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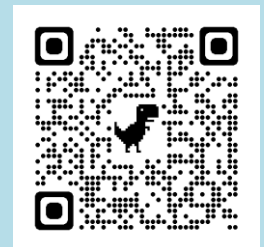
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Flu Shot: Your best bet for avoiding influenza

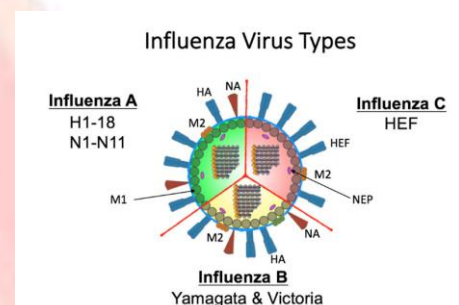
Getting a flu shot will often protect you from a serious case of the flu. And although the flu shot doesn't always provide total protection, it's worth getting.



Influenza, often called the flu, is an infection of the nose, throat and lungs, which are part of the respiratory system. The flu is caused by a virus. Most people with the flu get better on their own. But influenza can cause serious complications for some groups of people. In general, people at higher risk than average for complications are young children; especially children age 12 months and younger, pregnant women, adults over age 65 and people with certain medical conditions. Getting an influenza vaccine, though not 100% effective, is the best way to prevent the misery of the flu and its complications. The Centers for Disease Control and Prevention (CDC) recommends annual flu vaccination for everyone age 6 months or older. The flu vaccine can lower your risk of getting the flu. It also can lower the risk of having serious illness from the flu and needing to stay in the hospital or dying from the flu.

Influenza viruses types:

Influenza viruses belong to the Orthomyxoviridae RNA virus family and classify into three distinct types based on their major antigenic differences; influenza A, influenza B, and influenza C. Influenza viruses cause annual human epidemics, seasonal and pandemics. Seasonal influenza epidemics caused by influenza A and B viruses result in 3 to 5 million severe cases and



thousands of deaths globally yearly. The influenza A virus will cause epidemics and pandemics because of its spread from migrating birds, pigs, horses, and humans. Transmission can be human to human from fomites, coughing, and sneezing. Influenza B causes only human-to-human spread with a particular emphasis on the fact that no other hosts are involved, therefore, not involved in pandemics. Influenza C is a mild disease.

Influenza vaccines:

Influenza (flu) vaccines (often called “flu shots”) are vaccines that protect against the four influenza viruses that research indicates will be most common during the upcoming season. Most flu vaccines are “flu shots” given with a needle, usually in the arm, but there is a nasal spray flu vaccine also. Flu shots offer protection against three or four strains of the flu virus. Trivalent flu vaccines provide protection against two influenza A strains, H1N1 and H3N2,

and one influenza B strain. Quadrivalent flu vaccines protect against the same strains as the trivalent vaccine as well as an additional strain of influenza B.

Influenza vaccine mechanism of action:

The influenza vaccine conveys immunity against the influenza virus by stimulating the production of antibodies specific to the disease. The mechanism of immune protection is more complicated, as while primarily humoral, cell-mediated immunity also plays an essential role in immunity to influenza. After vaccination, it takes two weeks to build up an immune response against the flu.

Common Q & A

1- Why do I need to get vaccinated every year?

Because flu viruses change so quickly, last year's vaccine may not protect you from this year's viruses. New flu vaccines are released every year to keep up with rapidly changing flu viruses. When you get vaccinated, your immune system makes antibodies to protect you from the viruses included in the vaccine. But antibody levels may decline over time — another reason to get flu shot every year.

2- What protection does a flu vaccine provide if I do get sick with flu?

Some people who get vaccinated may still get sick. However, flu vaccination has been shown in several studies to reduce severity of illness in people who get vaccinated but still get sick. Two studies in 2017 and 2018 showed that flu vaccination reduced deaths, intensive care unit (ICU) admissions, ICU length of stay, and overall duration of hospitalization among hospitalized flu patients. In addition, it's important to remember that flu vaccine protects against three or four different viruses and multiple viruses usually circulate during any one season.

