

Final Push

By Kirsten Weir

Can doctors succeed in an effort to wipe out a deadly disease?

If you were the richest person in the world, how would you spend your money? Bill Gates, the hyper-wealthy founder of Microsoft, has donated more than a billion dollars to the fight against polio. Gates doesn't just want to treat people suffering from the crippling illness. He intends to *eradicate* it—to wipe it off the face of the planet forever.



AP Images
Bill Gates

Recently, though, some critics have spoken out against Gates's efforts. They argue that he would do more good by focusing his energy—and his checkbook—on other causes, such as the effort to control *malaria*, a deadly parasitic disease that kills an estimated 1 million people every year.

Gates isn't backing down. Polio eradication is within reach, he argues. To be sure, ridding the world of polio is a huge challenge. But Gates and others say there are good reasons to hold out hope.

Last Strongholds

Polio was once a global disease. At its peak in 1952, nearly 58,000 Americans were stricken. More than 3,000 died, and 21,000 were left paralyzed.

Then, in 1955, scientists developed the first successful *vaccine* for polio. A vaccine is a drug that stimulates the body's immune system to recognize and attack a particular pathogen. Within two years of the vaccine's

introduction, polio cases in the United States fell 85 to 90 percent. By 1979, the virus had been completely eliminated from the country.



Ahmad
Masood/Landov/Reuters
A polio patient wearing a
leg brace

Elsewhere, polio raged on. In 1988, the World Health Organization (WHO) launched an international project, the Global Polio Eradication Initiative (GPEI), to wipe out the virus by vaccinating children around the globe. The WHO has many partners in the project, including the Bill and Melinda Gates Foundation. When the project started, outbreaks were occurring in more than 125 countries and paralyzing more than 350,000 kids each year.

The vaccination effort has paid off. Today, polio remains *endemic* (native) to just four countries: India, Pakistan, Afghanistan, and Nigeria. Wiping out the disease in those final strongholds has been tough, says Carol Pandak, the manager of polio eradication at Rotary International, another GPEI partner. Huge populations, unsanitary conditions, reluctant governments, and warfare make it difficult to vaccinate children in the areas where polio remains. "The challenges we're facing are complex," she says.

Heroic Measures

Initially, the eradication project aimed to abolish polio by 2000. Eleven years and \$8 billion later, the virus stubbornly hangs on. Critics argue that health organizations have already spent too much on a losing battle. Many say that money being used on polio would be better spent fighting more widespread diseases. The editor of *The Lancet*, a top medical journal, recently tweeted: "Global health does not depend on polio eradication."

Gates is a determined, persuasive man, however. At least one of his prominent critics has had a change of heart. In the 1970s, Donald Henderson led the WHO's program to eradicate *smallpox*, a deadly viral disease that has been called history's greatest mass murderer. Thanks to a global vaccination campaign, smallpox was eradicated in 1979. It's the only disease ever to be wiped out by humans. Despite that success, Henderson long believed polio couldn't be eradicated, partly because of the nature of the vaccine.

Two kinds of polio vaccine exist. One is injected; the other is given as liquid drops on the tongue. Vaccination campaigns use the oral vaccine because it's cheaper and easier to administer. Unlike the injected vaccine, it also prevents person-to-person spread of the virus. But the oral vaccine must be refrigerated and requires multiple doses. The rural or war-torn places where polio still thrives often lack the electricity needed to keep vaccines chilled. In addition, health workers have a hard time reaching and revaccinating the affected children because their families are often very mobile.

Because of those challenges, Henderson was once a vocal critic of polio eradication. Last spring, however, he sat down with Gates and other global health experts. The meeting changed his mind. Henderson now believes Gates's enthusiasm and commitment are powerful enough to overcome the remaining challenges. "It's going to take heroic measures to be able to stop [polio]," he admits. "But they have the motivation, the people, and the resources. With enough of a push, they might just make it."

