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Influenza Vaccination

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Overview



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- Background information
- Vaccine strain selection
- Vaccination recommendations
- Vaccine safety and efficacy
- Immunization rates
- How to order vaccine
- DSHS Immunization Unit activities
- Vaccine education and resources

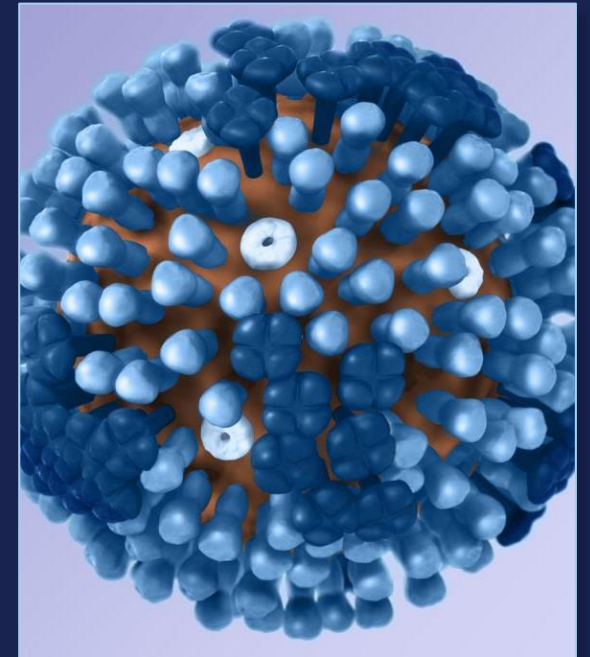
History of Influenza Vaccine



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- 1918: The Spanish Flu Epidemic
- 1933: Flu virus isolated
- 1936: First vaccine attempts by USSR
- 1942: First bivalent influenza A/B vaccine (Armed Forces)
- 1945: Licensed for use amongst citizens
- 2008: ACIP recommendation ≥ 6 months
- 2013: Quadrivalent vaccine licensed



How does the flu vaccine work?



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- Causes antibodies to develop
- About 2 weeks for optimal protection
- Provides protection against circulating strains
- Cross protection against related influenza viruses

CDC FLU FACT

It takes about 2 weeks after vaccination for antibodies to develop in the body to protect against flu.



#FIGHT FLU

www.cdc.gov/FightFlu

Influenza Vaccine Strain Selection



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- More than 100 national influenza centers around the world
- Samples collected year-round
- Testing at Collaborating Centers
- World Health Organization (WHO) February meeting
- US Vaccines and Related Biological Products Advisory Committee (VRBAC) makes final decision re: strain composition
- Manufacturer production



2017-2018 Influenza Vaccine Strains

1. A/Michigan/45/2015 (H1N1)pdm09-like virus
 2. A/Hong Kong/4801/2014 (H3N2)-like virus
 3. B/Brisbane/60/2008-like virus (B/Victoria lineage)
-
4. B/Phuket/3073/2013-like virus (B/Yamagata lineage) *

*Quadrivalent vaccines only



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Types of Influenza Vaccine

Inactivated Influenza Vaccine (IIV)

1. Trivalent Inactivated Vaccine (IIV3)
2. High-dose (IIV3)
3. Quadrivalent Inactivated Vaccine (IIV4)
4. Cell culture-based (ccIIV3)
5. Recombinant Influenza Vaccine (RIV3 & RIV4)



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Cell culture-based (ccIIV3)

HA virus component cultured in mammalian cell for vaccine production



Benefits

- Antigen alteration less than in egg culture
- Manufacturing
 - Not subject to egg availability
 - Faster start-up time
- Less concern for those with egg allergy

Live Attenuated Influenza Vaccine (LAIV4)



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- CDC's Advisory Committee on Immunization Practices (ACIP) votes on the use and dosing of every vaccine available in the U.S.
- LAIV, also known as the "nasal spray flu vaccine," or FluMist®, should NOT be used in the upcoming flu season
- Vaccine effectiveness (VE) data showed no protective effect of LAIV during the 2015-2016 flu season.
- 3 p (95% CI: -49 to 37 percent)

Not Available



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Influenza Vaccine Recommendations

