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Protecting yourself and your family from respiratory viruses



Headache, exhaustion, fever, a runny nose: influenza or 'the flu' may seem like just a bad cold. The worst is usually over in a week. But influenza and flu-like viruses can also make people very sick, especially the very young and the very old. These germs infect the airways or respiratory (breathing) system, and so they are called respiratory viruses or respiratory tract infections. All year round, but more so in autumn and winter, hundreds of viruses that cause influenza or flu-like illness can be circulating. New strains of influenza virus develop too, and sometimes these can be dangerous.

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New forms of these viruses can spread particularly quickly. Because these respiratory infections are generally caused by viruses and not bacteria, antibiotics will usually not cure them. You can read more about options for treating influenza and other respiratory infections in our feature (URL:

<http://www.informedhealthonline.org/influenza.249.56.en.html>)

. However, treatments will not usually be very effective. This is because the viruses change so much from year to year and there are so many of them, which means that the few drugs that are available usually don't target the exact virus causing the illness. It is hard to develop medicines and vaccines that can be sure to work against such a moving target. On top of that, people will often be sick because of more than one respiratory virus at the same time.

So the basic strategy is to protect yourself from all respiratory infections at once - and to try to stop spreading your infection to others if you do get sick. There are several good ways to cut down the risk of you and other family members getting infected. One of the main things to remember in flu season? Wash your hands often and keep them away from your face. It is simple, but effective. We explain why and what else you can do below.

How do influenza and other respiratory viruses spread?

If you are infected with a respiratory virus like those that cause flu, every time you cough or sneeze, you spray droplets on the things and people close to you. These droplets are full of the virus. When you blow your nose, or touch your nose and mouth, you spread the virus to your tissue and hands. From there, the virus also spreads to the things you touch.

These viruses stay on the surface of things we all touch (like door handles and drinking glasses). When someone else touches them, and then touches their face, the virus can enter their body through the nose or mouth and make them

ill too. Drinking from the same bottle or glass can easily spread it too. Shaking hands with someone, hugging and kissing are other potential infection routes. While not all other kinds of viruses are spread in this way, this is how colds and flu pass from person to person.

Because it is so easy for people to get infected, an outbreak of influenza can quickly turn into an epidemic that could even affect up to 50% of the community. If there is a big flu epidemic around the world, it is called a pandemic. Outbreaks, epidemics and pandemics are more likely when there is a new flu virus. This is because people have not yet had a chance to build up immunity against the new virus.

What about influenza vaccines?

To be effective, influenza vaccines need to be given several months before the "season" starts - so, usually around October or November in Europe. However, it is not always possible to predict what virus is most likely to infect people so far ahead that large quantities of exactly the right vaccine can still be manufactured in time. An international group of experts gathered together by the World Health Organization uses data to estimate which vaccine has the highest chance of working for the upcoming season in the northern hemisphere. In the years when there is an exact match between the type of vaccine prepared and the types of virus that spread, the vaccine is very effective. Nowadays that is usually the case. But if another virus is the main problem, then the vaccine will be less effective. The result: vaccination can be more effective in some years than others.

On average, trials of influenza vaccine show that it can reduce pneumonia and the number of hospital admissions in older people living in nursing homes, but the effect in people living at home is not as high. Overall, the best estimate researchers can make is that vaccines might reduce influenza by 50 to 80% in healthy adults. In any one season, most people's chances of getting influenza are quite low. A 50% reduction would mean that out of people who only had a 2% chance of getting influenza, 1% will get ill if they are immunised: 1 out of 100 will be ill, instead of 2 out of 100. If 20% of people get influenza that year, only 10 out of 100 immunised people will get ill (instead of 20 out of 100 people who are not immunised).

In Germany, the USA and many other countries, authorities recommend vaccination for certain groups of

people. These include older people, people with particular chronic diseases and those who care for people at high risk of being infected with influenza and of being harmed by influenza (for example, people who work in nursing homes). The German Standing Immunisation Committee (STIKO) in Berlin recommends that people get vaccinated before the influenza season starts, so by early November at the latest in the northern hemisphere. Vaccination in the middle of winter could still help if there is a big outbreak of influenza in late winter.

