2009, DSHS conducted a statewide public health evaluation project to assess maternal screening practices for HBsAg and administration of the hepatitis B vaccine birth dose at labor and delivery hospitals in Texas during year 2008. A representative sample of 119 hospitals was selected with 100% participation rate. A total of 25,705 medical records consisting of mother/baby pair charts were reviewed. The study found that 99.7% of pregnant mothers were screened for HBsAg at the time of delivery and on average 90.4% of newborns received the birth dose of the hepatitis B vaccine prior to hospital discharge. These findings are significant as it provides scientifically robust data that allows the

program to design targeted intervention in areas where maternal screening and administration of the hepatitis B vaccination fall below program objectives.

- **ANNUAL INFLUENZA INFORMATION TO DAYCARE CENTERS** - As a result of 2007 legislation, HB 3184, the Immunization Branch conducts an annual vaccination against influenza direct mail effort to all daycare centers and licensed family homes each August or September. In 2008 and in 2009, over 17,000 daycare centers received information on the importance of seasonal flu vaccination.
- ***Little Kids get the Flu Too, The Emily Lastinger Story*** - In 2008 the Immunization Branch published a brochure telling the story of Emily Lastinger, in response to HB 1059. The brochure tells the story of Emily Lastinger, a four-year old that contracted the flu and died from it. In 2009 the brochure was mailed with annual influenza information mailing to daycare centers to distribute to parents. During the 2009-2010 H1N1 Pandemic, there were 33 pediatric influenza deaths recorded. This rate was higher than prior flu seasons.
- **2008 Fourth DTaP HEALTHCARE PROVIDER CAMPAIGN** - One out of every five children in Texas does not have the fourth dose of the DTaP vaccine. In 2008, the Immunization Branch launched a statewide education campaign to encourage healthcare providers to not miss any opportunities to provide the fourth DTaP to their clients when indicated by the recommended immunization schedule. Immunization providers who received mailings were pediatricians, family practice physicians, general medicine physicians, OG/GYNs, nurses and physician assistants. The slogan for the campaign was, "4th DTaP: Get it for them." The slogan was used in all campaign materials. Materials included buttons for the providers' office staff, which posed the question "Every Vaccine Counts, Did Your Baby Get It? 4th DTaP at 15-18 months." There were also corresponding stickers for children saying, "4th DTaP at 15-18 months. I got it! Every Vaccine Counts." The year-long campaign had four phases. Each phase strategically designed to build on the previous one keeping the message visible at all times.
- **IMMUNIZATION OBSERVANCES** - National Infant Immunization Week (NIIW), National Immunization Awareness Month, National Adult Immunization Week, and National Influenza Vaccination Week are designated to observe specific areas of immunization. The Immunization Branch has established a "standardized procedure" for all observances including selecting a theme for NIIW and then building on that theme throughout the year during the other observances. The theme and supporting information is communicated to DSHS Health Service Regions and LHDs for them to use in promoting vaccines and immunizations during various observances. Observance activities are also part of a collaboration between other states, agencies, branches, and community groups. In both 2008 and 2009, DSHS participated in Vaccination Week of the Americas in collaboration with the Pan-American Health Organization (PAHO). In 2009 the Immunization Branch conducted a survey as part of observance activities to assess effectiveness of the national observances coordination, establish a baseline for future surveys, and to develop an instrument for assessing impact of observances on behavioral changes in vaccination increases at HSR and LHD levels.
- **IMMUNIZATION INFORMATION LINE** - The Immunization Information Line receives calls from physicians, school nurses, childcare providers, LHDs, regional health departments, and private individuals. One of the biggest public concerns is where to get a vaccine for their child(ren) or for themselves at either low or no cost. The Immunization Branch works with 2-1-1 to maintain a current listing of state or local public health clinics where customers can get vaccines through TVFC. During 2008 and 2009, the Immunization Branch received over 25,000 calls to its main number more than 11,000 to its toll-free line.
- **DEVELOPMENT AND DISTRIBUTION OF EDUCATION MATERIALS** - The Immunization Branch has developed, reviewed, or revised 298 publications related to vaccines and vaccine-preventable diseases. Publications instruct or educate providers, parents and the general public

on benefits of vaccines and dangers of vaccine-preventable diseases. These publications include specifics to promote the Perinatal Hepatitis B Program, the Vaccine for Children's Program, the timely administration of the fourth DTaP, and Vaccine Information Statements. These publications are offered at no cost to public health clinics, private providers and the general public via an electronic distribution system.

- **IMMUNIZATION DATABASE** - The Immunization Branch maintains a geo-coded immunization clinic database. It contains approximately 400 public health clinics where parents can receive vaccinations for their child. The database is updated quarterly.
- **IMMUNIZE TEXAS WEBSITE** - The Immunization Branch uses the Internet to distribute immunization information and literature. All immunization publications are available for download. Customers can order hard copies of publications online. The Immunize Texas Website is consistently updated to provide timely and accurate information. The website address is: www.immunizetexas.com
- **DAIRY QUEEN COUPONS AND HALLMARK CARDS** - The Counsel of Dairy Queen Operators continues their partnership with the Immunization Branch to provide coupons for a treat when children receive vaccines. During 2008 and 2009 over 160,000 coupons were distributed. The Hallmark Card Company also partners with Texas and provides cards signed by the current Governor of Texas for new parents. The congratulatory cards from the Governor and First Lady include a message about the importance of immunizations, the immunization schedule, and a place to record administered vaccines.

F. Advocating for Public/Private Partnerships

Raising vaccine coverage levels in Texas requires effective partnerships at state and community levels to implement nationally proven strategies across the state.

Partners may be members of community groups or collaborations, professional organizations, state agencies, or private businesses. Sustainable measures that raise vaccine coverage levels are most successful when they are cohesively supported through partnerships.

Texas Immunization Stakeholder Working Group (TISWG)

The Texas immunization system is complex and requires collaboration among many public and private entities.

- In accordance with legislation passed by the 78th Legislature and other recommendations for increasing partnerships, DSHS formed the Texas Immunization Stakeholder Working Group (TISWG) in August 2004.
- TISWG includes representatives from the public sector, private sector providers, health organization groups, community, and parent groups.
- TISWG provides a forum for diverse partners in the state immunization system to share ideas, perspectives, best practices, and resources to more effectively target efforts to raise vaccine coverage levels in Texas.
- Over 100 organizations and over 150 contributors have participated in TISWG since its inception. TISWG has maintained many of its original members with representation fully operational as part of the Texas Immunization System.

- TISWG is a real-time network that has provided recommendations to the DSHS Immunization Branch during episodes of hurricane activities, H1N1 Response and increasing public/provider education.
- TISWG was very instrumental in assisting the Immunization Branch in promoting ImmTrac and incorporating policy updates to launch the First Responder Feasibility Study. The Work Group also provided input to the Pertussis Cocooning Project, provided valuable feedback for finalizing aspects of the Adolescent and Adult Immunization Program' Business Plan and guidance for the School-Based Flu and fourth DTaP study.
- TISWG meets three times per year.

TISWG continues to draw new and committed partners and subject matter experts from health and human services programs, other government agencies, community groups, coalitions and pharmaceutical representatives that help the Immunization Branch achieve their goals.

TISWG Participants include:

- Department of Assistive and Rehabilitative Services, Division of Early Childhood Intervention
- Department State Health Services Family and Community Service Programs
- Health and Human Services Commission - Medicaid
- Health and Human Services Commission -Office of Early Childhood
- Invited Subject Matter Experts
- National Medical Association Texas Lone Star Chapter
- Parents Requesting Open Vaccine Education (PROVE)
- Retired Senior Volunteers
- Texas Academy of Family Physicians
- Texas Association Community Health Centers
- Texas Association Obstetricians and Gynecologists
- Texas Association of Health Plans
- Texas Association of Local Health Officials
- Texas Education Agency
- Texas Higher Education Coordinating Board
- Texas Hospital Association
- Texas Medical Association
- Texas Nurses' Association
- Texas Osteopathic Medical Association
- Texas Parent Teacher Association
- Texas Pediatric Society
- Texas Pharmacy Association
- Vaccine Manufacturers
- Meningitis Angels/ Parent to Parent

- Texas Health Steps
- San Antonio Metropolitan District
- Milam County Health Department
- Texas Immunization Partners
- Title Five Maternal and Child Health
- Office of Eliminating Health Disparities
- Tarrant County Health District
- Families Fighting Flu
- The Jamie Project
- ProAction El Paso
- Texas State Legislative Representatives

Texas Immunization Coalitions

Texas Immunization Coalitions continue to serve as DSHS partners and the Immunization Branch encourages development of local coalitions. Table 3 lists all currently active immunization coalitions in Texas.

Success of stakeholder development is evidenced in two new DSHS contracts granted to LHD Immunization Coalitions. The Brownwood/Brown Health Department and the Waco/McLennan Health District have both begun contracts to provide immunization services.