ACIP Childhood Recommendations



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Birth to 15 Months

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos
Influenza^Z (IIV)					Annual vaccination (IIV) 1 or 2 doses			

18 Months to 18 Years

Vaccines	18 mos	19-23 mos	2-3 yrs	4-6 yrs	7-10 yrs	11-12 yrs	13-15 yrs	16 yrs	17-18 yrs
Influenza^Z (IIV)	Annual vaccination (IIV) 1 or 2 doses					Annual vaccination (IIV) 1 dose only			



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ACIP Adult Recommendations

Summary of Recommendations for Adult Immunization (Age 19 years and older)

PAGE 1 OF 5

Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another unless otherwise noted)	Contraindications and precautions (mild illness is not a contraindication)
Influenza Inactivated Influenza vaccine (IIV*) <i>Give IM or ID (intradermally)</i> * includes recom- binant influenza vaccine (RIV3)	For people through age 18yrs, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . <ul style="list-style-type: none">• Vaccination is recommended for all adults.• Adults age 18 through 64yrs may be given any intramuscular IIV product (Fluzone, Fluvirin, Afluria, Flucelvax, Fluarix, FluLaval), or the intradermal IIV product (Fluzone Intradermal), or RIV3 (FluBlok).• Adults age 18 through 64yrs may be given intramuscular IIV (Afluria) with a needle and syringe or using a jet injector (Stratis).• Adults age 65yrs and older may be given any standard-dose IIV referenced in the second bullet above, Fludax, or high-dose IIV (Fluzone High-Dose), or RIV3• Live attenuated influenza vaccine (LAIV) should not be used during the 2016–17 influenza season.	<ul style="list-style-type: none">• Give 1 dose every year in the fall or winter.• Begin vaccination services as soon as vaccine is available and continue until the supply is depleted.• Continue to give vaccine to unvaccinated adults throughout the influenza season (including when influenza activity is present in the community) and at other times when the risk of influenza exists.	Contraindications <ul style="list-style-type: none">• Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine, to any of its components, including egg protein.• Adults who have experienced a severe reaction to eggs involving symptoms other than hives may receive any age-appropriate influenza vaccine, including RIV3 which does not contain egg protein. The vaccine should be administered in a medical setting (e.g., a health department or physician office) and should be supervised by a healthcare provider who is able to recognize and manage severe allergic conditions. Precautions <ul style="list-style-type: none">• Moderate or severe acute illness with or without fever.• History of Guillain-Barré syndrome (GBS) within 6 wks following previous influenza vaccination.• For adults who experience only hives with exposure to eggs, give any age-appropriate influenza vaccine.

Who should not receive flu vaccine?

1. Children <6 months
2. Those with contraindications:
 - Severe, life threatening allergic reaction(s) to vaccine/ingredients



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Patients Who Should Discuss Flu Vaccine with their Health Care Provider

1. Guillain-Barré Syndrome (GBS)
2. Moderate to severe illness with or without a fever
3. Allergy to chicken eggs or other vaccine ingredients*

*New data suggests that severe allergies to eggs should not disqualify a person from receiving influenza vaccination



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High-Risk Groups

- Children and infants
- Pregnant women
- Seniors
- Chronic Health Conditions
 - Arthritis
 - Asthma
 - Cancer
 - Heart Disease
 - Immunosuppression
- Healthcare workers
- Care givers and close contacts of infants and elderly

New in 2017-2018

1. Adults with egg allergy other than hives may receive any IIV or RIV
2. Afluria Quadrivalent (IIV4) - Seqirus
 - a. Standard IIV4 dose
 - b. ≥ 18 years old
3. Flublok Quadrivalent (RIV4) – Protein Sciences
 - a. Recombinant quadrivalent influenza vaccine
 - b. ≥ 18 years old



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Safety and Efficacy

Influenza Vaccine Safety

1. Good safety record
2. Side effects
3. Vaccine Adverse Event Reporting System (VAERS)
4. Vaccine Safety Data Link (VSD)



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SAFETY FIRST!

