



Williamson County Influenza Surveillance Historical Trends

General Information

Influenza or flu is an illness caused by influenza viruses that infect the respiratory tract. It can cause mild to severe illness, and at times can lead to death. Each year in the United States on average 5% to 20% of the population gets the flu. Many people are hospitalized from flu-related complications each year and thousands die from flu-related causes. Some people, such as older individuals, young children, and people with certain health conditions are at high risk for serious flu complications.

There are three main types of viruses that can cause the flu: influenza type A, influenza type B, and influenza type C. Flu caused by influenza type C virus is generally mild with symptoms similar to a cold and does not cause outbreaks in populations. Strains of influenza type A virus are often at the root of global pandemics of flu and strains of influenza type B virus can lead to outbreaks in smaller geographic locales. In 2009-2010 a new and very different flu virus (called 2009 H1N1) spread worldwide causing the first flu pandemic in more than 40 years.

The best way to prevent severe illness caused by flu is by getting a flu vaccination each year.

Flu Symptoms and Prevention

Symptoms of flu include fever, headache, extreme tiredness, dry cough, sore throat, runny or stuffy nose, muscle aches, and stomach aches. Symptoms such as nausea, vomiting, and diarrhea, can occur but are more common in children than adults. The flu can generally be diagnosed by taking a thorough health history, including symptoms, and performing a physical examination. Although testing is available to help detect the flu, it is not always accurate and cannot distinguish between various types of flu. Because symptoms of the flu can mimic other diseases, such as strep throat, other forms of testing such as a throat culture and sensitivity may be done to rule out other diseases. It is important to remember that certain viral and bacterial infections can produce symptoms similar to flu. Flu may alter or weaken the immune system, leading to secondary bacterial infections. Suspected bacterial infections should be treated appropriately with antibiotics.

Flu is spread mainly from person to person through coughing or sneezing. Adults infected with influenza virus may be able to pass the flu virus to others one day before start of symptoms, and up to five days after becoming sick. Young children infected with influenza virus may be able to pass the flu virus several days before they start having symptoms and up to ten or more days after becoming sick. Getting an annual flu vaccination is the best way to prevent severe illness or complications caused by flu.

Pandemic Influenza

Pandemic outbreaks are caused by new virus subtypes, by virus subtypes that have never circulated among people, or by virus subtypes that have not circulated among people for a long time. During the 20th century, the emergence of several new influenza A virus subtypes caused three pandemics, all of which spread around the world within a year of being detected. Before 2009, the last influenza pandemic in 1968-1969, called the “Hong Kong flu”, caused about 34,000 deaths in the United States. The 1957-1958 “Asian flu” caused about 70,000 deaths in the United States.

The highest number of known influenza deaths from pandemic influenza occurred in 1918-1919 with the “Spanish flu”. More than 500,000 people died in the United States and as many as 50 million people may have died worldwide. Many people died within the first few days after infection and others died of secondary complications. Nearly half of those who died were young, healthy adults.

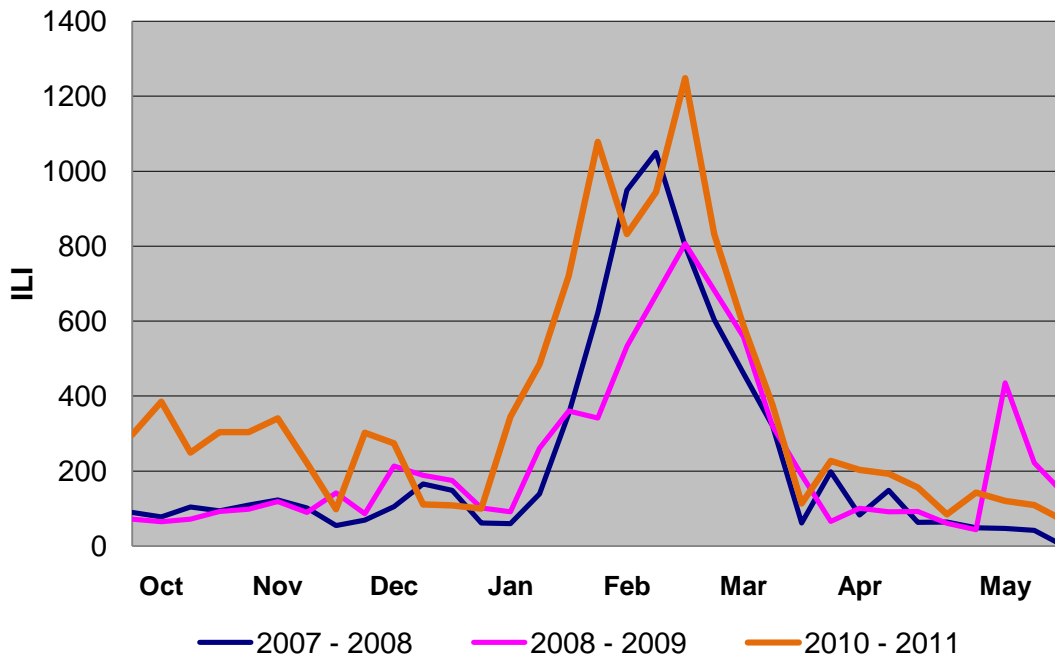
Flu and Influenza-like Illness (ILI) Surveillance

