

Some Facts and Theories about Flu

The flu, more properly known as influenza, takes its name from the fact that it is so easily transmitted from person to person (influenza is the Italian word for 'influence'). Usually, contamination occurs through direct contact with secretions from an infected person. Its spread is also possible from contaminated airborne particles, such as those that occur when someone coughs or sneezes. However, it should be made clear that the risk is not great from simply being in the same room as an infected person, since the flu virus, unlike other respiratory viruses, does not dissolve in the air. Within 4-6 hours of someone catching the flu, the virus multiplies in infected cells and the cells burst, spreading the virus to other cells nearby.

The spread continues for up to 72 hours, the exact length of time depending on the body's immune system response and the strength of the particular strain of flu. The range of human responses to the flu virus has been of interest to scientists for many years. This is because the effect can vary from no infection to a rapid and deadly spread of the virus to many people. One area of study that has received particular attention is the immune system response of the individual. Where a person's immune system is healthy, the virus is attacked as it enters the body, usually in the respiratory tract. This lessens the severity of the illness. In contrast, people with compromised immune systems (typical in the young, where it is not fully developed, or in the old and the sick, where it is not working efficiently), often suffer the worst effects.

One of the body's responses to flu is the creation of antibodies which recognise and destroy that particular strain of flu virus. What fascinates most researchers in the field is that the human body seems capable of storing these antibodies over a whole lifetime in case of future attack from the same or similar strains of flu. It was while researching these antibodies that scientists turned their attention back to what was possibly the worst ever flu pandemic in the world. The actual number of deaths is disputed, but the outbreak in 1918 killed between 20 and 50 million people. It is also estimated that one fifth of the population of the world may have been infected.

Through tests done on some of the survivors of the 1918 outbreak, it was discovered that, 90 years later, they still possessed the antibodies to that strain of flu, and some of them were actually still producing the antibodies. Work is now focused on why these people survived in the first place, with one theory being that they had actually been exposed to an earlier, similar strain, therefore developing immunity to the 1918 strain. It is hoped that, in the near future, we might be able to isolate the antibodies and use them to vaccinate people against further outbreaks.

Yet vaccination against the flu is an imprecise measure. At best, the vaccine protects us from the variations of flu that doctors expect that year. If their predictions are wrong in any particular year, being vaccinated will not prevent us from becoming infected. This is further complicated by the fact that there are two main types of flu, known as influenza A and influenza B. Influenza B causes less concern as its effects are usually less serious. Influenza A, however, has the power to change its genetic make-up. Although these genetic changes are rare, they create entirely new strains of flu against which we have no protection. It has been suggested that this is what had happened immediately prior to the 1918 outbreak, with research indicating that a genetic shift had taken place in China.

In 2005, another genetic shift in an influenza A virus was recorded, giving rise to the H5N1 strain, otherwise known as avian flu, or bird flu. Typical of such new strains, we have no way of fighting it and many people who are infected with it die. Perhaps more worrying is that it is a strain only previously found in birds but which changed its genetic make-up in a way that allowed it to be transmitted to humans. Most of the fear surrounding this virus is that it will change again, developing the ability to pass from human to human. If that change does happen, scientists and doctors can reasonably expect a death rate comparable to that which occurred in 1918 and, given that we can now travel more quickly and more easily between countries, infecting many more people than was previously possible, it could be several times worse.

Solution:

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|--------------|-----------------------------|
| 1. FALSE | 8. C |
| 2. NOT GIVEN | 9. B |
| 3. TRUE | 10. C |
| 4. TRUE | 11. A |
| 5. NOT GIVEN | 12. (the) respiratory tract |
| 6. FALSE | 13. human to human |
| 7. TRUE | |