

This month's bulletin will focus on two separate topics. The first is tornadoes and the second is the flu vaccine. Residents of Louisiana are no strangers to the many different forms of hazardous weather. Tornadoes, damaging winds, large hail, lightning, flooding, and even winter weather are all common weather phenomena that occur in Louisiana. When looking at statistics for the number of tornadoes, and tornado fatalities, Louisiana ranks near or at the top in every category. These statistics show a long history of tornado impacts across the state.

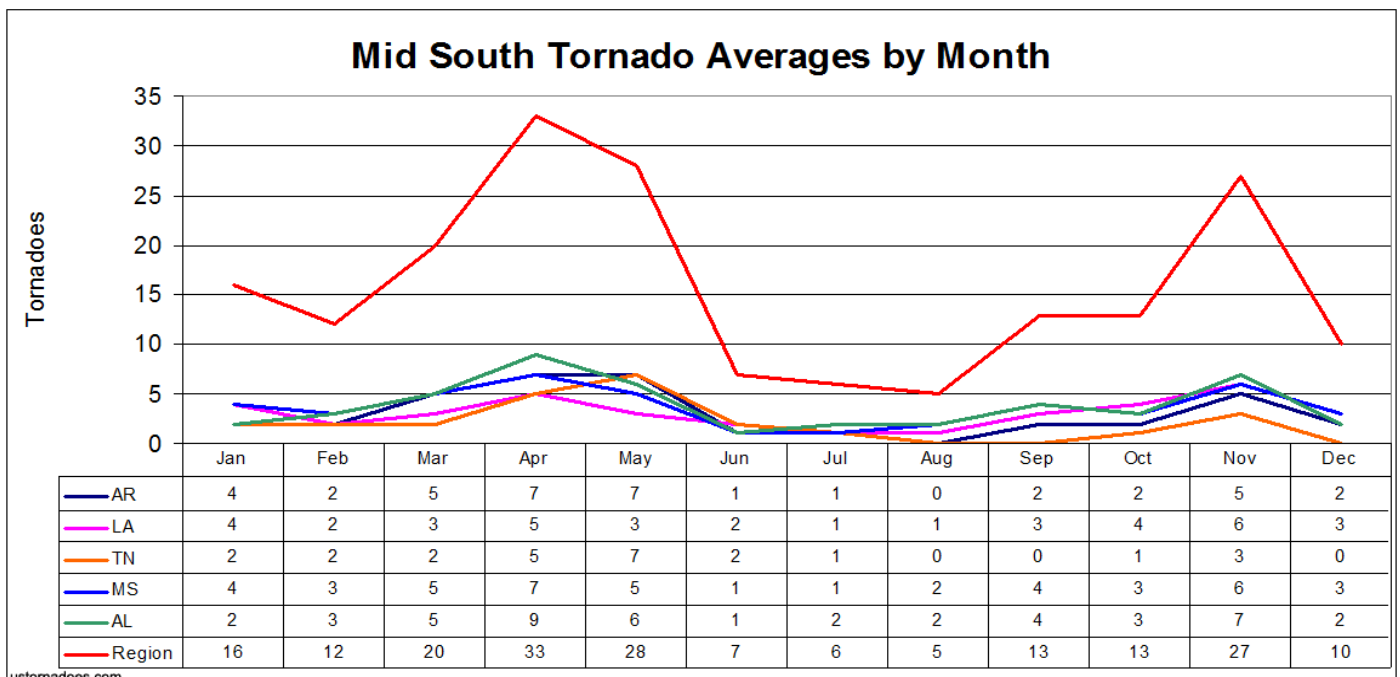


**2016 LaPlace, LA  
Tornado Damage**



**2015 Mandeville, LA  
Tornado Damage**

This presents a preparedness challenge to the residents of Louisiana. Unlike the traditional tornado alley of the Great Plains, tornadoes are difficult to spot in Louisiana. Some of the reasons for this are poor visibility in the form of numerous trees in the state, the fact that many tornadoes in Louisiana are rain-wrapped, and that many Louisiana tornadoes occur at night. In addition, many homes and other structures are not built as strong as buildings in other parts of the country. According to historical data, the two worse months for tornadoes are Number 1- April and Number 2 - November.