Table 3. Texas Immunization Coalitions

Texas Health Service Regions (HSR)	Texas Immunization Coalitions
HSR 1	<ul style="list-style-type: none"> • City of Amarillo Immunization Stakeholder Group • Lubbock City Health Department Immunization Program, “City of Lubbock Shots on Schedule”
HSR 2/3	<ul style="list-style-type: none"> • Abilene Big Country Immunization Coalition • Brownwood/Brown Health Department-Strengthening Community Collaborations • Denton County Immunization Coalition • Immunization Collaboration of Tarrant County (ICTC) • Immunize Kids, Dallas Area Partnership
HSR 4/5	<ul style="list-style-type: none"> • <i>No Active Coalitions in HSR 4/5</i>
HSR 6/5S	<ul style="list-style-type: none"> • Galveston County Immunization Coalition Advisory Board • Immunization Coalition of Greater Houston • Meningitis Angels/Parent to Parent • The Immunization Partnership • Texas Children’s Hospital
HSR 7	<ul style="list-style-type: none"> • Austin Area Immunization Collaboration • DSHS Medical Home Work Group • TMA Resources for Physicians • Waco McLennan Health District-Strengthening Community Collaborations • Texas Asthma Coalition
HSR 8	<ul style="list-style-type: none"> • ITZA Bexar County Immunization Coalition
HSR 9/10	<ul style="list-style-type: none"> • El Paso Immunization Coalition-ProAction
HSR 11	<ul style="list-style-type: none"> • Laredo Health Coalition

Local Health Departments (LHDs)

The statewide effort to increase vaccine coverage levels and apply nationally proven strategies is reflected by state and federal funds allocated to LHDs across Texas. In 2010, DSHS provided \$15.4 million in state and federal funds to 51 LHDs in cities/counties to provide essential immunization services. DSHS' Immunization Branch strives to find additional permanent funding to support immunization activities in LHDs. In 2009, three new LHDs were awarded funds and, in 2010, two new LHDs were awarded funds as well. Unfortunately in 2010, two LHDs stopped contracting with DSHS Immunization Branch. One LHD closed and the other LHD no longer wanted to contract with Immunizations.

In FY2009, as a way to ensure that proven national strategies were being used in LHD settings, a standardized work plan was created. In addition, a Contractor's Guide that explains requirements and offered best practices to incorporate nationally proven strategies was created. As a way to monitor and improve immunization contracts, a comprehensive contract monitoring system was implemented in FY2009. By the end of August 2010, all 51 currently contracting LHDs will have received an initial site review. The monitoring system has helped the immunization program ensure contract compliance and identify opportunities to continually improve contracting processes by learning about and sharing best practices among LHDs as site reviews were conducted. DSHS Immunization Branch shares these current best practices to improve immunization rates within all LHDs.

LHDs are required to implement the following activities to help increase immunization coverage levels:

- Incorporate systematic approaches (partnerships, registry, reminder/recall, provider and public education, use of the medical home) designed to eliminate barriers and expand immunization delivery.
- Establish and maintain partnerships with community based organizations and local human service agencies, including WIC, to promote best practices and activities that will increase vaccination coverage levels.
- Implement an immunization program for children, adolescents, and adults, with special emphasis on accelerating interventions to improve vaccine coverage levels of children less than 36 months of age.
- Use practices that encourage parents to use the medical home for vaccinations.
- Inform and educate the public about vaccines and vaccine-preventable diseases.
- Recruit and enroll providers into the TVFC Program and perform follow-up visits when deficiencies are identified by the quality assurance contractor.
- Conduct immunization assessments or surveys in childcare facilities and registered family homes.
- Complete annual assessments in subcontracted entities and clinics.
- Ensure a healthcare workforce that is knowledgeable about vaccines, vaccine-preventable diseases, and delivery of vaccination services.
- Promote use of ImmTrac in public clinics and private provider offices to increase the number of children participating in the registry and registered provider sites.
- Make use of reminder/recall systems to notify parents or guardians of children less than 36 months of age when immunizations are due or past due.
- Refer children to Medicaid and/or CHIP and assist families to identify medical homes.

- Report all vaccine adverse event occurrences in accordance with the National Childhood Vaccine Injury Act of 1986.
- Investigate all reported vaccine-preventable diseases.
- Investigate all suspected hepatitis B infections in pregnant women and prevent infections to their infants.

IV. ADDRESSING NEEDS OF UNDERSERVED AREAS

Immunization service delivery in Texas is complicated by many factors. Service delivery must meet needs of both large urban areas and sparsely populated rural areas. The size, demographics, and division of Texas into 254 counties under local jurisdiction make standardized approaches challenging.

Children, who are uninsured, underinsured, who lack a medical home, or who live in rural areas of Texas or along the Texas-Mexico border are traditionally underserved in terms of providers and medically underserved in general. While DSHS programs emphasize the importance of a medical home, underserved areas often require additional services.

This section includes several program approaches to raising vaccine coverage levels in underserved areas: (A) Support FQHCs; (B) Collaborate with WIC Program; (C) Support Immunization Border Initiatives; (D) Partner with Texas Health Steps (THSteps); (E) Collaborate with Children's Health Insurance Program (CHIP) and (F) Support LHDs.

A. Support Federally Qualified Health Centers (FQHC)

In 2010, DSHS funded 15 FQHCs statewide including two new contractors totaling \$394,752.

- Since 1994, FQHCs have received funding to expand or enhance immunization services to reach traditionally underserved populations, especially in communities where there are no local public health departments.
- Immunization services focus on programs for children and adolescents with special emphasis on children two years of age and younger.
- FQHCs eliminate access to medical care barriers by offering immunization services outside usual clinic hours and by using reminder/recall systems to notify families of due or past due immunizations.
- Currently, DSHS' Immunization Branch reimburses FQHCs to administer vaccine doses at \$5.91 per dose.

B. Collaborate with the Women, Infants, and Children (WIC) Program

Since 1993, DSHS' Immunization Branch and the State Supplemental Nutritional Program for WIC have worked together to increase vaccine coverage levels among WIC participants.

- This includes all 80 WIC agencies participating in assessing vaccine records of WIC participants.

In 2010, DSHS' Immunization Branch funded ten WIC agencies representing 71 clinic sites for administration of immunizations in WIC clinics.

The WIC Program is required to conduct assessments and referrals. DSHS' Immunization Branch worked with the WIC Program to develop a standard assessment tool and procedures and provides periodic training for WIC staff.

C. Support Immunization Border Initiatives

There are over 500 private provider clinic sites enrolled in the TVFC Program in border counties. The TVFC Program provides vaccines at no cost to physicians to vaccinate children who are enrolled in Medicaid, have no health insurance or who are underinsured, who are American Indian or Alaskan Natives, or who are enrolled in CHIP. TVFC providers in the 32 border counties administer approximately 1.6 million doses of vaccine each year.

DSHS has long-standing relationships with public health agencies in counties along the Texas-Mexico border. Contracts provide funding to LHDs along the border to promote the TVFC Program and the immunization registry, administer vaccines, promote immunizations, conduct vaccine-preventable disease surveillance, assess vaccine coverage levels at the clinic level, and apply principles of epidemiology and outbreak control measures. In 2010, DSHS provided over \$2 million in state and federal funds to four LHDs in border counties:

- El Paso City-County Health District
- Laredo City Health Department
- Hidalgo County Health Department
- Cameron County Health Department

These LHDs implement immunization programs for children and adolescents under 19 years of age and adults, with a special emphasis on children under 3 years of age, to eliminate barriers to immunizing children on schedule, expand vaccine delivery, and establish uniform immunization policies.

FQHCs administer vaccines and promote immunizations for children under 19 years of age with special emphasis on children under three years. In 2010, of the \$394,752 provided to FQHCs statewide, DSHS provided over \$160,000 in federal funds to seven FQHCs in the following 5 border counties:

- Centro De Salud Familiar La Fe, El Paso County
- Community Health Development, Inc., Uvalde County
- Vida y Salud Health Systems, Inc., Zavala County
- South Texas Rural Health Services, Inc., LaSalle County
- Nuestra Clinica del Valle, Inc., Hidalgo County

D. Partner with Texas Health Steps (THSteps)

To increase vaccine coverage levels in underserved areas of Texas, DSHS has partnered with THSteps to improve distribution of immunization-related information.

- THSteps is dedicated to expanding client awareness of existing health and dental services, as well as recruiting and retaining a qualified provider pool to assure that preventive health and dental services are available through public and private providers.
- Through this collaboration, DSHS added an immunization education module to the web-based THSteps provider education learning system.
- THSteps and the Immunization Branch Medicaid liaison worked with HHSC and TMHP to create a policy for adding new vaccines to the list of products available. New vaccines can now be added to the Medicaid billing system in a timely manner.

E. Collaborate with Children's Health Insurance Program (CHIP)

CHIP is designed for families who earn too much money to qualify for Medicaid but cannot afford to buy private insurance for their children.

- CHIP coverage provides eligible children with coverage for a full range of health services including regular checkups, immunizations, prescription drugs, laboratory tests, radiologic studies, hospital visits, and more.
- Physicians, therapists, pharmacists, nurse practitioners, hospitals, and other health care providers are encouraged to join a CHIP provider network.
- Most urban areas of Texas are organized into CHIP Service Areas (CSAs). CSAs have one or more CHIP Health Maintenance Organization (HMO) contractors with provider networks. Health care providers are encouraged to join member networks of all CHIP HMOs operating in their area.

Since the CHIP program provides a full range of health services, DSHS works with the HHSC to ensure that CHIP providers have access to low cost vaccines for their participants. Through the Interagency Cooperative Contract between the HHSC and DSHS Regarding CHIP Vaccines and Immunizations, children receive vaccines at a lower cost to taxpayers by taking advantage of federal vaccine contract prices.