3- What are the flu vaccine dosage delivery options?

The flu vaccine will be available as a shot or as a nasal spray. The nasal spray vaccine is approved for people between 2 and 49 years old. The nasal flu vaccine isn't recommended for some people, including:

- People who had a severe allergic reaction to a flu vaccine in the past.
- Pregnant people.
- Children age 17 years or younger who are taking aspirin or a salicylate-containing medicine.
- People with weakened immune systems and caregivers or close contacts of people with weakened immune systems.
- Children between ages 2 and 4 years old diagnosed with asthma or wheezing in the past 12 months.

- People who recently took antiviral medicine for the flu.
- People with a cerebrospinal fluid leak or the potential for a leak, as with a cochlear implant.

4- Who should get the flu vaccine?

The CDC recommends annual influenza vaccinations for everyone age 6 months or older. Although the annual influenza vaccine isn't 100% effective, the vaccine lowers the chances of having severe complications from infection. This is especially true for people who are at high risk for flu complications.

High Risk groups
Adults older than age 65.
People in nursing homes or long-term care, as well as people who are in the hospitals.
Young children, especially those age 12 months or younger.
People who plan to be pregnant, are pregnant or recently gave birth during flu season.
A body mass index (BMI) of 40 or higher.
Nervous system disorders or conditions that change how the brain processes information.
People who have chronic illnesses, such as asthma, heart disease, kidney disease, liver disease and diabetes.
People who have had a stroke.
People who are younger than 20 years of age and are receiving long-term aspirin therapy.
Weakened immune systems.

Children between 6 months and 8 years may need two doses of the flu vaccine, given at least four weeks apart, the first time they are given a flu vaccine. After that, they can receive single annual doses of the flu vaccine.

5- Can I lower my risk of the flu without getting a flu shot?

The flu vaccine is your best defense against the flu. But there are more steps you can take to help protect yourself from the flu and other viruses, including COVID-19.

Follow these standard precautions:

- **Wash your hands.** Wash your hands often and thoroughly with soap and water for at least 20 seconds. Use an alcohol-based sanitizer on your hands if soap and water aren't available.
- **Keep your hands away from your face.** Avoid touching your eyes, nose or mouth.
- **Avoid crowds.** The flu spreads easily where people are gathered, for example in school or on public transportation. Avoid crowds when the flu or COVID-19 is spreading in your area.
- **Cover your coughs and sneezes.** Cover your mouth with a tissue or the inside of your elbow when you cough or sneeze, and then wash your hands.

- **Regularly clean and disinfect commonly touched surfaces, such as counters, light switches and doorknobs.** This can help to prevent the spread of infection from touching a surface with the virus on it and then touching your face.
- **Practice good health habits.** Get regular exercise, get enough sleep, drink plenty of fluids, eat a healthy diet and manage stress.

6- What are the side effects of flu vaccine?

Common side effects from a flu shot include soreness, redness, and/or swelling where the shot was given, headache (low grade), fever, nausea, muscle aches, and fatigue. The flu shot, like other injections, can occasionally cause fainting.

Sources:

1. <https://www.mayoclinic.org/diseases-conditions/flu/in-depth/flu-shots/art-20048000>
2. <https://www.ncbi.nlm.nih.gov/books/NBK537197>
3. <https://www.cdc.gov/flu/prevent/flushot.htm>

Dengue (DENG-gey) fever

Dengue (DENG-gey) fever is a mosquito-borne illness that occurs in tropical and subtropical areas of the world. Mild dengue fever causes a high fever and flu-like symptoms. The severe form of dengue fever, also called dengue hemorrhagic fever, can cause serious bleeding, a sudden drop in blood pressure (shock) and death. Millions of cases of dengue infection occur worldwide each year. Dengue fever is most common in Southeast Asia, the western Pacific islands, Latin America and Africa. But the disease has been spreading to new areas, including local outbreaks in Europe and southern parts of the United States. Researchers are working on dengue fever vaccines. For now, in areas where dengue fever is common, the best ways to prevent infection are to avoid being bitten by mosquitoes and to take steps to reduce the mosquito population.