There are several different types of vaccines. Some are injections, and there are also nasal sprays. Injections contain inactivated vaccines, which means that even though they are made from the virus, no "live" part of the virus remains so that the vaccine itself cannot cause infection. Nasal sprays are usually so-called "live attenuated" vaccines. This means that the virus has been made much less infective than the real virus, but it is not completely inactive. Live attenuated influenza vaccines (including nasal sprays) are not available in Germany.

Do antiviral influenza drugs help stop the viruses from spreading?

Taking one of the more recent antiviral influenza drugs, oseltamivir (trade name Tamiflu) or zanamivir (trade name Relenza), if someone close to you definitely has influenza might prevent you becoming ill. You would probably still be just as contagious, though, as someone who is not taking the drugs. Both of the drugs have to be prescribed by a doctor. You can read more about the research testing antiviral flu drugs in adults here (URL: <http://www.informedhealthonline.org/index.322.en.html>).

The most common adverse effect of these influenza drugs is nausea, which occurs in 1 out of 20 people who take them to prevent infection. At doses above 75 mg per day, a higher proportion of people could feel nauseous. Tamiflu and Relenza cause fewer adverse effects than the "old" antiviral drugs. Those older drugs are amantadine (trade name Symmetrel) and rimantadine (trade name Flumadine, not on the market in Germany). They are not routinely used.

Tamiflu is a tablet and Relenza is a dry powder that is taken using an oral inhaler (which means it is inhaled through the mouth, not the nose). Tamiflu is not licensed for use in babies under 1 year old, and Relenza is not licensed for use in children under 5 years old. The US FDA is currently investigating safety concerns that have recently arisen again regarding the use of these products in children. The

European Medicines Agency EMA is also investigating.

Some people think that antibiotics will help. But antibiotics only work against bacteria and they do not work against viruses that cause the flu. In other words, they only help if you have a bacterial infection of the airways on top of the viral infection. Antibiotics will not make a person with influenza less contagious.

What are the best ways to stop respiratory viruses spreading?

Infection control for this kind of virus involves trying to stop the virus-containing droplets being spread from one person to another. This means you need to:

- wash your hands often - you do not need special antibacterial soap or solution: plain water and normal soap is enough.
- keep your hands away from your face - the most likely way to become infected is by touching your mouth or nose after touching something with the virus on it.
- avoid drinking out of the same cups or bottles as other people.

If you have a respiratory virus, it could help if you also:

- cover your nose and mouth when you cough or sneeze, ideally with a tissue.
- dispose of handkerchiefs and tissues properly - do not leave them lying around for other people to touch. Wash your hands after touching them yourself too. It is better to use tissues rather than handkerchiefs, and to throw them away immediately after use.
- avoid touching other people's hands, hugging or kissing other people while you are contagious.

People who have the flu are contagious:

- one day before they start feeling ill,
- for the whole time that they have symptoms and
- for about 5 days after. This last point is true for adults. Children are sometimes still contagious for about a week after their symptoms go away.

If you have the flu, reducing how many people you are in contact with - for example, by working at home if you can - might also help reduce the number of people you infect.

Small children are some of the people most at risk of getting complications from influenza and other respiratory viruses. As well as that, they are perhaps the main way that respiratory viruses spread. This is possibly because they are less able to be hygienic themselves and they put a lot of things in their mouths. They also get very close to each other and have a lot of physical contact with lots of people. This means that people who live with small children need to teach them about hygiene and washing their hands, wiping their noses often and so on. Adults need to supervise the hygiene of very small children in respiratory virus outbreaks.

What happens if there is an outbreak of swine flu, avian flu or another kind of flu epidemic?

If there is an outbreak of influenza, the newer antivirals (Tamiflu and Relenza) are likely to be used both as prevention and treatment, although we cannot be certain how much they might be able to help.

Wearing face masks might be able to reduce the risk of these kinds of infections spreading if you are close to someone who is very contagious with a dangerous form of influenza like avian influenza. The most important and effective thing to do if there is an outbreak of influenza of any type is to lower your chance of either getting, or spreading, the virus by using the basic anti-infection strategies listed above. The main thing is: wash your hands often. In studies done during the SARS epidemic in 2002 and 2003, when people washed their hands more than 10 times a day, it appears to have made a big difference in how much the disease spread.