Although reporting of flu cases to health departments is not required in Texas, the WCCHD receives reports of flu and influenza-like illness (ILI) throughout the year. During each flu season local, state, and federal public health agencies use enhanced surveillance systems to determine what type of influenza viruses are circulating. Enhanced surveillance allows WCCHD to monitor the progress and severity of a flu season at the community level. Enhanced flu reporting usually starts in October (week 40) and ends in May (week 20). It is important to note that not all ILI is caused by influenza viruses. Infections caused by many different viruses and bacteria may lead to symptoms mimicking flu. Other surveillance systems, such as the National Respiratory and Enteric Virus Surveillance System (NREVSS), help public health officials detect spikes in ILI caused by other viruses.

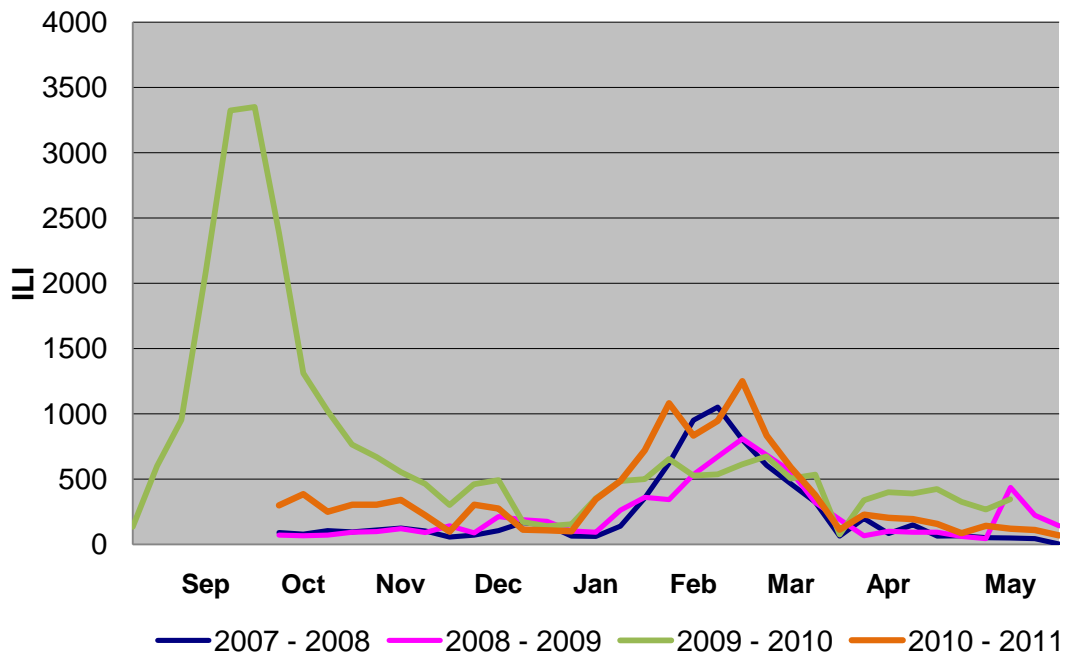
The WCCHD flu surveillance system does not attempt to capture all cases of influenza or ILI. The number of reporters sending in flu reports may vary from week to week. These data should be used to look for trends over time rather than for estimating the total number of cases.

Trend charts showing the number of influenza-like illnesses and influenza cases reported during the current flu season in Williamson County are posted on the WCCHD website starting in September or October. Throughout the flu season, the charts may be updated for previous weeks to reflect data submitted late to WCCHD. Note that the number of reports received from school districts decreases during weeks 47, 52, 1, and 11 due to the Thanksgiving, Christmas, New Years, and Spring Break holidays respectively. The lower number of ILI and flu cases is most likely due to fewer reporters collecting surveillance data rather than an actual decrease in ILI and flu in the community.