Good safety record

- Among the safest in medical products in use
- Over 50 years of safe administration
- Extensive research through observational studies, surveillance, and randomized control studies



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Side effects

Common

- Soreness, erythema, induration at the injection site (15-20%)
- Non-specific symptoms i.e. fever, chills, malaise, myalgia (<1%)

Rare

- Allergic reactions
 - Hives
 - Angioedema
 - Allergic asthma
 - Anaphylaxis



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VAERS

VAERS

Vaccine Adverse Event Reporting System

www.vaers.hhs.gov

About VAERS

Report an Adverse Event

VAERS Data



Resources



Submit Follow-Up Information

Have you had a reaction following a vaccination?

1. Contact your healthcare provider.
2. [Report an Adverse Event](#) using the VAERS online form or the new downloadable PDF. *New!*

Important: CDC and FDA do not provide individual medical treatment, advice, or diagnosis. If you need individual medical or health care advice, consult a qualified health care provider.

¿Ha tenido una reacción adversa después de recibir una vacuna?

1. Contacte a su proveedor de salud.
2. [Reporte una reacción adversa](#) utilizando el formulario de VAERS en línea o la nueva versión PDF descargable. *Nuevo!*



What is VAERS?

Vaccine Safety Datalink

- Nine health participating US health centers
- Monitoring safety
- Conduct studies on rare and serious adverse events following immunization
- Electronic health data
- Investigate issues and concerns submitted in VAERS
- Monitor safety of newly licensed vaccines and recommendations



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Influenza Vaccine Effectiveness

1. Varies from year to year
2. Varies among different age groups
3. Two important factors:
 - Characteristics of person vaccinated
 - Match of vaccine strains to circulating strains
4. 2016 – 2017:
 - 42% (95%CI: 32-48%) effective overall
 - 34% effective against Influenza A H3N2
 - 55-60% effective against Influenza B



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Current topic in Effectiveness

Waning Vaccine Efficacy Implications on Immunization Policy and Recommendations

- Supports annual recommendation
- Some waning effects after 3-4 months
- Avoid missed opportunities - do not postpone vaccination early in season



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Flu Vaccine Ordering



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Flu Vaccine Ordering

Privately Funded Vaccine

- Order from manufacturer
 - All insured patients
 - Out of pocket adults

Publically Funded Vaccine

- Order through DSHS Immunizations Unit
 - Texas Vaccine For Children (TVFC)

TVFC

1. Passed nationally in 1994 as the Vaccines for Children program, our Texas Vaccines for Children program guarantees ACIP-recommended vaccines will be available at no cost to providers in order to immunize children who meet the eligibility requirements.
 - i. Texas has approx. **3,200** VFC provider sites
 - ii. 2016-2017 **1.5 million** influenza doses distributed

2.



3. Central Office Responsibilities:
 - a. Ordering and Tracking
 - b. Allocation
 - c. Calculate vaccine loss



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TVFC Contact



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Texas Influenza Vaccine Coverage