Symptoms

Many people experience no signs or symptoms of a dengue infection. When symptoms occur, they may be mistaken for other illnesses — such as the flu — and usually begin four to 10 days after you are bitten by an infected mosquito. Dengue fever causes a high fever — 104 F (40 C)



— and any of the following signs and symptoms: (Headache-Muscle, bone or joint pain - Nausea- Vomiting - Pain behind the eyes - Swollen glands – Rash). Most people recover within a week or so. In some cases, symptoms worsen and can become life-threatening. This is called severe dengue, dengue hemorrhagic fever or dengue shock syndrome. Severe dengue happens when your blood vessels become damaged and leaky. And the number of

clot-forming cells (platelets) in your bloodstream drops. This can lead to shock, internal bleeding, organ failure and even death.

Causes

Dengue fever is caused by any one of four types of dengue viruses. You can't get dengue fever from being around an infected person. Instead, dengue fever is spread through mosquito bites. The two types of mosquitoes that most often spread the dengue viruses are common both in and around human lodgings.

When to see a doctor?

Severe dengue fever is a life-threatening medical emergency. Seek immediate medical attention if you've recently visited an area in which dengue fever is known to occur, you have had a fever and you develop any of the warning signs. Warning signs include severe stomach pain, vomiting, difficulty breathing, or blood in your nose, gums, vomit or stools.

Complications

Severe dengue fever can cause internal bleeding and organ damage. Blood pressure can drop to dangerous levels, causing shock. In some cases, severe dengue fever can lead to death. Women who get dengue fever during pregnancy may be able to spread the virus to the baby during childbirth. Additionally, babies of women who get dengue fever during pregnancy have a higher risk of pre-term birth, low birth weight or fetal distress.

Prevention:

1- Vaccine: In areas of the world where dengue fever is common, one dengue fever vaccine (Dengvaxia) is approved for people ages 9 to 45 who have already had dengue fever at least once. The vaccine is given in three doses over the course of 12 months. The vaccine is approved only for people who have a documented history of dengue fever or who have had a blood test that shows previous infection with one of the dengue viruses — called seropositivity. In people who have not had dengue fever in the past (seronegative), receiving the vaccine appears to increase the risk of severe dengue fever and hospitalization due to dengue fever in the future.

2- Prevent mosquito bites: The World Health Organization stresses that the vaccine is not an effective tool on its own to reduce dengue fever in areas where the illness is common. Preventing mosquito bites and controlling the mosquito population are still the main methods for preventing the spread of dengue fever.

Sources: <https://www.mayoclinic.org/diseases-conditions/dengue-fever/symptoms-causes/syc-20353078>

Real Enquiries

At the “Drug Information Center” we respond to enquiries from the professional health team as well as from others. Here’s one of the enquiries received at the center

Enquiry received from: T.E. - Assiut

Enquiry: I’m taking rosuvastatin and have been feeling some muscle aches. I’m aware that statins cause myopathy but I can't stop the drug. What are the symptoms of myopathy and is there anything to do to overcome this problem? I already switched before from a statin that cause dysglycemia.

Summary of the answer:

Statin play a vital role in the prevention of atherosclerotic cardiovascular complications, and statin therapy continues to be a mainstay in treating patients with dyslipidemia.

However, statin- associated myopathy affects up to 10% of patients receiving statin therapy. Although considered a minor adverse effect, it may have a significant effect on patient adherence to statin therapy. While some patients may elect to discontinue therapy after counseling their health care provider, many patients may be able to continue statins with proper management of adverse effects.