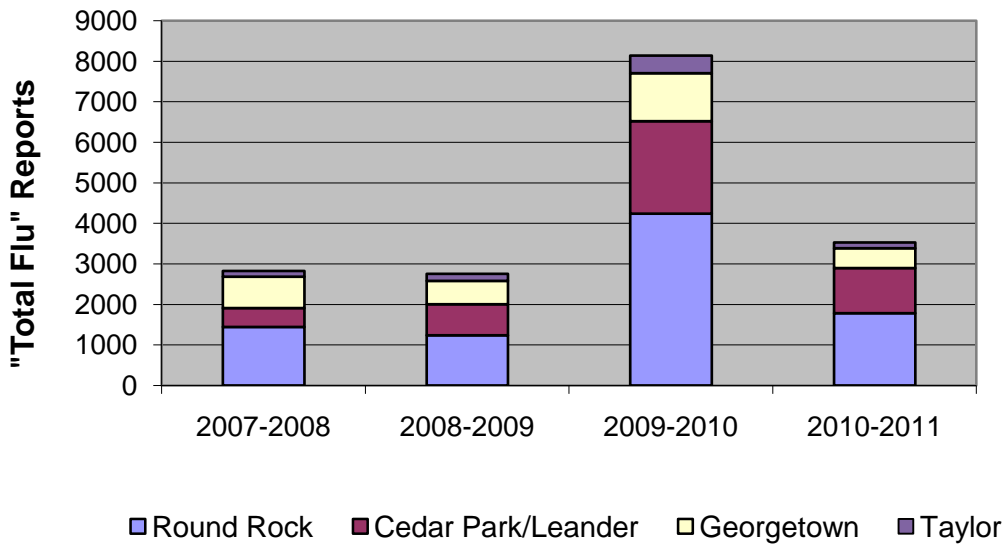
Comparison of Williamson County Flu Season Trends (Non-Pandemic)



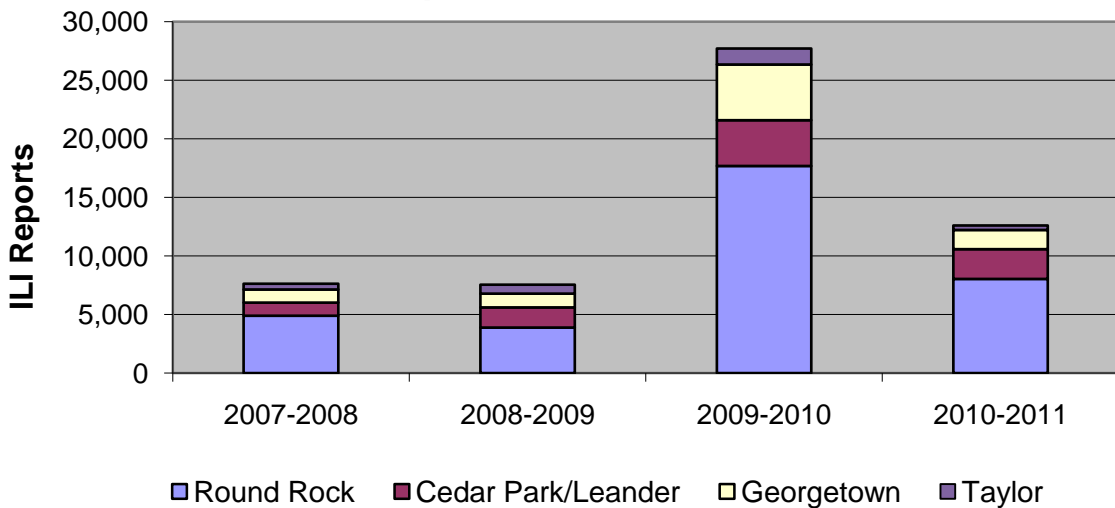
Comparison of Williamson County Flu Season Trends Including Pandemic



Cumulative "Total Flu" Totals by Area Comparison of Seasons



Cumulative ILI Totals by Area Comparison of Seasons



For flu case definitions see page 8.