F. Support Local Health Departments (LHD)

As previously discussed, LHDs are the safety net for many underserved areas. In 2010, DSHS funded 51 LHDs statewide including two new contractors for a total of about \$15.4 million.

- Immunization services focus on programs for children and adolescents with special emphasis on children two years of age and younger.
- LHDs eliminate access to medical care barriers by offering immunization services outside usual clinic hours and by using reminder/recall systems to notify families of due or past due immunizations.
- LHDs empathizes the importance of immunizations through educational activities in their communities.

V. SCHOOL AND CHILDCARE IMMUNIZATION EXEMPTION REQUIREMENTS

A conscientious exemption is a type of exemption from vaccine requirements for entry to a school or childcare facility due to reasons of conscience, including religious beliefs.

- Parents or guardians may request a conscientious exemption affidavit form in writing or via the DSHS website.
- Parents or guardians can request up to five conscientious exemption affidavit forms per child.
- Requests for conscientious exemption affidavit forms that are submitted to DSHS are returned to parents or guardians along with the conscientious exemption affidavit forms.
- After the original conscientious exemption affidavit form is signed and notarized, it must be submitted to the child's school or childcare facility.
- Each individual conscientious exemption affidavit is good for two years from the date notarized.

Texas began allowing exemptions from immunizations based on reasons of conscience, including religious beliefs, on September 1, 2003—the result of House Bill 2292, Texas Legislature 78 (R). Exemptions requested from September 2003 through April 2004, were valid for five years.

In April 2004, the former Texas Board of Health approved rules for the conscientious exemption (Texas Administrative Code, Title 25 Health Services, Part 1, Chapter 97, Subchapter B, §97.62). The Board of Health ruled exemptions to be valid for two years. Approved rules allowed parents to fax their requests for the affidavit form; and for DSHS, legacy Texas Department of Health, to collect the number of exemptions by zip code.

In December 2007, the Executive Commissioner of HHSC approved changes to the exemption rule allowing parents or guardians to request an affidavit form via the Internet.

Conscientious Exemption Data

DSHS tracks information about conscientious exemptions using two methods: the number of conscientious exemption affidavit forms requested and the number of conscientious exemptions reported by schools via the Annual Report of Immunization Status. Legislation prohibits DSHS from maintaining a list of individuals who request affidavits.

DSHS monitors compliance with immunization requirements via the *Annual Report of Immunization Status* as mandated by the Education Code, 38.002. An annual report of immunization status is submitted to DSHS by public/private, elementary and secondary schools in Texas.

Data from these reports are required to have calculations of an approximate number of conscientious exemption affidavit forms submitted to these schools.

- Data are self-reported and provide an aggregate number of conscientious exemptions on file. Individuals may request an affidavit form for personal reasons and not submit it to a school.

No reports of incidences of discrimination for using an exemption have been reported since 2004.

Table 4 describes the numbers of affidavits mailed, number of requests received, and number of individuals for whom forms were requested.

Table 4. Data on Requests Received for Conscientious Exemptions, FY 2004 – FY 2010

Data Collected	FY 2004 (9/1/03-8/31/04)	FY 2005 (9/1/04-8/31/05)	FY 2006 (9/1/05-8/31/06)	FY 2007 (9/1/06-8/31/07)	FY 2008 (9/1/07-8/31/08)	FY 2009 (9/1/08-8/31/09)	FY 2010 (9/1/09-8/31/10*)
Number of Affidavits mailed (The number of forms requested each year. Up to five affidavit forms per individual are allowed if requested.)	23,235	19,096	22,103	25,433	39,096	59,478	43,046
Number of Request letters received (The individual request letters received by the department each year. A request letter may list more than one child for whom an affidavit form is needed.)	4,235	4,037	5,392	5,748	8,938	13,499	10,322
Number of individuals (The actual number of individuals for whom 1-5 affidavit forms have been mailed each year. This number differs from the number of affidavits mailed, since up to five forms per individual may be requested and mailed.)	7,250	6,351	8,341	9,185	14,498	22,534	16,129

*For FY 2010, data is current as of 7/14/2010.

Risk to Unprotected People

Unvaccinated children put unprotected people and their communities at risk. This risk is especially important for people who cannot be vaccinated, such as:

- People who are too young to be vaccinated;
- People who cannot be vaccinated due to medical reasons; and
- People who do not develop adequate immunity to the disease from the vaccine.

Table 5 displays the number and percent of students enrolled in independent school districts and accredited private schools, grades K-12, who were reported to have a conscientious exemption from at least one required school vaccine. Data were self-reported by schools on the *Annual Report of Immunization Status*. The most current data (from the 2009-2010 school year) indicate that less than one percent of students enrolled in Texas public schools and accredited private schools have a conscientious exemption on file. However, the number and percentage of students with a conscientious exemption has increased every year since the 2003-2004 school year, when conscientious exemptions were first allowed.

Table 5. Number and percent of students enrolled in Texas schools with a conscientious exemption on file, as reported by public school districts and private schools.

School Year	Number of Students Enrolled[†] with a Conscientious Exemption	Percent of Students Enrolled[†] with a Conscientious Exemption
2003-04*	2,314	0.08%
2004-05	2,722	0.09%
2005-06	6,991	0.15%
2006-07	9,606	0.21%
2007-08	10,404	0.23%
2008-09	12,633	0.28%
2009-10	19,050	0.39%

Results of an Interim Survey to determine the number of conscientious exemptions submitted to schools for school year 2003-04.

[†]Enrollment as reported via the Annual Report of Immunization Status by schools.

VI. ADULT AND ADOLESCENT IMMUNIZATIONS

A. Adolescent

On March 5, 2009, the HHSC Executive Commissioner approved several revisions to the *Immunization Requirements for Children and Students in Texas Public and Private Schools* [Title 25. Health Services, Chapter 97, Texas Administrative Code (TAC) §97.61 and §§97.63-97.77].

Changes were made in order to update Texas elementary and secondary school immunization requirements so that they adhere more closely to CDC and ACIP recommendations. These revisions amended frequency of vaccinations and booster shots for diseases already required, and also added meningococcal vaccine.

For the 2009-2010 school year, these new requirements affected kindergarten and 7th-12th grade students.

A summary of new requirements for 7th-12th grade students is below:

Varicella vaccine: Beginning August 1, 2009, all students entering 7th grade were required to have two doses of varicella vaccine. This requirement will be implemented in an additional grade level each year, and by school year 2014/15 the 2nd dose of varicella will be required for 7th-12th grade students.

Tetanus, diphtheria and acellular pertussis-containing vaccine (Tdap): Beginning August 1, 2009, all students entering 7th through 12th grade were required to have one dose of Tdap vaccine. Students in the 7th grade are required to have a booster dose of Tdap only if it has been five years since their last dose of a tetanus-containing vaccine. Students in grades 8-12 are required to have a booster dose of Tdap if it has been ten years since their previous dose of a tetanus-containing vaccine.

Meningococcal vaccine: Beginning August 1, 2009, all students entering 7th grade were required to have one dose of Meningococcal. This requirement will be implemented in an additional grade level each year, and by school year 2014/15 meningococcal vaccine will be required for 7th - 12th grade students.

To date there is no HPV requirement in Texas. *The National Immunization Survey* for 2009 shows that HPV data coverage is very low. For adolescent females, 13-17 years of age, the coverage rate is 37.6% and for adult females, 18-24 years of age, the coverage rate is 10.7%.

B. Adult

Development of the Adult Strategic Plan

In the early months of 2010, Dr. David L. Lakey, Commissioner of Health Services, asked the Immunization Branch to provide an update on current activities and future plans for adult immunizations. The Immunization Branch's *Adult Immunization Strategic Plan* (Plan) aims to address his concerns and provide a roadmap for future DSHS adult immunization programming.

The Plan outlines the present state of adult immunizations in Texas and gives readers information on adult immunization projects and partnerships. The Plan also recounts disease incidence in adults, success with childhood immunizations and the remaining gaps in adult immunization services.

The Plan also includes a section on goals and objectives that will pave the path to achieving six strategic directions. These six strategic directions are:

1. Promote use of ImmTrac, the statewide immunization registry;

2. Promote use of reminder/recall where appropriate, and encourage all providers to conduct an initial screening for all new adult patients to determine if immunizations are needed;
3. Public education;
4. Provider education;
5. Promote the medical home; and
6. Work with stakeholders to improve the strategies mentioned above and to work towards filling gaps within the adult, statewide immunization system.

The final goal of the Plan is to improve adult immunization levels through the above objectives and future activities that generate progress in the six strategic directions.

Stakeholder input

Within the Texas immunization system, the Immunization Branch works to ensure that stakeholders provide input into The Immunization Branch's strategies and actions such as the Plan. For example, the Immunization Branch works with organizational partners to increase adult immunization rates by strengthening partnerships with TISWG to identify and include non traditional partners, such as pharmacies and community vaccinators. The Immunization Branch also supports local stakeholder groups and encourages policies and practices that support preventive care. Additionally, the Immunization Branch works with organizational partners to identify and close gaps in the adult immunization system.

The Immunization Branch works with community stakeholders by engaging community groups, workplaces, alternative vaccination sites, community vaccinators and neighborhoods in order to increase public awareness about adult immunizations and vaccine coverage levels for adults. This work is accomplished through media campaigns and by educating the public and providers about benefits of adult vaccinations and the medical home.