2016 LaPlace, LA Tornado

All of these factors make it very important for residents of the Pelican State to have multiple ways of receiving weather warnings, have a shelter plan in place ahead of time, and take outlooks, watches and warnings seriously. These actions contribute to reducing injuries and fatalities. Situational awareness and proper planning are essential to safety. In this bulletin, there will be safety tips for tornadoes we encounter in Mississippi during the fall and winter months.



2016 Kenner, LA Tornado Damage



## Flu Shots

"It's that time of year again"

In the United States, flu season occurs in the fall and winter. The peak of flu season has occurred anywhere from late November through March. The overall health impact (e.g., infections, hospitalizations, and deaths) of a flu season varies from year to year. The Louisiana Department of Health (LDH) has seen an increase in influenza activity over the past several weeks with flu activity now reported throughout the state.

"While this year's flu season is in the early stages, its picking up quickly as we approach the typical peak season in Louisiana" said LDH State Epidemiologist Dr. Raoult Ratard. "The flu shot takes one to two weeks to produce immunity, so it's definitely not too late to get your flu shot. Everyone should take the threat of flu very seriously and get vaccinated now." Please utilize the information in this bulletin to find more about how to keep your family safe before, during and after a tornado and how to best prepare for the upcoming flu season. Keep your family safe and Always Remember "Be Prepared".

### [Links to how to build Emergency Plans:](#)

<https://www.ready.gov/kids/parents>

<http://www.acsim.army.mil/readyarmy/>

<http://www.defense.gov/News/Special-Reports/National-Preparedness>

[How to Prepare For a Tornado](#)

[How to Build a Safe Room](#)

[Safe Rooms at FEMA.gov](#)



Hyperlinks to Flu Information from the CDC:

[Key Facts About Seasonal Flu](http://www.cdc.gov/flu/keyfacts.htm)(<http://www.cdc.gov/flu/keyfacts.htm>)

A summary of key seasonal flu facts.

[2016-2017 Flu Season](http://www.cdc.gov/flu/about/season/flu-season-2016-2017.htm)(<http://www.cdc.gov/flu/about/season/flu-season-2016-2017.htm>)

Information about the 2016-2017 flu season.

[Symptoms & Complications](http://www.cdc.gov/flu/about/disease/complications.htm)(<http://www.cdc.gov/flu/about/disease/complications.htm>)

Flu symptoms and complications.

[How Flu Spreads](http://www.cdc.gov/flu/about/disease/spread.htm)(<http://www.cdc.gov/flu/about/disease/spread.htm>)

How the virus spreads and how long people may be contagious.

[Past Flu Seasons](http://www.cdc.gov/flu/pastseasons/index.htm)(<http://www.cdc.gov/flu/pastseasons/index.htm>)

Information about past flu seasons.



# Tornadoes

## What is a Tornado?

A tornado is a violently rotating column of air that extends from the base of a storm cloud to the ground. Some conditions that are conducive for tornado formation include warm, moist, unstable air, strong atmospheric winds that increase in speed and change direction with height, and a forcing mechanism to lift the air. When a combination of these factors comes together just right, tornadoes form. The most common time of year for tornado formation in Mississippi is during the spring months of March, April, and May, with a secondary tornado season in November. Tornadoes can occur at any time of day and at any point during the year given the right environment. Many tornadoes occur at night in Mississippi, especially during the fall and winter months.