2015-2016 Flu Season

Influenza Vaccination Coverage by Age Group



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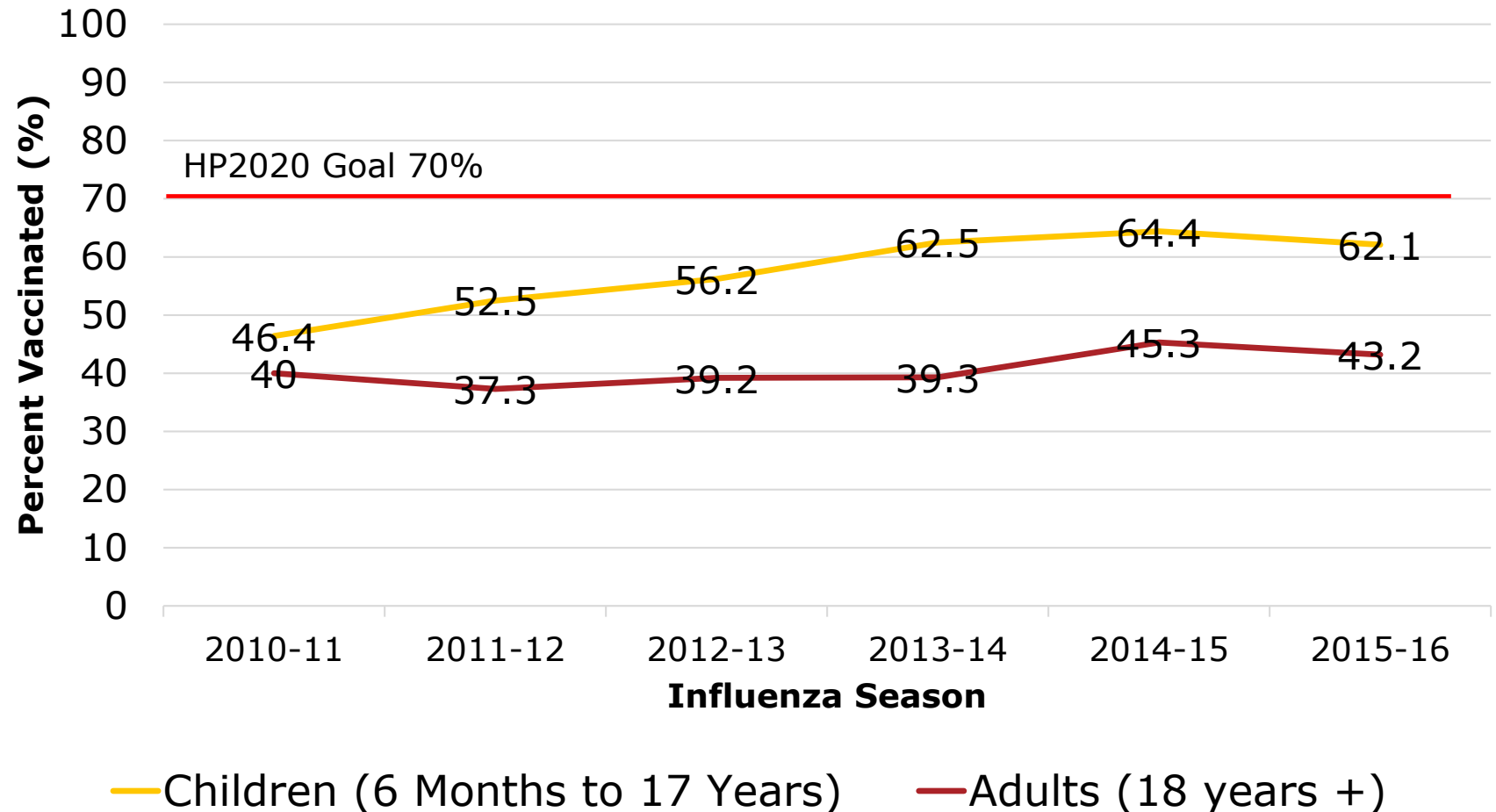
Age Group	 2014-2015 Coverage, Texas	 2015-2016 Coverage, Texas	+/- Change from previous Flu Season	 2015-2016 Coverage, United States
≥6 months	50 %	47%	-2%	45%
6 months - 17 years	64%	62%	-2%	59%
≥18 years	45%	43%	-2%	41%
18-64 years (high risk)	48%	55%	6%	46%
≥65 years	72%	65%	-7%	63%