2009 – 2010 Pandemic Statistics

For the 2009-2010 pandemic, the U.S. Centers for Disease Control and Prevention (CDC) estimates between 43 million and 88 million cases of 2009 H1N1 occurred between April 2009 and March 2010. The CDC also reported over 12,000 H1N1 influenza-associated deaths including over 1,200 deaths in children age 0 – 17 years. In Texas, the peak month for adult and pediatric H1N1 influenza-associated deaths was October (81 deaths, including 20 pediatric). For the entire pandemic period, there were 240 H1N1 influenza-associated deaths reported in Texas, including 37 pediatric deaths. An additional 23 pediatric deaths were reported associated with “other” flu.

Table 1. Summary of 2009 – 2010 H1N1 influenza-associated Hospitalizations and Deaths in Texas

Area	Hospitalizations*	Intensive Care Unit (ICU) Admissions*	Deaths**	Pediatric Deaths**
Williamson County†	10	2	1	0
DSHS HSR 7†	113	35	20	5
Texas	2,316	585	240	37

†Williamson County is one of thirty counties in the Texas Department of State Health Services (DSHS) Health Services Region 7 (HSR 7). HSR 7 is one of the eight health service regions of DSHS.

*Reporting of hospitalizations and ICU admissions began 9/20/2009; ICU admissions are included in total hospitalizations

**Reporting of deaths began 4/15/2009; statewide total includes a child from Mexico City who died in Texas.

Texas data source: <http://www.dshs.state.tx.us/txflu/TX-surveillance.shtm>

2009 - 2010 Pandemic Response

WCCHD received over 22,000 doses of the H1N1 vaccine during the pandemic. Much of this vaccine was distributed to independent school districts. Approximately 40% of the vaccine supplied to public health ultimately had to be returned or destroyed due to a lack of demand. Registered providers (non-public health agencies) in Williamson County received over 73,000 doses of the H1N1 vaccine during the pandemic.

Every year WCCHD conducts a vaccine distribution drill to test systems and plans for pushing out vaccines and other medical supplies to agencies and organizations considered part of the county’s critical infrastructure. In December 2009, plans were activated as part of WCCHD’s pandemic response to ensure availability of H1N1 vaccine to critical infrastructure personnel of Williamson County. A total of 512 doses of H1N1 vaccine were dispensed to the following agencies and jurisdictions (FD = Fire Department, PD = Police Department):

- Cedar Park (City officials, FD, and PD)
- Round Rock (City officials, FD, and PD)
- Georgetown (City officials, FD, and PD)
- Taylor (City officials, FD, and PD)
- Leander (City officials, FD, and PD)

Liberty Hill (FD)
 Hutto (City officials, FD, and PD)
 Florence (City officials, FD, and PD)
 Jollyville (City officials, FD, and PD)
 Granger (PD)
 Williamson County (EMS, Emergency Communications, Emergency Management, County officials)
 Georgetown Medical Assistance Team
 Sam Bass FD

Two different data systems were utilized to document H1N1 doses administered to children and adults, ImmTrac (statewide immunization registry) and TWICES (for doses administered by WCCHD public health centers). Most, but not necessarily all, doses recorded in TWICES may also be found in ImmTrac provided the public health client did not opt out of ImmTrac. ImmTrac also includes data entered by private providers and school systems that received H1N1 vaccine. Provider compliance with an ImmTrac data entry requirement for H1N1 vaccination records was low, primarily because providers did not have the capacity to deal with the tremendous volume of records. It is likely that many records were not entered in ImmTrac or TWICES. Therefore, the doses administered data shown in the tables below underestimates the number of H1N1 doses administered in Williamson County.

**Table 2. IMMTRAC Aggregate H1N1 Reporting
 Number of Clients >18 Years of Age Receiving One Dose of H1N1 Vaccine**

Public Health Center	Adult Clients Vaccinated				
	19-24 yrs	25-49 yrs	50-64 yrs	65+ yrs	Total
Round Rock	32	178	101	44	355
Georgetown	56	252	122	137	567
Cedar Park	29	180	59	29	297
Taylor	18	92	50	26	186
Total	135	702	332	236	1,405