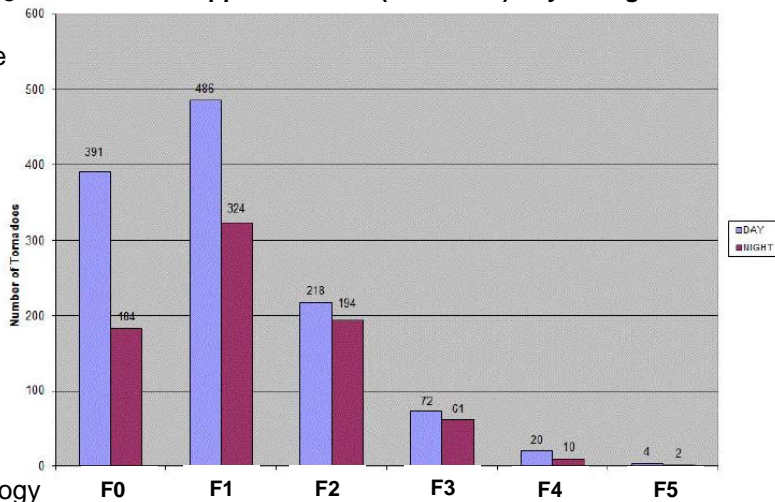


EF2 tornado near Laurel, MS on December 23, 2014. Photo by Eric Roberts

## Nocturnal Tornadoes Pose Greater Danger

Nocturnal tornadoes pose a greater danger than those that occur during the daylight because once most people go to bed, they are no longer connected to the watches or warnings issued by the NWS. Visibility is reduced at night, making observation of a tornado more difficult. Research by Gagan et al. 2010 compared tornado statistics from the Great Plains in the classic "Tornado Alley" to tornadoes in the Deep South or "Dixie Alley", and found that Dixie Alley had far greater amounts of killer strong/violent tornadoes between 9pm-9am timeframe. Dixie Alley had nearly twice the number of strong/violent tornadoes from midnight-noon timeframe than Tornado Alley from 1950-2007.

Mississippi Tornadoes (1950-2015) Day vs Night



Having a properly programmed **All Hazards NOAA Weather Radio** with S.A.M.E. county coding technology will alarm individuals any time of day when a severe thunderstorm warning or tornado warning is issued for their county. This device has been credited for saving numerous lives during nocturnal tornado events.

## Enhanced Fujita Scale (EF Scale)

Meteorologists rate tornado intensity based on the damage they create. The scale they use to rate them is called, the Enhanced Fujita Scale.

EF Rating	Wind Speeds	Potential Damage Threats
EF 0 (weak)	65-85 mph	Light damage, shallow rooted trees pushed over, some damage to gutters or siding.
EF 1 (weak)	86-110 mph	Moderate damage, mobile homes overturned, roof surfaces peeled off.
EF 2 (strong)	111-135 mph	Considerable damage, large trees uprooted or snapped, mobile homes destroyed.
EF 3 (strong)	136-165 mph	Severe damage, trains overturned, well built homes lose roofs and walls.
EF 4 (violent)	166-200 mph	Devastating damage, well built homes leveled, cars thrown.
EF 5 (extreme)	Over 200 mph	Incredible damage, well built homes disintegrated, automobile-sized objects thrown >300ft.



## **Severe Weather and the Holiday Season in Louisiana**

In holiday songs and stories, a wintry scene is often depicted surrounding Thanksgiving, Christmas, and New Year's Day. In Louisiana however, our holiday seasons are more prone to feature tornadoes than snow. November is the third most active month for tornadoes in the state. Historically, many of these tornadoes occur in the latter half of the month, typically around Thanksgiving. However, in both December 2014 and 2015, Louisiana saw deadly tornadoes rip across the state in the days leading up to the Christmas holidays.



**An F4 tornado caused significant damage to the Fairfield subdivision near Madison, MS on November 24, 2001. Photo by NWS Jackson, MS**

In 2001, one particular tornado event produced F4 tornadoes in Madison and Bolivar counties during the overnight hours of November 24, 2001, which happened to be the Saturday after Thanksgiving. These violent tornadoes caused extensive damage and two fatalities. The days surrounding Thanksgiving are some of the most heavily traveled days of the year, which means that many people are in less familiar surroundings and more vulnerable than normal.