Influenza Vaccination Coverage by Season and Age Group

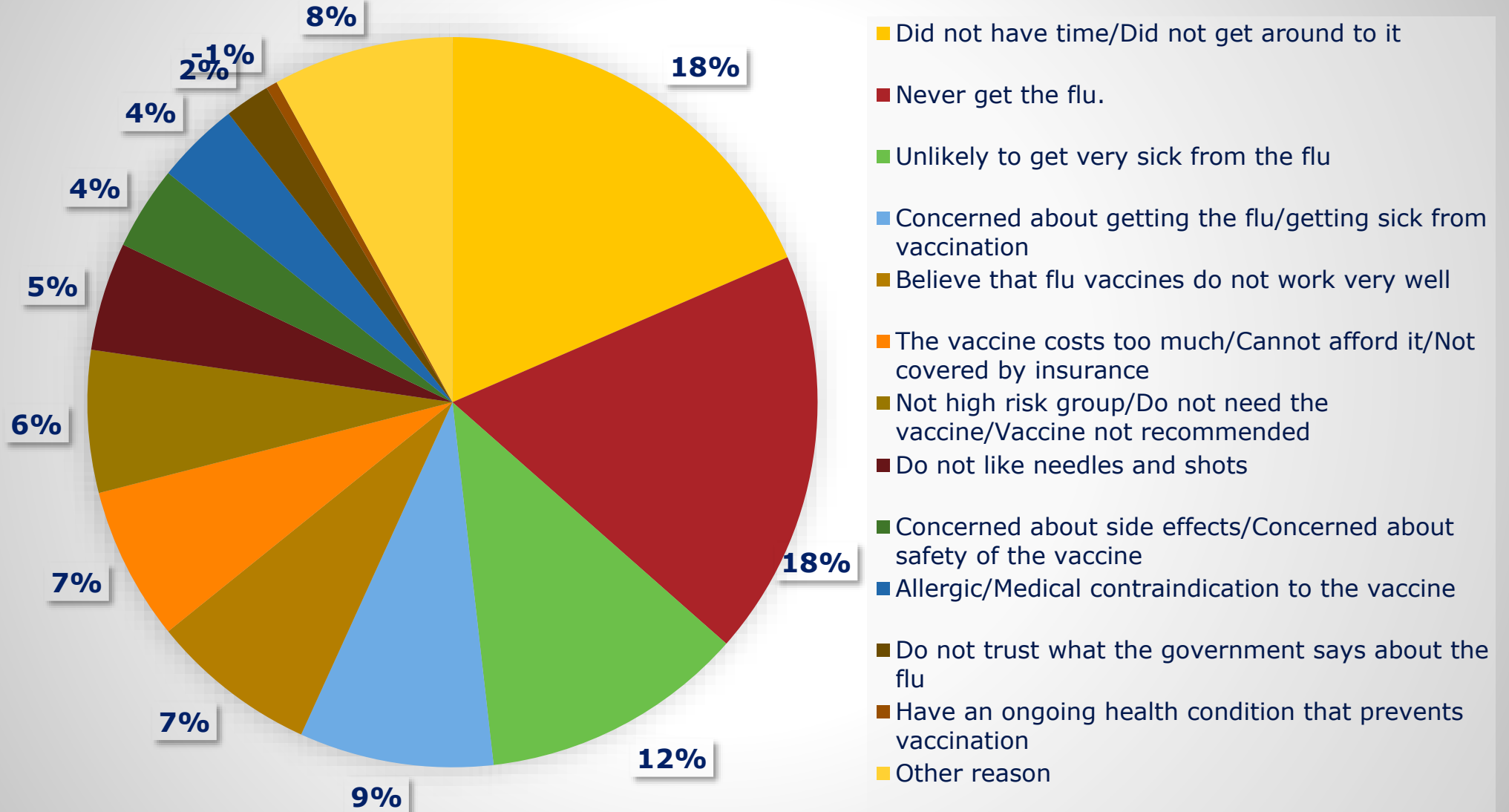


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Reasons for not getting flu shot



Source: 2015 Texas Behavioral Risk Factor Surveillance System (BRFSS)



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Top reasons Texas adults didn't get a flu shot in 2014-2015:

- **18.5% "Did not have time to get the vaccination/did not get around to it"**
- 18.0% "Never get the flu"
- 11.7% are "Unlikely to get very sick from the flu"
- 8.6% are "Concerned about getting the flu from the vaccination/concerned about getting sick from the vaccination"
- ...
- Only 2.0% "Do not trust what the government says about the flu"



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DSHS Strategies to Improve Flu Vaccination Coverage

1. Encourage use of evidence-based practices at medical sites to increase access to vaccination services
 - a. Promote use of ImmTrac
 - b. Promote the use of client and provider reminder recall systems
2. Increasing community demand for vaccinations
 - a. Flu child care facility mail out
 - b. Increase awareness through Texas Influenza Awareness Day on October 1st
3. Expanding access to flu vaccines through the Texas Vaccines for Children Program
4. Promote public and private partnerships to improve vaccination coverage
 - a. Communicate key immunization messages through network of state and local health department ImmTrac outreach specialists
 - b. Collaborate with vaccine manufacturers to identify financial assistance programs and disseminate the program information to key stakeholders throughout the state
 - c. Work closely with key officials from the manufacturers to stay abreast of vaccine changes and any future plans to make changes to the vaccine, as well as gauging supply levels