This additional information has been provided by the U.S. National Library of Medicine:

In the U.S., Live Intranasal Influenza Vaccine (LAIV) is given as a nasal spray. It can be used for healthy people 2-49 years of age who are not pregnant.

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Glossary

antibiotics

Antibiotics are medicines that can be used for bacterial and some fungal infections. Antibiotics do not work against viruses. Well-known antibiotics include penicillin, tetracycline and chloramphenicol.

bacteria

Bacteria are micro-organisms that, unlike viruses, can exist on their own. Viruses, on the other hand, can only exist inside a living cell. Most bacteria are not harmful to people, and some are actually beneficial. Bowel bacteria support bowel health. However if they get into the urinary system, they can cause an infection there. Doctors prescribe antibiotics for illnesses where bacteria need to be stopped or killed off. Immunisation is also possible against some bacterial infections, such as diphtheria, tetanus or whooping cough.

infection

In medicine, we speak of an infection when a person has caught a germ (an infectious agent). This germ can be a bacterium, a virus, a fungus or a worm. The germ multiplies and then either spreads throughout the body or only attacks one particular organ. As long as there are no signs of a disease, this is called an asymptomatic infection. When the body shows a reaction to the germ in the form of symptoms, this is called a symptomatic infection (an infectious disease). The period between the moment the germs enter the body and the moment the first symptoms of the disease appear, is called the incubation period. It may last a few hours or days, or even many years. An infection does not necessarily have to lead to the onset of a disease.

vaccination

Vaccination involves stimulating the body's production of antibodies to a particular virus or bacteria, so that the person has increased resistance if they are exposed to the real infection. A vaccine aims to launch the body's defence system, without actually causing the disease. Depending on the vaccine, it could take some time after vaccination to develop immunity. With most vaccines, more than one vaccination is needed. Sometimes the immunity from a vaccine lessens over time. That means there are some types of vaccination that need be repeated after a few years to stay active. There are several types of vaccines. Some

vaccines are "inactivated" or "killed", which means that even though they are made from a virus, for example, no "live" part of the virus remains. That means the vaccine itself cannot cause infection. Other vaccines are "live attenuated vaccines". This means that the virus has been made so much less infective than the real virus, that it should not be able to cause symptoms.

virus

Viruses are germs that enter living cells (plant, animal or human cells) to multiply. Viruses cause illnesses and diseases such as smallpox, influenza, colds, hepatitis, herpes and AIDS.

pneumonia

Pneumonia ("pneu" is of Greek origin and means "breeze") is the medical term for an inflammation of the lung. It can be caused by viruses, bacteria or fungi that pass through the upper airways to get into the lung. It is a disease that more commonly affects old and very young people and other persons with a weak immune system. The symptoms include coughing up sputum, breathlessness, chest pain and fever. Breathing is rapid and can be accompanied by crackling or rattling noises.

Sources

IQWiG health information is based on research in the international literature. We identify the most scientifically reliable knowledge currently available, particularly so-called “systematic reviews”. These summarise and analyse the results of scientific research on the benefits and harms of treatments and other health care interventions. This helps medical professionals and people who are affected by the medical condition to weigh up the pros and cons. You can read more about systematic reviews and why these can provide the most trustworthy evidence about the state of knowledge here (URL: <http://www.gesundheitsinformation.de/evidence-based-medicine.61.en.html>) . The authors of the major systematic reviews on which our information is based are always approached to help us ensure the medical and scientific accuracy of our products.

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The German Institute for Quality and Efficiency in Health Care (IQWiG)

The German Institute for Quality and Efficiency in Health Care (IQWiG) was established by legislation to provide evaluations of the effectiveness, quality and efficiency of healthcare services. This includes the assessment of medicines as well as the publication of health information for consumers and patients.

Evidence basis of our health information

Our information is based primarily on systematic reviews of the effects of health care. Systematic reviews are necessary to gain an objective picture of health care. In order to do this, a clear question is formulated. Researchers then find all the relevant studies that could answer this question. They then evaluate those studies.

You can find a list of the evidence and other scientific literature on which this information is based at [**www.informedhealthonline.org**](http://www.informedhealthonline.org)

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