

DIRECTIONS. Choose the correct option to answer the questions.

PASSAGE 3

History of the Chickenpox Vaccine

Chickenpox is a highly contagious infectious disease caused by the Varicella zoster virus; sufferers develop a fleeting itchy rash that can spread throughout the body. The disease can last for up to 14 days and can occur in both children and adults, though the young are particularly vulnerable. Individuals infected with chickenpox can expect to experience a high but **tolerable** level of discomfort and a fever as the disease works its way through the system. **The ailment was once considered to be a “rite of passage” by parents in the U.S. and thought to provide children with greater and improved immunity to other forms of sickness later in life.** This view, however, was altered after additional research by scientists demonstrated unexpected dangers associated with the virus. Over time, the fruits of this research have transformed attitudes toward the disease and the utility of seeking preemptive measures against it.

A vaccine against chickenpox was originally invented by Michiaki Takahashi, a Japanese doctor and research scientist, in the mid-1960s. Dr. Takahashi began his work to isolate and grow the virus in 1965 and in 1972 began clinical trials with a live but weakened form of the virus that caused the human body to create antibodies. Japan and several other countries began widespread chickenpox vaccination programs in 1974. However, it took over 20 years for the chickenpox vaccine to be approved by the U.S. Food & Drug Administration (FDA), finally earning the U.S. government's seal of approval for widespread use in 1995. Yet even though the chickenpox vaccine was available and recommended by the FDA, parents did not immediately choose to vaccinate their children against this disease. Mothers and fathers typically cited the **notion** that chickenpox did not constitute a serious enough disease against which a person needed to be vaccinated.

Strong belief in that view eroded when scientists discovered the link between Varicella zoster, the virus that causes chickenpox, and shingles, a far more serious, harmful, and longer-lasting disease in older adults that impacts the nervous system. They reached the conclusion that Varicella zoster remains dormant inside the body, making it significantly more likely for someone to develop shingles. As a result, the medical community in the U.S. encouraged the development, adoption, and use of a vaccine against chickenpox to the public. Although the appearance of chickenpox and shingles within one person can be many years apart—generally many decades—the increased risk in developing shingles as a younger adult (30-40 years old rather than 60-70 years old) proved to be enough to convince the medical community that immunization should be preferred to the traditional alternative.

Another reason that the chickenpox vaccine was not immediately accepted and used by parents in the U.S. centered on observations made by scientists that the vaccine simply did not last long enough and did not confer a lifetime of immunity. In other words, scientists considered the benefits of the vaccine to be temporary when given to young children. They also feared that it increased the odds that a person could become infected with chickenpox later as a young adult, when the rash is more painful and prevalent and can last up to three or four weeks. Hence, allowing young children to develop chickenpox rather than take a vaccine against it was believed to be the “lesser of two evils.” This idea changed over time as **booster shots** of the vaccine elongated immunity and **countered** the perceived limits on the strength of the vaccine itself. Today, the use of the chickenpox vaccine is common throughout the world. Pediatricians suggest an initial vaccination shot after a child turns one year old, with booster shots recommended after the child turns eight. The vaccine is estimated to be up to 90% effective and has reduced worldwide cases of chickenpox infection to 400,000 cases per year from over 4,000,000 cases before vaccination became widespread. In light of such statistics, most doctors insist that the potential risks of developing shingles outweigh the benefits of avoiding rare complications associated with inoculations. Of course, many parents continue to think of the disease as an innocuous ailment, refusing to take preemptive steps against it. As increasing numbers of students are vaccinated and the virus becomes increasingly rarer, however, even this trend among parents has failed to halt the decline of chickenpox among the most vulnerable populations.

1. The word **tolerable** in the passage is closest in meaning to
 - A. Sudden
 - B. Bearable
 - C. Infrequent
 - D. Unexpected
2. According to paragraph 1, which of the following is true of the chickenpox virus?
 - A. It leads to a potentially deadly disease in adults.
 - B. It is associated with a possibly permanent rash.
 - C. It is easily transmittable by an infected individual.
 - D. It has been virtually eradicated in the modern world.
3. Which of the following options best expresses the essential information in the sentence: "**The ailment was once considered to be a <rite of passage>by parents in the U.S. and thought to provide children with greater and improved immunity to other forms of sickness later in life**" (Paragraph 1)
 - A. U.S. parents believed that having chickenpox benefited their children.
 - B. U.S. parents believed that chickenpox led to immunity against most sicknesses.
 - C. U.S. parents wanted to make sure that their children developed chickenpox.
 - D. U.S. parents did not think that other vaccinations were needed after chickenpox.
4. Which of the following can be inferred from paragraph 2 about the clinical trials for the chickenpox vaccine?
 - A. They took longer than expected.
 - B. They cost a lot of money to complete.
 - C. They took a long time to finish.
 - D. They were ultimately successful.
5. The word **notion** in the passage is closest in meaning to
 - A. History
 - B. Findings
 - C. Fact
 - D. Belief
6. According to paragraph 3, which of the following is true of Varicella Zoster?
 - A. It typically attacks adults who are over 60 years old.
 - B. It is linked to a serious disease that occurs more commonly in adults.
 - C. It likely is not a serious enough threat to human health to require a vaccine.
 - D. It is completely eradicated from the body after chickenpox occurs.
7. According to paragraph 3, all of the following is true about the chickenpox virus **EXCEPT:**
 - A. It causes two distinct yet related ailments.
 - B. People did not view it as a serious public health threat.
 - C. It tended to quickly become dormant and remain inoperative over time.
 - D. Vaccination against it would help prevent the onset of shingles.
8. The author uses **booster shots** as an example of
 - A. a scientifically approved medicine to eliminate chickenpox.
 - B. a preferred method of chickenpox rash and fever treatment.
 - C. a way to increase the effectiveness of the chickenpox vaccine.
 - D. a strategy for parents to avoid vaccinating their children altogether.
9. The word **countered** in the passage is closest in meaning to
 - A. Affirmed
 - B. Refuted
 - C. Supported
 - D. Defied
10. According to paragraph 4, many parents did not choose the chickenpox vaccine because
 - A. they believed that the virus was weak and not especially harmful.
 - B. they thought that scientists did not have enough data to reach a conclusion.
 - C. they were unsure about the utility of the vaccine given its expected duration.
 - D. they were convinced it was potentially very toxic, particularly for older children.
11. According to paragraph 5, which of the following was true of the rates of chickenpox before the chickenpox vaccine became widely used?
 - A. it was 10 times higher
 - B. it was consistently rising
 - C. it declined over time
 - D. it fluctuated over several decades
12. The word prevalent in the passage is closest in meaning to
 - A. dangerous
 - B. widespread
 - C. infectious
 - D. contaminated