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DSHS Immunization Unit Activities

Policy, Resources, & Campaigns

Texas Health & Safety Code

Title 40, Subtitle A, Chapter 224, Section 224.002

- Healthcare facility policy to protect from vaccine preventable disease

Title 40, Subtitle A, Chapter 161, Section 161.0101

- Increase immunization awareness

Title 40, Subtitle A, Chapter 161, Section 161.0102

- Influenza vaccine choice for TVFC providers



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Texas Administrative Code (TAC)

1. Title 25, Part 1, Chapter 97, Subchapter I, Rule 97.202

- Nursing home requirement to vaccinate

2. Title 40, Part 1, Chapter 19, Subchapter R, Rule 746.3611

- Childcare facility immunization requirements for employees



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Locating Influenza Vaccine

1. Flu Vaccine Finder: www.flu.gov
2. HealthMap Vaccine Finder:
<http://flushot.healthmap.org/>
3. DSHS Immunizations Flu Vaccination Page:
<http://www.dshs.texas.gov/immunize/flu.shtm#w>
[here](#)



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Media Campaigns

1. CDC: #VaxWithMe
2. DSHS:
 - a. Protect Two From the Flu <http://protect2.org>
 - b. <http://TexasFlu.org>
3. Walgreens: Vaccinate Texas



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ImmTrac2

- Texas Immunization Registry
 - Updated ImmTrac launched April 2017
- Opt-in system
 - Child must be consented into the system
 - Adults must re-consent by age 26 to remain in ImmTrac



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the **benefits** of **flu vaccination** 2015-2016

The estimated number of
flu **illnesses prevented**
by flu vaccination during
the 2015-2016 season:

5 million

as many people use Denver
International Airport in one month



The estimated number of flu
medical visits prevented
by vaccination during the
2015-2016 season:

2.5 million

equal to the population of
Portland, Oregon



The estimated number of
flu **hospitalizations prevented** by vaccination
during the 2015-2016
season:

71,000

enough to fill every registered
hospital bed in the state of Texas



DATA: Influenza Division program impact report 2015-2016, <https://www.cdc.gov/flu/about/disease/2015-16.htm>.

NCIRDig-607 | 12.06.2016



U.S. Department of
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Centers for Disease
Control and Prevention

get **vaccinated**
www.cdc.gov/flu

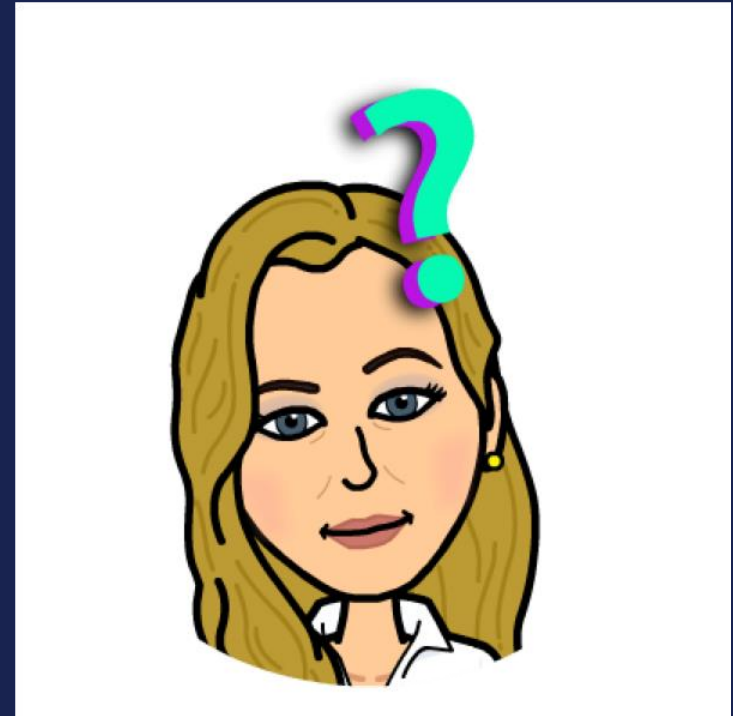
Contact Information



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Any questions?