Identifying gaps in the adult immunization system

The Adult immunization system holds numerous gaps that must be addressed if the system is function successfully. Gaps in the adult immunization system fall into four categories:

1. Vaccine Schedule: While routine childhood vaccines are given at two, four, six and 12-18 months of age, the timing of adult vaccines varies based on the vaccines licensure and targeted population.
2. Access to Vaccine: The childhood program is backed with federal Vaccines for Children funding, an entitlement program where no eligible child can be denied vaccine in the United States. No such program exists for adults.
3. Insurance Coverage: Insurance for adult vaccines is not well understood. For children, legislation exists that all insurance companies in Texas must provide coverage for vaccines through six years of age. No legislation exists for adults. In addition, the Texas Medicaid program only began offering recommended vaccines to adults in 2009 and Medicare only provides routine vaccines in Part D, with a limited number of vaccines in Part B.
4. Making Prevention a Priority: While most pediatric, family practice, and infectious disease physicians vaccinate and put prevention first, many physicians as well as non-physician healthcare providers do not promote prevention in the services they deliver. As a result, healthcare providers often choose to not vaccinate themselves.

These gaps will be addressed by the *Business Plan for Adult Immunizations*. Objectives of the Business Plan are outlined in the *Adult Strategic Immunization Plan* and include: working with stakeholders; promoting use of reminder/recall; encouraging all providers to conduct an initial screening for all new adult patients to determine if immunizations are needed; encouraging healthcare providers to promote the

medical home; providing education to the public and adults; and encouraging healthcare providers to promote ImmTrac.

To address these gaps and support AAIP adult recommendations, the Immunization Branch must both maintain and expand its funding base. The Immunization Branch also needs to build on current partnerships and solidify plans for the future. The Adult Safety Net Program is funded through 2011 but future funds are not guaranteed.

The Immunization Branch will continue to seek additional federal funds to sustain the adult safety-net expansion for FQHCs and Family Planning Clinics (FPC). They will also continue to work with CDC to ensure that federal grant requirements target meaningful activities to support the national and statewide immunization system. The Immunization Branch must also promote partnerships by working with TISWG to improve their focus on adult immunization issues. This entails identifying partners who are not at the table and engaging them; identifying gaps in the adult immunization system and asking appropriate partners to take the lead in closing those gaps. The Immunization Branch also has the opportunity to lay ground work for the future by updating the DSHS strategic plan and including a discussion about the adult immunization system that took place at the Immunization Summit in Fort Worth in October 2010. A stronger funding and partnership base are key to filling in gaps and achieving goals in adult immunization.

VII. APPENDICES

APPENDIX A: METHODOLOGIES FOR MEASURING VACCINE COVERAGE LEVELS

DSHS relies on survey data to obtain vaccine coverage levels for Texas. Each survey provides information about coverage levels for different vaccines, ages, and geographic area. The National Immunization Survey (NIS) is the most well known survey and is an important measure to evaluate the success of a state immunization program, but the NIS Childhood data only provides aggregate coverage level information for children 19-35 months statewide and for four major metropolitan areas.

The surveys DSHS uses or conducts are listed in Table 6 followed by a description of the surveys.

Table 6. Vaccine Coverage Level Surveys Used by DSHS

Survey	Data collected	Ages	Area	When
A. National Immunization Survey (NIS) - Children (CDC)	DTP/DT/DTaP Polio MMR Hib Hepatitis B Varicella PCV7 Rotavirus 4:3:1 ¹ 4:3:1:3:3:1 ² 4:3:1:4:3:1 ³ 4:3:1:3:3:1:4 ⁴ 4:3:1:4:3:1:4 ⁵ 4:3:1:0:3:1:4 ⁶	19-35 months	State of Texas and Bexar County, Dallas County, El Paso County, and City of Houston	Annually
B. NIS - Teen (CDC)	MMR Hepatitis B Varicella TD Tdap MCV4 HPV	13-17 yrs	United States	Annually
C. Texas County Retrospective Immunization School Survey (DSHS)	DTP/DTaP/DT Polio MMR Hib Hepatitis B PCV Hepatitis A 4:3:1 ¹ 4:3:1:3:3 ³ 4:3:1:3:3:1 ⁴ Exemptions	Kindergarten students	County level	Ongoing
D. Texas School Immunization Validation Survey (DSHS)	DTP/DTaP/DT/Td/Tdap Polio MMR Varicella Hepatitis B Hepatitis A PCV MCV HPV 4:3:1 ¹ 4:3:1:3:3 ³ 4:3:1:3:3:1 ⁴ Exemptions	Statewide sample of kindergarten and 7 th Grade students	State of Texas	Annually
E. Childcare Assessment (DSHS)	DTaP/DTP/DT Polio MMR Varicella Hepatitis B Hib PCV Hepatitis A Exemptions	19-59 months	Licensed childcare facilities	Annually
F. Behavioral Risk Factor Surveillance System (BRFSS) (CDC)	HPV Influenza/FluMistPCV Hepatitis B Shingles Td/Tdap	Children 0-17 Adults 18+	US and Statewide	Annually

¹ 4 or more doses of DTaP, 3 or more doses of poliovirus vaccine, and 1 or more doses of any MMR vaccine; ² 4:3:1 plus 3 or more doses of Hib vaccine of any type, 3 or more doses of HepB vaccine, and 1 or more doses of varicella vaccine; ³ 4:3:1 plus >3 or >4 doses of Hib

vaccine, depending on brand type (primary plus booster dose), 3 or more doses of HepB vaccine, 1 or more doses of varicella vaccine;⁴ 4:3:1 plus >3 doses of Hib vaccine of any type, 3 or more doses of HepB, 1 or more doses of varicella vaccine, and 4 or more doses of PCV;⁵ 4:3:1 plus >3 or >4 doses of Hib vaccine depending on brand type (primary plus booster dose), 3 or more doses of HepB, 1 or more doses of varicella vaccine, and 4 or more doses of PCV;⁶ 4:3:1 plus 3 or more doses of HepB vaccine, 1 or more doses of varicella vaccine, and 4 or more doses of PCV. Hib vaccine is excluded;⁷ 4 or more doses of DTaP, 3 or more doses of poliovirus vaccine, 1 or more doses of any MMR, 3 or more doses of Hib, and 3 or more doses of HepB.

A. National Immunization Survey (NIS) – Children

The NIS is a large, ongoing, random-digit-dial survey conducted by the CDC to measure vaccine coverage levels of children 19 months through 35 months of age. The NIS consists of a nationwide sample size of approximately 30,000 children. The target sample size for Texas in 2009 was approximately 1,500. In late summer or early fall, the previous year's results are released (e.g., results of the 2009 survey were released in September 2010). Estimates of vaccine coverage levels are calculated for the United States as a whole, for each state, and select urban areas considered at high-risk for under-vaccination. In Texas, these urban areas include Bexar, Dallas, and El Paso counties, as well as the City of Houston.

Children measured in the 2009 NIS were born between January 2006 and July 2008, and reflect results of activities and parental/provider behaviors that occurred two to four years ago.

The 2009 NIS coverage level for Texas was 71.3 percent and the national average was 70.5 percent for the 4:3:1:3:0:1:4 combination series, which includes:

- 4 doses of diphtheria/tetanus/pertussis vaccine;
- 3 doses of polio vaccine;
- 1 dose of measles/mumps/rubella vaccine;
- 3 doses of hepatitis B vaccine;
- 1 dose of varicella vaccine; and
- 4 doses of pneumococcal conjugate vaccine.

The 0 represents *Haemophilus influenzae* type b, which was excluded from the 2009 survey results due to a vaccine shortage which occurred from December 2007 through September 2009. Texas ranked 20th compared to other states. The 2009 level decreased one percentage point from the 2008 NIS level of 72.3 percent.

The NIS is one measure used to gauge progress toward national and state-specific *Healthy People 2010* immunization objectives. The *Healthy People 2010* has not determined coverage level goals for individual vaccines in the 4:3:1:3:0:1:4. However, the combination of all vaccines measured in the series, the goal is 80%. The 2009 NIS found that Texas vaccination coverage against hepatitis B, varicella, and poliovirus achieved the *Healthy People 2010* goals.

Figure 17 displays Texas' vaccine coverage levels with the 4:3:1:0:3:1:4 series from the 2008 and 2009 NIS. Table 7 shows the results of the NIS for children by vaccine.