**An EF3 tornado produced 140 mph winds near McNeil, MS in Pearl River County on Christmas Day 2012. Photo by NWS Slidell, LA**

On Christmas Day 2012, a 61 mile long EF3 tornado struck Pearl River, Stone, Forrest, Perry, and Green counties during the afternoon hours, causing extensive damage and at least 12 injuries. On December 23, 2014, an EF3 tornado struck the town of Columbia in Marion County, and an EF2 tornado struck Jones County during the after-noon. Extensive damage and five fatalities were caused by these tornadoes. The Columbia tornado impacted a shopping area just two days before Christmas. Just one year later, EF3 and EF4 tornadoes tore across northern Mississippi on December 23rd. This resulted in 11 fatalities and 64 injuries. An EF0 tornado also affected Smith County on Christmas Day 2015.

On New Year's Eve 2010, four tornadoes impacted central parts of the state. After midnight that same night on New Year's Day 2011, seven more tornadoes occurred, including two EF3s. One EF3 tornado in Attala County touched down at 12:02 am, making it the first tornado of 2011 in the entire United States.



**An EF3 tornado destroyed this shed in east central Noxubee County on New Year's Day 2011. Photo by NWS Jackson, MS**

So this holiday season, whether you're cooking your Thanksgiving turkey, unwrapping presents on Christmas, or celebrating the arrival of 2017, remember to pay attention to the forecast and be prepared for severe weather. These situations may place you in different locations than throughout the year, so make sure and consider what actions you would take should a warning be issued.



## Tornado Safety Tips



- **When a tornado warning is issued:**
- Get inside a sturdy, well built structure.
- Get on the lowest floor and in an interior room such as a hall, closet or bathroom. Get in a room that does not have any windows.
- Use something to protect your head such as a helmet, blankets, mattresses, pillows, cushions. Use something that will provide more protection than just your hands.
- If you are in a car: do not try to outrun a tornado. Take shelter in a sturdy building nearby. If none is available, get out of the car and get into the lowest part of the ground such as a ditch.
- Never take shelter under highway overpasses. Many are not constructed properly to provide adequate shelter, especially as the wind speeds increase as the tornado passes over.
- Mobile homes are not safe shelters. Plan to take shelter in a more sturdy building nearby or if no other shelter is available, get low to the ground in a ditch.
- For those in schools, nursing homes, hospitals, airports and shopping centers: take shelter in the designated shelter area. Stay away from large windows or glassed areas. Stay away from large rooms like dining halls, gymnasiums or warehouses because they have weakly supported roofs.

Develop a tornado safety plan **ahead of time!** Do not wait until the tornado is on your doorstep to figure out where to go, or what to do. Tornadoes form very quickly and may occur with little advance warning. You may only have a few seconds to find shelter, so it is important to know where to go and move quickly.



Outside walls of a home collapsed after being struck by a tornado. Interior walls remain standing (above). A 2x6 piece of wood through a refrigerator (left). Both of these photos show why being in the interior portion of a home/building is important, and why wearing a helmet is a good idea!



Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives, Protecting People™



## Key Facts About Seasonal Flu Vaccine

### Flu Vaccination

#### Why should people get vaccinated against the flu?

Influenza is a serious disease that can lead to hospitalization and sometimes even death. Every flu season is different, and influenza infection can affect people differently. Even healthy people can get very sick from the flu and spread it to others. Over a period of 31 seasons between 1976 and 2007, [estimates of flu-associated deaths](http://www.cdc.gov/flu/about/disease/us_flu-related_deaths.htm) in the United States range from a low of about 3,000 to a high of about 49,000 people. During recent flu seasons, between 80% and 90% of flu related deaths have occurred in people 65 years and older. "Flu season" in the United States can begin as early as October and last as late as May. During this time, flu viruses are circulating at higher levels in the U.S. population. An annual seasonal flu vaccine (either the flu shot or the nasal spray flu vaccine) is the best way to reduce the chances that you will get seasonal flu and spread it to others. When more people get vaccinated against the flu, less flu can spread through that community.

#### How do flu vaccines work?

Flu vaccines cause antibodies to develop in the body about two weeks after vaccination. These antibodies provide protection against infection with the viruses that are in the vaccine.