Statin induced myalgia and myopathy typically present clinically as proximal, symmetric muscle weakness and/or soreness. There may be muscle tenderness and there may be functional impairment such as difficulty raising the arms above the head, arising from seated position, or climbing stairs; these symptoms are often described as fatigue or tiredness by the patient. Less often the discomfort is asymmetric. Other reported symptoms include cramping (including nocturnal cramping) and tendon pain. Some patients, but not all, have elevations in serum CK. The ability to cause muscle injury appears to vary among the different statins. Myositis has been described in less than 0.5 percent overall. Primarily occurring at high doses. With simvastatin for example, the incidence in clinical trials, in which patients were carefully monitored and some drug interactions excluded, was 0.02 % at 20mg/day, 0.07 % at 40 mg/day and 0.3 % at 80 mg/day.

The risk of myopathy appears to be lowest with Fluvastatin. Pravastatin also appears to have a low risk of myopathy; the safety of pravastatin (40 mg/day) was confirmed in an analysis of more than 112.000 in three large controlled trials. The incidence of serum CK elevations was not different from placebo, and there were no cases of confirmed clinical myositis or rhabdomyolysis. Increase in HbA1c and fasting blood glucose has been reported with both fluvastatin and pravastatin; however, the benefits of statin therapy far outweigh the risk of dysglycemia.

Sources:

1. WWW.uptodate.com/contents/pravastatin-drug-information?source=see_link1
2. WWW.medscape.com/viewarticle/759844_8
3. www.dynamic.com/topics/dmp~AN~T361018/Statins-and-myopathy-Overview
4. McEvoy G K. AHFS Drug Information Essentials. Bethesda: American society of Health-system pharmacists.

Test Your Knowledge



- 1. An advantage of amoxicillin over ampicillin is that it:**
 - a) Is more acid stable.
 - b) doesn't cause allergies
 - c) has broader spectrum.
 - d) has a longer shelf
- 2. Infliximab is used to treat:**
 - a) hay fever.
 - b) vertigo.
 - c) drug allergies.
 - d) Crohn's disease.
- 3. Which of the following is (are) symptomatic of ketoacidosis?**
 - a) Dry skin.
 - b) Acetone breath
 - c) Excitation.
 - d) a&b.
- 4. Bile acids are synthesized from:**
 - a) cholesterol.
 - b) fatty acids.
 - c) acetic acids.
 - d) oxalic acids.

Ask the expert

Question: Rebound Nasal Congestion (Rhinitis Medicamentosa), how to relieve it?

Rebound congestion can be a frustrating condition to deal with, but there are various ways to alleviate the symptoms. The most effective approach is to stop using the decongestant spray that triggered the condition in the first place. You might discover, however, that once you stop using the decongestant, you may experience an initial worsening of symptoms before they start to improve. This is because the blood vessels in your nasal passages have become reliant on the decongestants, and it takes some time for them to return to their normal state.

In addition to discontinuing the use of nasal decongestants, your doctor may recommend using saline sprays or rinses to help reduce nasal congestion. These natural remedies can help soothe the inflammation and congestion in your nasal passages. Finally, it's also important to avoid irritants such as smoke, pollution, and strong odors, as these can exacerbate the symptoms of rebound congestion. Taking steps to reduce your exposure to irritants, such as not smoking and staying away from pollutants, can help improve your overall nasal health and reduce your risk of developing rebound congestion in the future.

Answers:

1. **(a)** The only advantage is that amoxicillin is not easily destroyed by stomach acid.
2. **(d)** Infliximab is monoclonal antibody that was approved by FDA in 1998 for the treatment of rheumatoid arthritis and Crohn's disease.
3. **(d)** Acetone breath and dry skin are classical symptoms of diabetic ketoacidosis.
4. **(a)** The primary bile acids (cholic acid and chenodeoxycholic acid) are synthesized from cholesterol in the liver.