Figure 17. Texas Vaccine Coverage Levels among Children 19-35 Months of Age, National Immunization Survey, 2008-2009

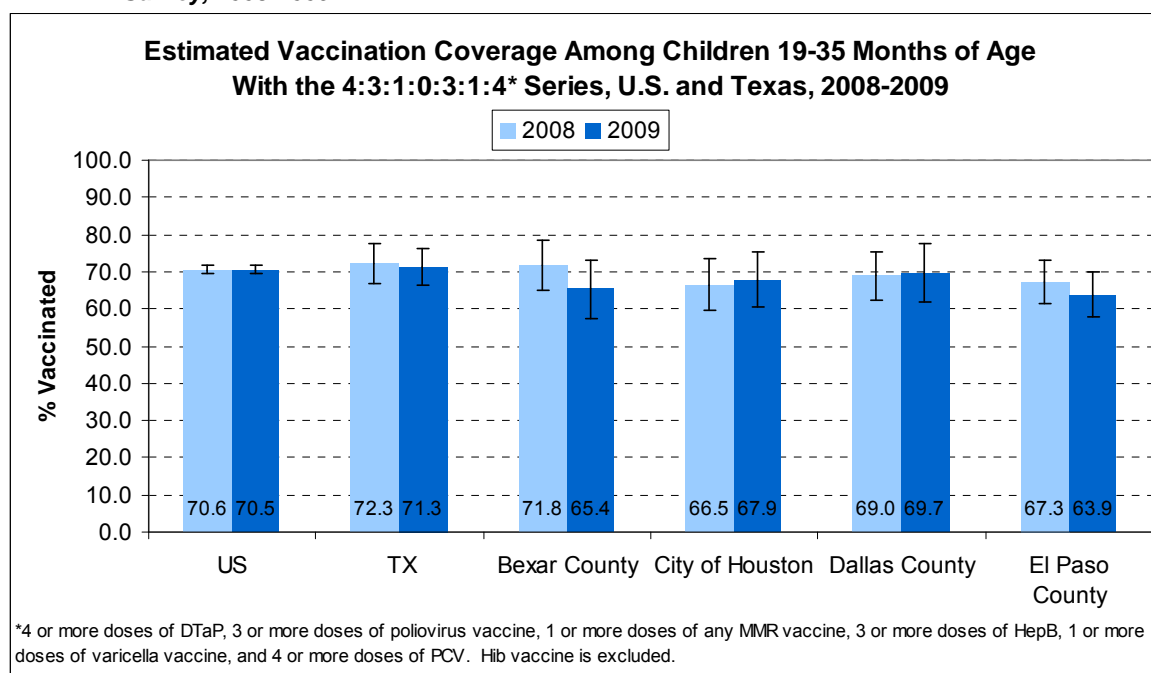


Table 7. Vaccine Coverage Levels among Texas Children 19-35 months of age by Selected Vaccines, National Immunization Survey, 2009

Vaccine	US	TX	Bexar County	City of Houston	Dallas County	El Paso County
Hepatitis A	46.6%	55.0%	51.2%	57.3%	46.4%	56.6%
Hepatitis B	92.4%	92.2%	91.0%	89.2%	89.0%	92.6%
Hepatitis B Birth Dose	60.8%	69.8%	58.3%	62.3%	70.5%	71.5%
Hib	83.6%	88.9%	89.7%	83.9%	90.0%	89.7%
DTaP	83.9%	82.1%	80.1%	78.9%	78.9%	77.1%
PCV	80.4%	80.8%	76.3%	75.7%	78.0%	72.7%
Varicella	89.6%	91.2%	89.1%	87.9%	87.7%	88.3%
3+Polio	92.8%	92.2%	89.8%	87.3%	90.1%	91.2%
1+MMR	90.0%	88.5%	87.6%	86.9%	84.9%	87.1%
4:3:1:0:3:1:4 ¹	70.5%	71.3%	65.4%	67.9%	69.7%	63.9%

¹4 or more doses of DTaP, 3 or more doses of poliovirus vaccine, 1 or more doses of any MMR vaccine, 3 or more doses of HepB, 1 or more doses of varicella vaccine, and 4 or more doses of PCV. Hib vaccine is excluded.

B. National Immunization Survey (NIS) – Teen

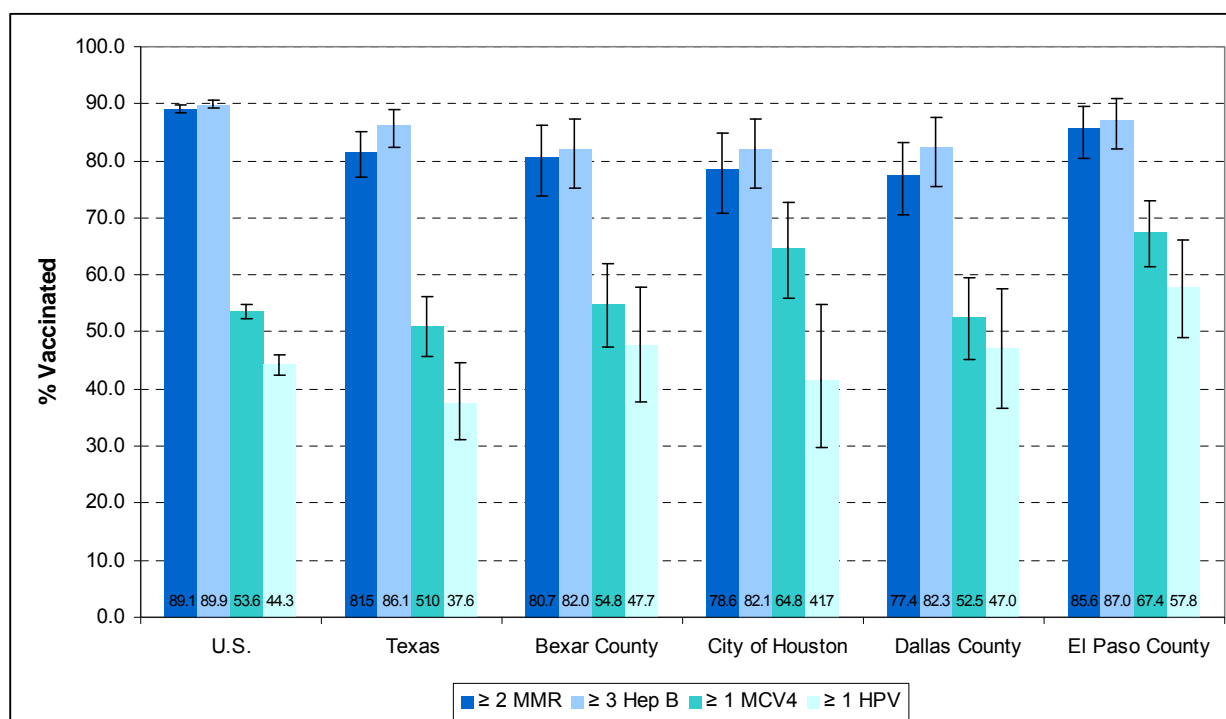
NIS-Teen is an annual national survey conducted by CDC to assess immunization levels for adolescents aged 13-17 years of age. This survey provides information on immunization coverage for each state and select urban areas as well as the nation.

In recent years, new vaccines were introduced for adolescents. They include a tetanus and diphtheria vaccine with pertussis protection (Tdap), meningitis vaccine, and human papillomavirus (HPV) vaccine. These new vaccines have made adolescent immunizations another important priority in the Texas immunization system. In addition to new vaccines, other vaccines are considered to be catch-up if they

were not given earlier in childhood. These vaccines include measles, mumps, rubella, hepatitis A, hepatitis B and varicella vaccines.

Like the childhood vaccine goals, the *Healthy People 2010* objective is to achieve 90% vaccine coverage among adolescents aged 13-15 years for certain vaccines. In 2006, CDC initiated the NIS-Teen survey for adolescents aged 13-17 years. Figures 18, 19, and 20 illustrate the results of the 2009 NIS-Teen survey. The *Healthy People 2010* target has not been met for any of the vaccines analyzed. However, these vaccines were fairly new when the survey was conducted. Tdap and meningococcal vaccines were licensed for use in 2005 and HPV vaccine was licensed for use in 2006. NIS-Teen will continue to be conducted annually to monitor coverage of recommended vaccines for adolescents and to identify groups with lower coverage.

Figure 18. Estimated Vaccination Coverage, NIS-Teen, 2009



≥ 2 MMR: ≥ 2 doses of measles, mumps, and rubella vaccine.

≥ 3 Hep B: ≥ 3 doses of hepatitis B vaccine.

≥ 1 MCV4: ≥ 1 dose of meningococcal conjugate vaccine or meningococcal-unknown type vaccine.

≥ HPV: ≥ 1 dose of human papillomavirus vaccine, either quadrivalent or bivalent. Percentage reported among females on