The seasonal flu vaccine protects against the influenza viruses that research indicates will be most common during the upcoming season. Traditional flu vaccines (called "trivalent" vaccines) are made to protect against three flu viruses; an influenza A (H1N1) virus, an influenza A (H3N2) virus, and an influenza B virus. There are also flu vaccines made to protect against four flu viruses (called "quadrivalent" vaccines). These vaccines protect against the same viruses as the trivalent vaccine and an additional B virus.

#### What kinds of flu vaccines are available?

CDC recommends use of injectable influenza vaccines (including inactivated influenza vaccines and recombinant influenza vaccines) during 2016-2017. **The nasal spray flu vaccine (live attenuated influenza vaccine or LAIV) should not be used during 2016-2017.**

Both trivalent (three-component) and quadrivalent (four-component) flu vaccines will be available.

Trivalent flu vaccines include:

[Standard-dose trivalent shots](#) (IIV3) that are manufactured using virus grown in eggs. Different flu shots are approved for different age groups. Most flu shots are given in the arm (muscle) with a needle. One trivalent vaccine formulation can be given with a [jet injector](#), for persons aged 18 through 64 years.

A [high-dose trivalent shot](#), approved for people 65 and older.

A [recombinant trivalent shot that is egg-free](#), approved for people 18 years and older.

A [trivalent flu shot made with adjuvant](#) (an ingredient of a vaccine that helps create a stronger immune response in the patient's body), approved for people 65 years of age and older (**new this season**).



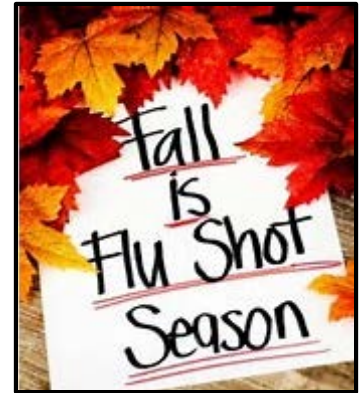


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## What kinds of flu vaccines are available? (Continued)

Quadrivalent flu vaccines include:

- [Quadrivalent flu shots](#) approved for use in different age groups.
- An [intradermal quadrivalent flu shot](#), which is injected into the skin instead of the muscle and uses a much smaller needle than the regular flu shot. It is approved for people 18 through 64 years of age.
- A [quadrivalent flu shot](#) containing virus grown in cell culture, which is approved for people 4 years of age and older (new this season).



## Are any of the available flu vaccines recommended over others?

For the 2016-2017 flu season, the [Advisory Committee on Immunization Practices \(ACIP\)](http://www.cdc.gov/vaccines/acip/index.html) (<http://www.cdc.gov/vaccines/acip/index.html>) recommends annual influenza vaccination for everyone 6 months and older with either the inactivated influenza vaccine (IIV) or the recombinant influenza vaccine (RIV). **The nasal spray flu vaccine (live attenuated influenza vaccine or LAIV) should not be used during 2016-2017.** There is no preference for one vaccine over another among the recommended, approved injectable influenza vaccines. There are [many vaccine options](http://www.cdc.gov/mmwr/volumes/65/rr/rr6505a1.htm#T1_down) ([http://www.cdc.gov/mmwr/volumes/65/rr/rr6505a1.htm#T1\\_down](http://www.cdc.gov/mmwr/volumes/65/rr/rr6505a1.htm#T1_down)) to choose from, but the most important thing is for all people 6 months and older to get a flu vaccine every year. If you have questions about which vaccine is best for you, talk to your doctor or other health care professional.

## Who should get vaccinated this season?

Everyone 6 months of age and older should get a flu vaccine every season. This recommendation has been in place since [February 24, 2010 when CDC's Advisory Committee on Immunization Practices \(ACIP\)](#) (<http://www.cdc.gov/media/pressure/2010/r100224.htm>) voted for "universal" flu vaccination in the United States to expand protection against the flu to more people.

