



Name: _____

Date: _____

Level 6 Mock Paper 18 – A New Antibiotic? (Answers)

Read the passage carefully and answer the following questions in complete sentences.

A New Antibiotic?

Antibiotics are medicines given to people who are feeling unwell from a bacterial infection. They destroy infections in our bodies by seeking out bacteria and breaking them down. However, they're not effective against viruses. The discovery of the antibiotic penicillin in 1928 by Alexander Fleming made an enormous impact on human history. Not only did it lead to a cure for bacterial infections that were once deadly, but it also sparked an interest in finding new antibiotics. Since the discovery of penicillin, hundreds of other antibiotics have been found and used to treat a range of illnesses, from pneumonia to skin infections.

However, as a result of people taking antibiotics too often, many infections have stopped responding to medication. This has led to the spread of a number of nasty infections known as 'superbugs', which are resistant to antibiotics. For example, MRSA is a bacterium that causes severe infections in different parts of the body. It is difficult to treat because it is resistant to many common antibiotics. MRSA is particularly dangerous because it spreads easily by skin-to-skin contact or by touching objects that have become infected with MRSA bacteria. Luckily there are still a few antibiotics that it hasn't yet developed resistance to, but specialists worry that in future MRSA may become immune to these treatments, too. The World Health Organisation warned last year that even basic healthcare could become highly dangerous by the end of the century unless something drastic is done to find new antibiotics.

Consequently, there was a lot of excitement surrounding the discovery of a new antibiotic, *teixobactin* (T), in 2015. T was found in a sample of soil, and it kills serious infections in mice without encountering any resistance. Researchers are hopeful that it will offer a new way to stay ahead of dangerous superbugs. Antibiotic-resistant infections already kill 700,000 people each year and these numbers are expected to rise. So this discovery is incredibly exciting.

However, experts urge caution. Although researchers said they didn't see signs of poisoning in the mice treated with T, antibiotics that work in mice are often toxic in humans. 'Moving beyond mice

to men and women is a big step, and many drugs have failed when taken beyond the mouse level.’ Dr. Smith, an infectious disease specialist, told the New York Times. It is hoped that trials, in which the drug will be tested on humans, will begin in 2018. However, although the research has not been especially costly so far, the team will need significant funding to make the drug available to doctors and hospitals. Even if everything goes perfectly, T won’t be available in hospitals for at least three years after the start of the human trials. Also, it will be more expensive than generic antibiotics and will likely take the form of an injection, not a pill.

1. How does penicillin work?

It is an antibiotic that destroys infections in our bodies that are caused by bacteria.

2. Why was there an increase in people looking for antibiotics after 1928?

This was because in 1928 Alexander Fleming discovered penicillin and his discovery cured bacterial infections that were once deadly. So people became interested in finding new antibiotics.

3. Why might a hospital with lots of patients be especially worried about MRSA?

This is because it spreads easily by skin-to-skin contact and also by touching objects that have become infected with MRSA bacteria. It is difficult to treat with common antibiotics.

4. Where did this discovery come from?

- a. an antibiotic
- b. skin
- c. some soil
- d. a mouse

5. How many people do scientists think will die from antibiotic-resistant infections each year in future?

More than 700,000 people.

6. Give two reasons why T might never be used to treat patients.

It might be toxic to humans, as so far it has only been tested on mice. Also, the team working on T will need to get significant funding if the drug is ever to be made available to doctors and patients.

7. What is the first year in which T could become available to the public?

In 2023, which is three years after the start of the clinical trials in 2018.