Figure 19. Estimated Td or Tdap Vaccination Coverage, NIS-Teen, 2009

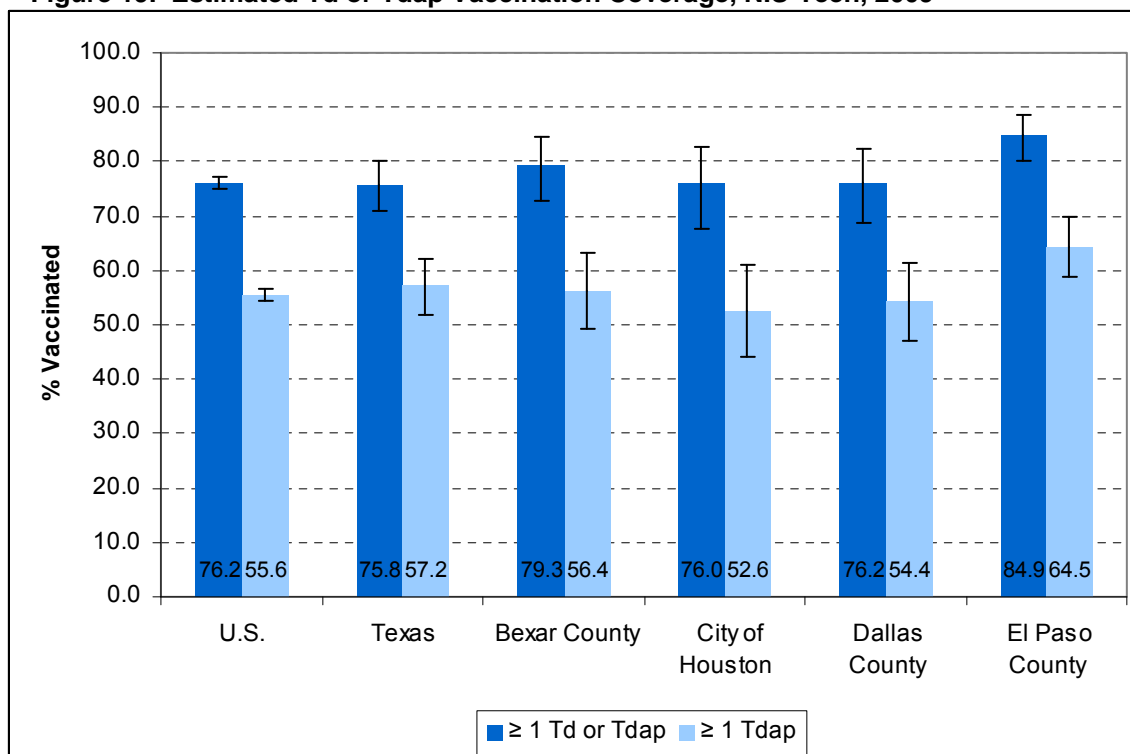
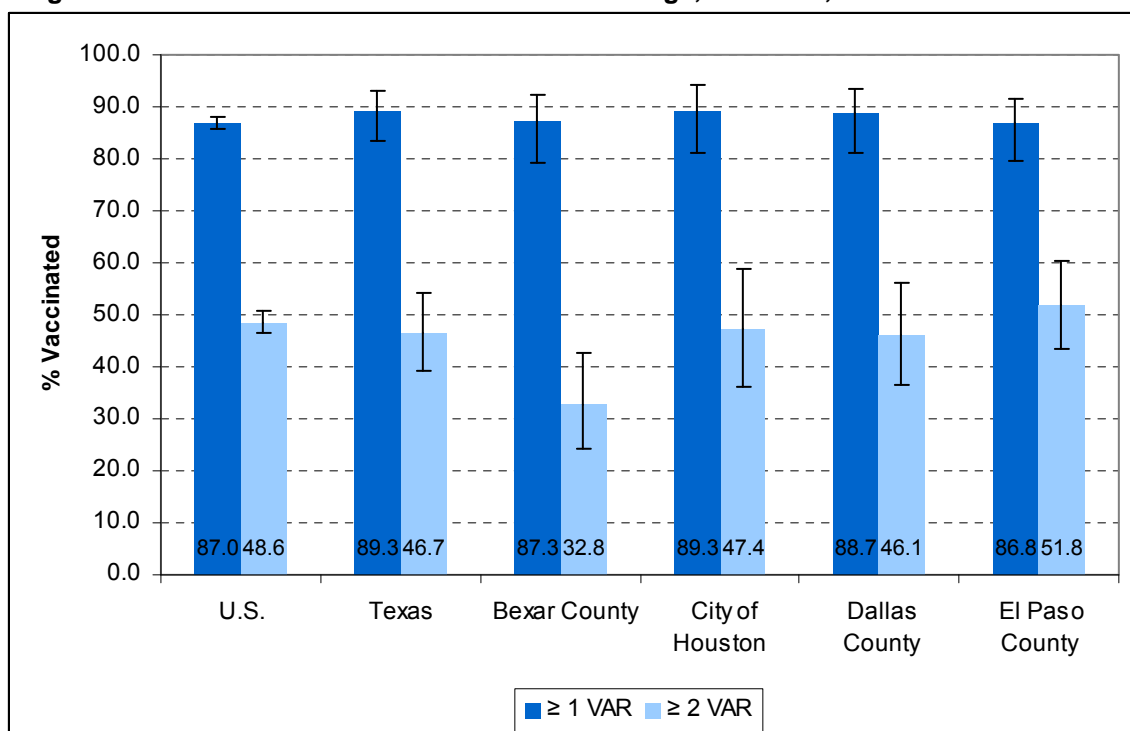


Figure 20. Estimated Varicella Vaccination Coverage, NIS-Teen, 2009



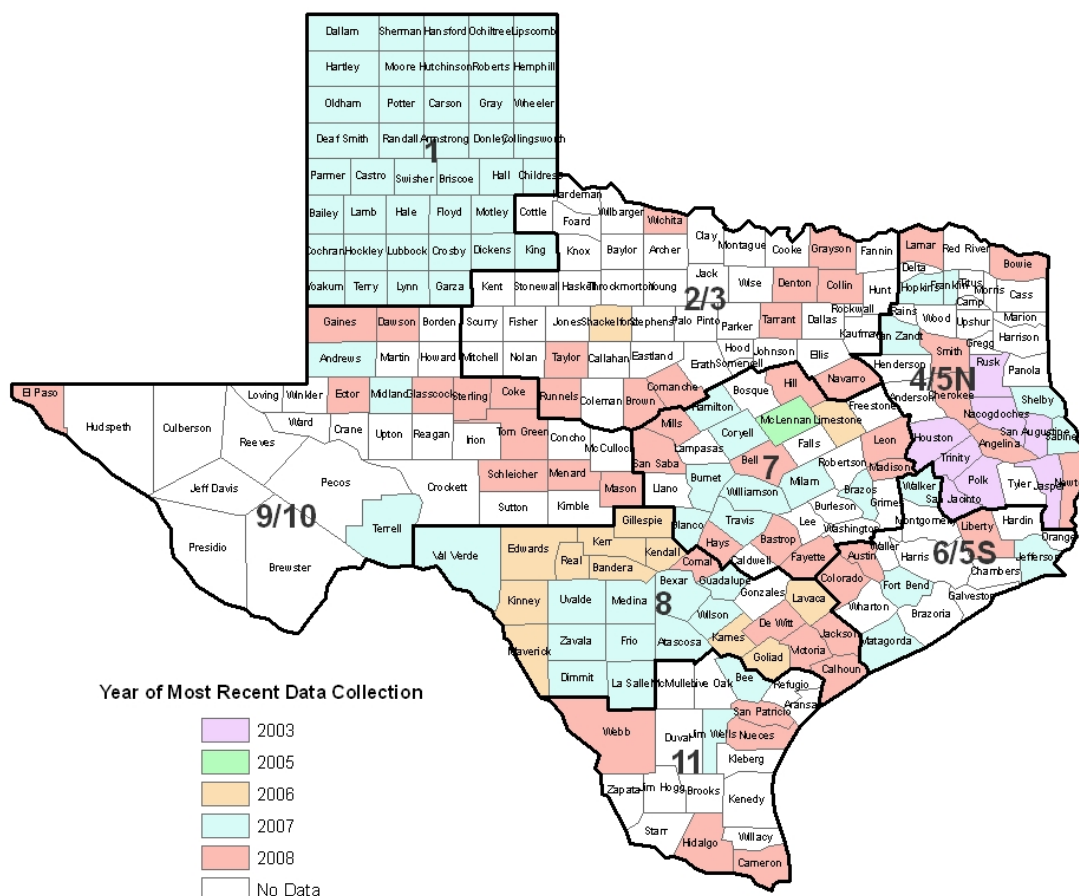
≥ 1 Td or Tdap: Tetanus and diphtheria toxoids vaccine (Td), or tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap), or tetanus-unknown vaccine on or after age 10 years of age.

≥ 1 VAR: ≥ 1 dose of varicella vaccine among adolescents without a reported history of varicella disease.

2 VAR: ≥ 2 doses of varicella vaccine among adolescents without a reported history of varicella disease.

C. Texas County Retrospective Immunization School Survey (TCRISS)

DSHS developed and implemented the Texas County Retrospective Immunization School Survey (TCRISS) to assess county level immunization coverage rates. This survey was designed to retrospectively assess vaccination coverage levels of public school kindergarteners when they were 24 months of age (approximately three years prior to the survey). As of August 2010, TCRIS has been conducted in 145 counties. Data will help DSHS target efforts by identifying counties with low vaccine coverage levels.



D. 2008 Texas School Compliance Immunization Validation Survey

The purpose of the 2008 Texas School Compliance Immunization Validation Survey (TSCIV) is to assess the number of kindergarten and 7th grade students that are in compliance with Texas school entry immunization requirements. Estimated vaccination compliance levels for both kindergarten and 7th grade students were high for all vaccine requirements. Kindergarten compliance levels were reported as follows: 92.6% - any vaccine containing diphtheria, tetanus, pertussis; 94.6% - polio vaccine; 99.6% - measles, mumps, rubella (MMR) vaccine (1st dose); 98.1% - MMR (2nd dose); 97.8% - varicella vaccine; and 99.1% - hepatitis B vaccine. For the same vaccine requirements, the 7th grade estimated vaccination compliance levels are as follows, respectively: 99.1%, 95.5%, 94.5%, 93.7%, 97.2%, and 99.1%, respectively.

A key component of the TSCIV survey is a statewide retrospective assessment of vaccination coverage level of the 2006–2007 kindergarten population when they were 24 months of age, about three years prior to the survey. Table 8 represents statewide retrospective vaccination coverage level estimates measured at 24 months of age from the TSCIV survey. Vaccination coverage levels for kindergarten students when

they were 24 months of age were highest for three doses of *Haemophilus influenzae* type b vaccine and lowest for three doses of pneumococcal vaccine.