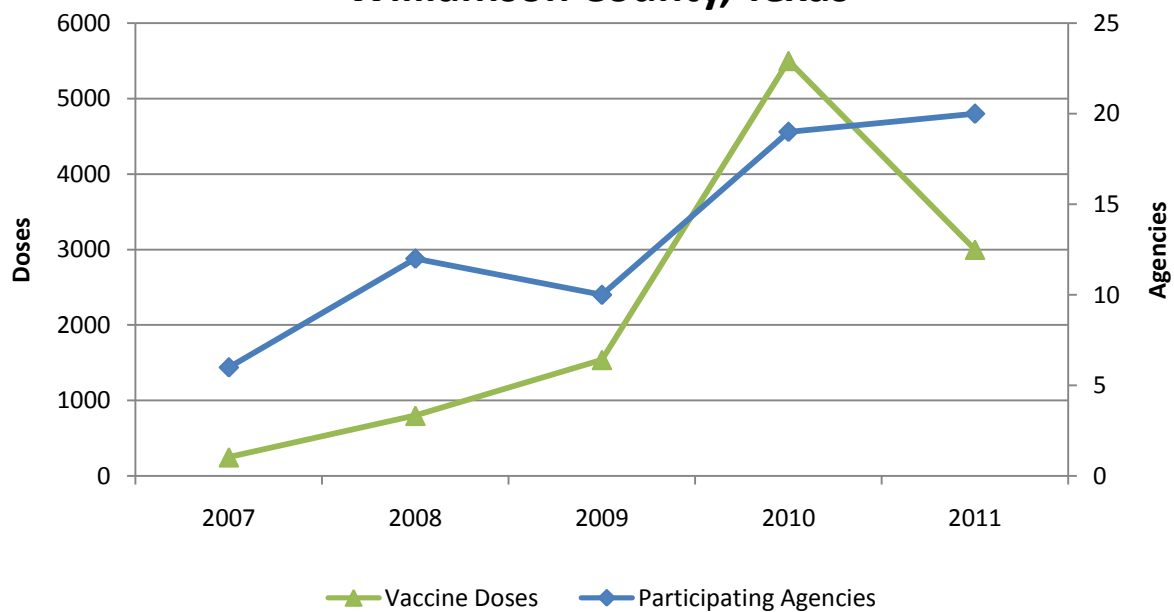
**Table 3. IMMTRAC Aggregate H1N1 Reporting
Number of Clients 6 Months to 18 Years of Age Receiving H1N1 Vaccine**

Public Health Center	Clients <19 Years of Age Vaccinated							
	6-35 mos		36-59 mos		5-18 yrs		Total	
	Dose 1	Dose 2	Dose 1	Dose 2	Dose 1	Dose 2	Dose 1	Dose 2
Round Rock	105	30	78	24	143	14	326	68
Georgetown	120	39	115	32	235	18	470	89
Cedar Park	85	28	60	21	133	25	278	74
Taylor	88	44	57	18	154	19	299	81
Total	398	141	310	95	665	76	1,373	312

Influenza Vaccine Distribution Exercise

WCCHD conducts an annual Critical Infrastructure Vaccination and Distribution Drill. This drill is designed to test WCCHD’s ability to distribute medical supplies throughout Williamson County during a public health emergency in order to protect critical infrastructure personnel. The drill was recognized as a “best practice” at the 2007 Region VI Strategic National Stockpile (SNS) Workshop in Dallas, Texas.

**Participation in Flu Vaccine Distribution Drill
Williamson County, Texas**



Flu and ILI Definitions

* Influenza-like illness (ILI) — Fever (temperature of $\geq 100^{\circ}\text{F}$ [37.8°C]) and cough and/or sore throat in the absence of a known cause other than influenza.

** Influenza (“flu”) — Illness due to influenza virus as confirmed by laboratory testing. Different types of laboratory testing may be performed to detect the influenza virus. Flu cases confirmed with different tests are combined under the category “total flu” for reporting purposes.

Rapid flu testing—often used in health care provider’s office or emergency room. Rapid tests may not differentiate between influenza A and influenza B.

Viral culture—isolating the influenza virus from a specimen takes longer, but can provide specific information about the strains and subtypes of virus impacting a community. Culture is currently the primary means for detecting a new or novel influenza A virus or an influenza virus that is resistant to drugs.

For more information contact the WCCHD Disease Surveillance Program at (512) 943-3660.

Related Links

www.texasflu.org

www.flu.gov

CDC Weekly Surveillance Reports: <http://www.cdc.gov/flu/weekly/fluactivitysurv.htm>

Overview of national flu surveillance: www.cdc.gov/flu/weekly/pdf/flu-surveillance-overview.pdf

Influenza surveillance in Texas: www.dshs.state.tx.us/idcu/disease/influenza/surveillance/

National Respiratory and Enteric Virus Surveillance System (NREVSS): <http://www.cdc.gov/surveillance/nrevss/>