Vaccination to prevent influenza is particularly important for people who are at high risk of serious complications from influenza. See [People at High Risk of Developing Flu-Related Complications](http://www.cdc.gov/flu/about/disease/high_risk.htm) ([http://www.cdc.gov/flu/about/disease/high\\_risk.htm](http://www.cdc.gov/flu/about/disease/high_risk.htm)) for a full list of age and health factors that confer increased risk.

More information is available at [Who Should Get Vaccinated Against Influenza](http://www.cdc.gov/flu/protect/whoshouldvax.htm) (<http://www.cdc.gov/flu/protect/whoshouldvax.htm>).



## Who Should Not Be Vaccinated?

CDC recommends use of the flu shot (inactivated influenza vaccine or IIV) and the recombinant influenza vaccine (RIV). The nasal spray flu vaccine (live attenuated influenza vaccine or LAIV) should not be used during 2016-2017. Different flu vaccines are approved for use in different groups of people. Factors that can determine a person's suitability for vaccination, or vaccination with a particular vaccine, include a person's age, health (current and past) and any allergies to flu vaccine or its components.

[People who cannot get a flu shot](http://www.cdc.gov/flu/protect/whoshouldvax.htm#flu-shot) (<http://www.cdc.gov/flu/protect/whoshouldvax.htm#flu-shot>)

[People who should talk to their doctor before getting the flu shot](http://www.cdc.gov/flu/protect/whoshouldvax.htm#flu-shot) (<http://www.cdc.gov/flu/protect/whoshouldvax.htm#flu-shot>)



## **When should I get vaccinated?**

Flu vaccination should begin soon after vaccine becomes available, if possible by October. However, as long as flu viruses are circulating, **vaccination should continue to be offered throughout the flu season**, even in January or later. While seasonal influenza outbreaks can happen as early as October, during most seasons influenza activity peaks in January or later. Since it takes about two weeks after vaccination for antibodies to develop in the body that protect against influenza virus infection, it is best that people get vaccinated so they are protected before influenza begins spreading in their community.

Flu vaccine is produced by private manufacturers, and the timing of availability depends on when production is completed. Shipments began in August and will continue throughout October and November until all vaccine is distributed.

## **Where can I get a flu vaccine?**

Flu vaccines are offered in many locations, including doctor's offices, clinics, health departments, pharmacies and college health centers, as well as by many employers, and even in some schools.

Even if you don't have a regular doctor or nurse, you can get a flu vaccine somewhere else, like a health department, pharmacy, urgent care clinic, and often your school, college health center, or workplace.

The following [Vaccine Locator](#) is a useful tool for finding vaccine in your area.



## **Why do I need a flu vaccine every year?**

A flu vaccine is needed every season for two reasons. First, the body's immune response from vaccination declines over time, so an annual vaccine is needed for optimal protection. Second, because flu viruses are constantly changing, the formulation of the flu vaccine is reviewed each year and sometimes updated to keep up with changing flu viruses. For the best protection, everyone 6 months and older should get vaccinated annually.

## **Does flu vaccine work right away?**

No. It takes about two weeks after vaccination for antibodies to develop in the body and provide protection against influenza virus infection. That's why it's better to get vaccinated early in the fall, before the flu season really gets under way.

## **Can I get seasonal flu even though I got a flu vaccine this year?**

Yes. There is still a possibility you could get the flu even if you got vaccinated. The ability of flu vaccine to protect a person depends on various factors, including the age and health status of the person being vaccinated, and also the similarity or "match" between the viruses used to make the vaccine and those circulating in the community. If the viruses in the vaccine and the influenza viruses circulating in the community are closely matched, vaccine effectiveness is higher. If they are not closely matched, vaccine effectiveness can be reduced. However, it's important to remember that even when the viruses are not closely matched, the vaccine can still protect many people and prevent [flu-related complications](http://www.cdc.gov/flu/about/disease/complications.htm#complications). Such protection is possible because antibodies made in response to the vaccine can provide some protection (called cross-protection) against different but related influenza viruses. For more information about vaccine effectiveness, visit [How Well Does the Seasonal Flu Vaccine Work](http://www.cdc.gov/flu/about/qa/vaccineeffect.htm)?