Table 8. Estimated Vaccination Coverage Levels of Texas Public School Kindergarten Students at 24 Months of Age

Vaccine	% Vaccinated by 24 Months of Age
4 doses Diphtheria, Tetanus, Pertussis Vaccine (DTaP/DTP/DT)	74.1
3 doses Polio Virus Vaccine (OPV or IPV)	89.1
1 dose Measles, Mumps, Rubella Vaccine	88.9
3 doses Hepatitis B Vaccine	90.6
3 doses Hib Vaccine*	85.2
1 dose Varicella Vaccine	84.3
3 doses pneumococcal vaccine	68.2
4:3:1 Series^	71.4
4:3:1:3:3 Series^^	63.3
4:3:1:3:3:1 Series^^^	59.6

**Haemophilus influenzae* type b vaccine.

^4 doses of diphtheria, tetanus, pertussis vaccine; 3 doses of polio virus vaccine; 1 dose of measles, mumps, rubella vaccine

^^4:3:1 series plus 3 doses of Hib vaccine and 3 doses of hepatitis B vaccine.

^^^4:3:1 series plus 3 doses of Hib vaccine, 3 doses of hepatitis B vaccine, and 1 dose of varicella vaccine.

E. Childcare Assessment

Children attending childcare facilities in Texas are required to have age appropriate vaccination against diphtheria, tetanus, pertussis, *Haemophilus influenzae* type b (Hib), polio, measles, mumps, rubella, varicella, pneumococcal disease, hepatitis B, and hepatitis A. The Texas childcare assessment was developed to assess vaccine coverage levels among childcare attendees 19 - 59 months of age. The assessment is conducted every 3 years by local health department personnel and DSHS regional office personnel. In 2007, approximately 2400 children from 130 child-care facilities and registered child-care homes per health service region were selected and examined for immunizations and their dates of administration. The most current statewide and regional vaccination coverage levels are presented in Figure 21 and Figure 22. In 2007, Health Service Region 4/5 North assessed 100 percent of immunization records in all of the licensed childcare facilities in their region; this may explain why they have the highest coverage levels for DTaP and the 4:3:1:3:3:1 as shown in Figure 21 and Figure 22. The next assessment began in September 2010 with results expected to be finalized in 2011.

Figure 21. Estimated Vaccination Coverage Levels among Childcare Attendees, 4 Doses of DTaP Vaccine by Texas Health Service Region and the State of Texas – 2007

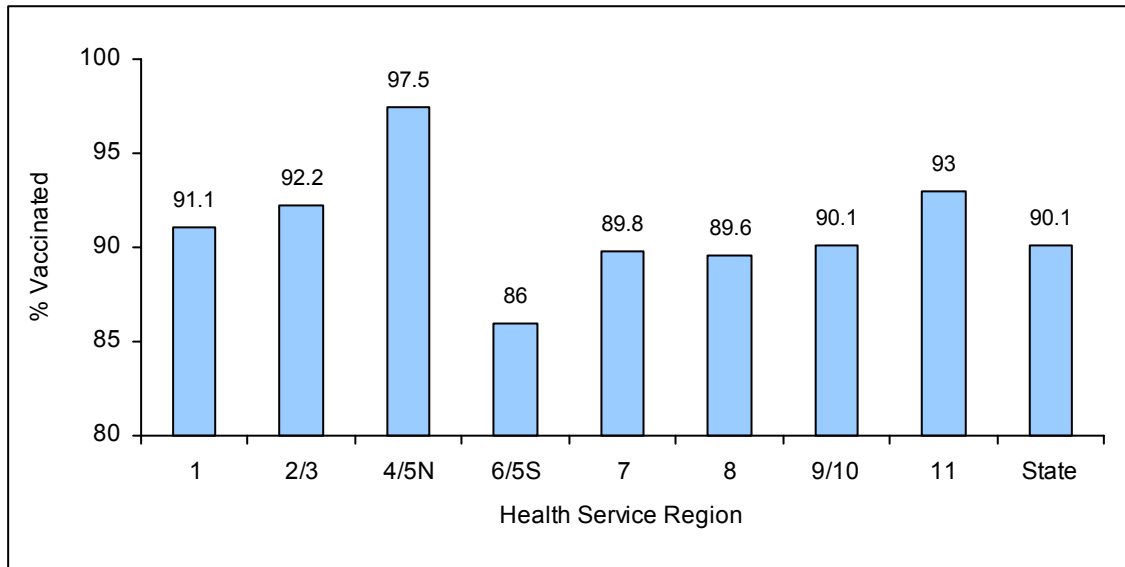
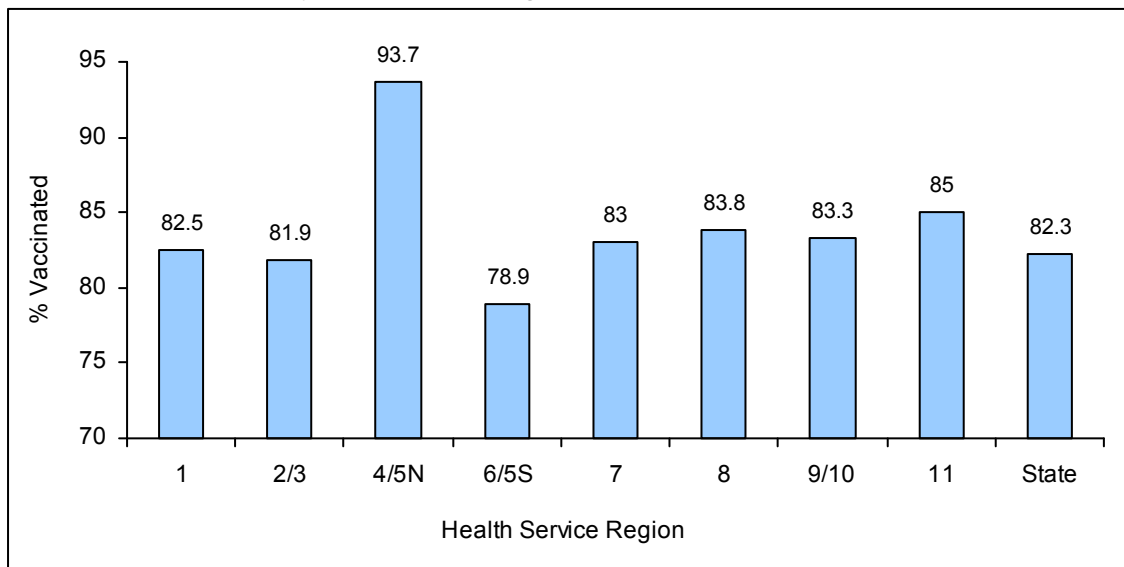


Figure 22. Estimated Vaccination Coverage Levels Among Childcare Attendees, 4:3:1:3:3:1 Series by Health Service Region and Texas - 2007



F. Behavioral Risk Factor Surveillance System (BRFSS)

BRFSS is an ongoing data collection program coordinated by the Texas Center for Health Statistics and CDC. It is designed to measure behavioral risk factors in the Texas population. Objective of the BRFSS is to collect uniform, state-specific data on preventative health practices and risk behaviors that are linked to chronic diseases, injuries, and preventable infectious diseases in the population.

The 2009 BRFSS survey included questions about receiving flu, pneumococcal, shingles, hepatitis B, tetanus, and HPV vaccines. Results are shown below.

Vaccine Prevalence, Texas, 2009

	Prevalence (%)	95% Confidence Interval
Flu Vaccine (shot or spray): Children 0-17	40.0	(37.4 - 42.7)
Flu Vaccine (shot or spray): Adults 18-49	29.3	(27.0 - 31.5)
Flu Vaccine (shot or spray): Adults 50-64	43.9	(41.4 - 46.3)
Flu Vaccine (shot or spray): Adults 65+	67.6	(65.0 - 70.2)
Pneumococcal Vaccine: Adults 65+	63.7	(61.1 - 66.3)
Shingles Vaccine: Adults 50+	6.4	(5.2 - 7.5)
Hepatitis B Vaccine: Adults 18+	31.2	(28.9 - 33.5)
Tetanus Vaccine in Last 10 Years: Children 10-17	79.2	(75.7 - 82.6)
Tetanus Vaccine in Last 10 Years: Adults 18+	63.8	(61.5 - 66.1)
HPV Vaccine: Females 9-17	23.9	(19.1 - 28.6)
HPV Vaccine: Females 18-26	10.7	(4.9 - 16.5)
HPV Vaccine: Females 18-49	3.2	(1.8 - 4.5)

*For pneumococcal, shingles, hepatitis B, tetanus, and HPV vaccines, the denominator includes responses of "Don't Know/Not Sure"

Data source: Texas Behavioral Risk Factor Surveillance System

APPENDIX B: EFFORTS AND PLANS TO INCREASE PROVIDER PARTICIPATION IN IMMTRAC

DSHS has identified the following methods to increase provider participation in the immunization registry:

1. Improve registry value and benefits to providers and payors;
2. Increase registry marketing, promotion, and education efforts;
3. Strengthen registry customer support;
4. Implement HL7 data exchange protocol for electronic reporters;
5. Collaborate with Electronic Health Record (EHR) vendors to increase interoperability with ImmTrac;
6. Employ a Medical Home model in order to improve clinical usability of the system;
7. Implement incentive/recognition programs; and
8. Apply technical improvements.

A. Improve immunization registry value and benefits to providers and payors

- Immunization Branch funded LHD contractors and HSR to hire eight HSR ImmTrac Coordinators (IC) and 91 LHD ImmTrac/Pharmacy Inventory Control System (PICS) Immunization Program Outreach Specialists (IPOS) to conduct outreach to parents and providers.
- Lists of children 19-35 months of age, whose immunization records are not up-to-date, are generated quarterly. ICs and IPOS use these lists to contact parents or providers to determine if children still need immunizations or if ImmTrac needs to be updated with immunizations already administered.
- ICs and IPOS update children's ImmTrac records, if necessary, and educate parents on the importance of timely immunizations and encourage providers to become an active ImmTrac user.
- As a result of SB11, enhancements were made to the ImmTrac application which allows DSHS to verify consent by accepting a healthcare provider, birth registrar or local registrar "affirmation" that proper written consent has been obtained. In the first two years since this process was implemented, 3,375 providers have utilized this functionality.
- ImmTrac has been working with the Public Health Informatics Institute (PHII), a resource provided to DSHS at no cost by the CDC, to work with stakeholders, users, and the ImmTrac program to develop requirements for the next version of the Texas Immunization Information System (IIS.)
- ImmTrac implemented a new shot scheduler, which greatly increased the clinical usability of the system. This software is capable of handling more recent vaccines, such as combo vaccines. Users have reported a high level of satisfaction with this feature.
- As a result of Rider 77, ImmTrac is participating in the Health Registries Improvement Project, a project to compare health information exchange and interoperability among DSHS regions.

Next Steps

- ImmTrac will continue to work with PHII in developing functional requirements for the next version of the system;
- ImmTrac will work with other program areas at DSHS to determine where technological efficiencies can be achieved through collaboration, platform integration, and interoperability;
- ImmTrac will implement the lifespan registry, as required by SB346, 81st Legislature; and

- ImmTrac will work with electronic reporters and EHR vendors towards achieving IIS/EHR interoperability by implementing the HL7 data exchange protocol.

B. Increase immunization registry marketing, promotion, and education efforts

- ImmTrac was presented and exhibited at 12 professional conferences in 2008 and 28 in 2009.
- ImmTrac has engaged in multiple efforts to market the registry to first responders. This includes a pilot program in HSR 2/3, development of marketing materials designed to solicit first responders' participation in the registry, exhibiting at conferences where first responders are in attendance, and a study designed to assess coverage levels of first responders and their family members.
- ImmTrac maintains a program website for parents, providers, birth registrars, and other stakeholders.
- In collaboration with Texas Education Agency (TEA) and high school nurses, and as required by SB 346, 80th Texas Legislature, ImmTrac created a process to solicit continued enrollment of graduating high school seniors into ImmTrac.

Next Steps

- Continue to work with TEA and high school nurses to secure consent from high school seniors, and develop a plan to engage higher education entities with the goal of increasing adult participation in the registry;
- Marketing efforts will include improvements to the registry application, business processes, and data quality; and
- Reconvene the ImmTrac Provider Working Group, and leverage this resource to ensure efforts to re-design the Texas Immunization Information System include a continuous feedback process for users and stakeholders.

C. Strengthen immunization registry customer support

- The Immunization Branch, MicroAssist, and ImmTrac collaborated to develop ImmTrac modules in Texas Vaccine Education Online, to provide online educational opportunities for immunization providers.
- ImmTrac developed a process to support high school nurses in their efforts to consent 18 year olds for inclusion and/or continued inclusion in the registry.
- ImmTrac augmented the help desk with additional temporary staff to meet increased demand resulting from the H1N1 event.

Next Steps

- Utilize resources to improve the ImmTrac Help Desk.

D. Implement incentive/recognition programs

- During 2005, ImmTrac established the ImmTrac Award for Excellence, which was awarded to over forty Texas hospitals for high performance in implementing the ImmTrac Newborn Consent Process through DSHS' Vital Statistics Unit's electronic birth registration software. This incentive award for hospitals and birth registrars promotes the opportunity for parents to grant consent for ImmTrac participation during the birth registration process. To earn this award, hospitals must be

performing this birth registration process at 90% or greater. In 2008, awards increased to 157 recipients; in 2009, awards increased to 205.

- ImmTrac staff continue collaborating with professional organizations such as TMA and Texas Pediatric Society (TPS), Texas Association of Obstetricians and Gynecologists (TAOG), and Texas Association of Health Plans (TAHP) to promote awareness of ImmTrac among providers, increase participation (reporting and use), and encourage use of reminder/recall capabilities.
- ImmTrac staff collaborates with TISWG, ImmTrac Provider Working Group (IPWG), and Health Plan/Payers Working Group (HPPWG) members to identify opportunities to improve registry participation and utility for key stakeholder groups.

Next Steps

- ImmTrac will explore methods to expand provider recognition, reward, and certification programs.

E. Apply technical improvements

- ImmTrac introduced a new commercially available shot scheduler, which made ImmTrac more usable as a clinical tool.
- ImmTrac deployed a new data translator, allowing data importation in additional formats, and increasing participation among electronic reporters.
- In 2009, ImmTrac implemented electronic consent affirmation in the TER, the system used for birth registry.
- ImmTrac implemented the disaster tracking system required by SB11.

Next Steps

- Legislation passed in 2007 requires EHR software vendors to include the capability to interface with ImmTrac or report immunizations to ImmTrac. DSHS is authorized to establish standards for data exchange in compliance with national standards for immunizations information transmission. These national standards were adopted in summer 2010. ImmTrac will work with reporters and their EHR vendors to achieve EHR/IIS interoperability utilizing HL7 data exchange protocol;
- ImmTrac will continue to develop requirements for the next version of the Texas Immunization Information System;
- ImmTrac will attempt to pilot a real-time data exchange;
- DSHS was awarded \$1,039,277 to improve interoperability with electronic health records systems and improve reporting from physicians;
- DSHS is requesting \$2,500,000 in an exceptional item to replace the current ImmTrac system; and
- DSHS continues to seek other federal funds to replace and enhance ImmTrac.

APPENDIX C: LIST OF ACRONYMS USED THROUGHOUT DOCUMENT

The following report is submitted to meet the following reporting requirements:

- Section 161.0041, Chapter 161, Texas Health and Safety Code
- Section 161.00705, Chapter 161, Texas Health and Safety Code
- Section 161.00706, Chapter 161, Texas Health and Safety Code
- Section 161.0074, Chapter 161, Texas Health and Safety Code

ACRONYMS

AAP	American Academy of Pediatrics
AIM	Antivirals, Immunizations and Medications Database
ACIP	Advisory Committee on Immunization Practices
ARRA	American Reinvestment and Recovery Act
BRFSS	Behavioral Risk Factor Surveillance System
CASA	Clinic Assessment Software Application
CDC	Centers for Disease Control and Prevention
CHIP	Children's Health Insurance Program
CME	Continuing Medical Education
CPT	Current Procedural Terminology
DFPS	Texas Department of Family and Protective Services
DSHS	Texas Department of State Health Services
DTaP	Diphtheria, Tetanus, and acellular Pertussis
EHR	Electronic Health Records
EMR	Electronic Medical Records
EPSDT	Early Periodic Screening Diagnosis and Treatment
FPC	Family Planning Clinics
FQHC	Federally Qualified Health Center
FTP	File Transfer Protocol
HBsAg	Hepatitis B Surface Antigen
HHSC	Health and Human Services Commission
Hib	<i>Haemophilus Influenzae</i> /Type B
HL7	Health Level Seven
HMO	Health Maintenance Organization
HPPWG	Health Plan/Payor Working Group
HSR	Health Service Region
HTTPS	Hypertext Transfer Protocol Secure
ICS	ImmTrac Coordinators
IPOM	Immunization Program Operations Manual
IPOS	ImmTrac Program Outreach Specialists
IPWG	ImmTrac Provider Working Group
LHD	Local Health Department
MMR	Measles, Mumps, and Rubella
MOU	Memorandum of Understanding
NHANES	National Health and Nutrition Examination Survey
NIS	National Immunization Survey
NVAC	National Vaccine Advisory Committee
OB/GYN	Obstetricians/Gynecologists
PICS	Pharmacy Inventory Control System
PHII	Public Health Informatics Institute
PTA	Parent Teacher Association
TAC	Texas Administrative Code
TAHP	Texas Association of Health Plans
TAOG	Texas Association of Obstetricians and Gynecologists
TCRISS	Texas County Retrospective Immunization School Survey

TDaP	Tetanus, diphtheria, and acellular pertussis
TEA	Texas Education Agency
TECCS	Texas Early Childhood Comprehensive System
THSteps	Texas Health Steps
TISWG	Texas Immunization Stakeholder Working Group
TMA	Texas Medical Association
TMF	Texas Medical Foundation Health Quality Institute
TMHP	Texas Medicaid and Healthcare Partnership
TPS	Texas Pediatric Society
TSCIV	Texas School Compliance Immunization Validation
TVFC	Texas Vaccines for Children Program
TWICES	Texas Web-based Integrated Client Encounter System
VFC	Vaccines for Children (federal)
WIC	Women, Infants, and Children