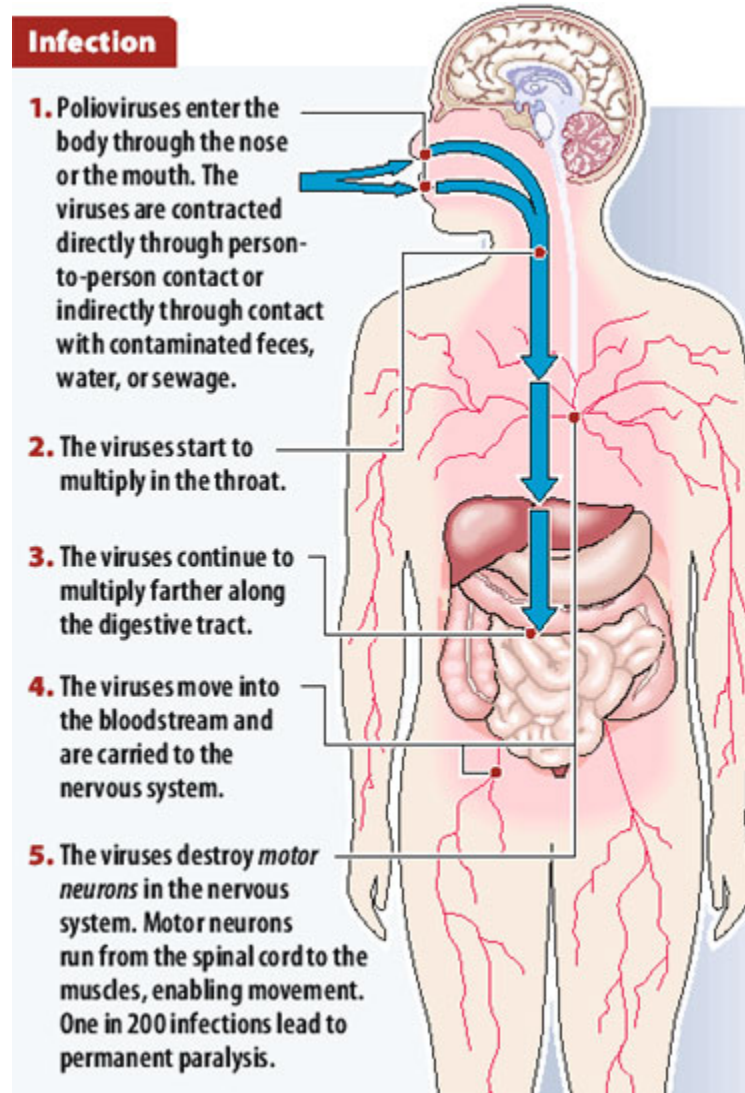
There are reasons to be optimistic. Between 2009 and 2010, cases fell by 95 percent in Nigeria and 98 percent in India. Much of that success is due to political support in those countries, says Pandak. But Gates may deserve some credit. Well respected around the world, he traveled to Nigeria to meet with government leaders and promote vaccination.

For supporters of eradication, quitting now would be like running a marathon and stopping 10 feet short of the finish line. If vaccination programs were scaled back, outbreaks could quickly flare up in countries around the world, Pandak says. "It would be a tragedy of hundreds of thousands of children every year being paralyzed again."

Gates and his partners have no intention of quitting. "We are so close," he wrote in a public letter released by his foundation in 2011, "but we have to finish the last leg of the journey."

Stop Motion

Polio is a highly infectious disease caused by a virus that can destroy part of the nervous system, resulting in paralysis in a matter of hours.



AFP/Newscom

Symptoms

Nonparalytic polio:

Most patients contract this form of polio, which may last for one to two weeks.

- moderate fever
- diarrhea
- excessive tiredness

- vomiting
- muscle tenderness and spasms

Paralytic polio:

This form of polio is deadly when it immobilizes the breathing muscles.

- headache
- stiff neck and back
- difficulty urinating, swallowing, and breathing
- abnormal sensations in an area
- rapid onset of muscle weakness that may lead to paralysis

Name: _____ Date: _____

1. All of the following are reasons why polio could be difficult to wipe out, EXCEPT

- A polio is a highly infectious disease caused by a virus
- B unsanitary conditions and warfare make it difficult to vaccinate children
- C between 2009 and 2010, cases fell by 95 percent in Nigeria
- D if vaccination programs are scaled back, outbreaks could flare up in many countries

2. Read these two sentences from the passage:

"Bill Gates, the hyper-wealthy founder of Microsoft, has donated more than a billion dollars to the fight against polio. Recently, though, some critics have spoken out against Gates's efforts."

Which of the following describes the relationship between these two sentences?

- A The first sentence agrees with the second sentence.
- B The second sentence argues against the first sentence.
- C The second sentence gives the cause of the first.
- D The sentences describe two steps in a process.

3. Why would some critics say that working to end polio is *not* a worthwhile thing to do?

- A They don't think that polio is that important any more.
- B They believe that the money should be spent on other problems.
- C They don't think Bill Gates's money is enough to accomplish the task
- D They think that some governments have been uncooperative.

4. Read the following sentence: "In addition, health workers have a hard time reaching and revaccinating the affected children because their families are often very mobile."

In this sentence, **mobile** means

- A users of cellular phones
- B poor
- C often on the move
- D frightened to speak to doctors

5. The primary purpose of this passage is to

- A describe the history of polio
- B discuss arguments for and against Bill Gates's effort to wipe polio out
- C compare Bill Gates's efforts to wipe out polio with efforts to eliminate malaria
- D show the cause of polio and its effect

6. Why does the author say that for supporters of eradication, “quitting now would be like running a marathon and stopping 10 feet short of the finish line”?

7. The passage states that warfare is one of the problems that makes it difficult to vaccinate children in the areas where polio remains. How might war in an area affect the ability to vaccinate children?

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

It is going to take a heroic effort to eradicate polio, _____ many scientists think that the possible benefit is worth it.

- A expressly
- B sometimes
- C for example
- D however

9. Answer the following questions based on the sentence below.

Who? Donald Henderson

(did) What? _____

When? _____

Why? _____

10. **Vocabulary Word:** reluctant: unwilling, not eager.

Use the vocabulary word in a sentence: _____

Teacher Guide and Answers

Passage Reading Level: Lexile 980

Featured Text Structure: Argumentative – the writer presents evidence for both sides of an argument

Passage Summary: “Final Push” outlines the effort to eliminate the disease of polio from the earth. It reviews the work of Bill Gates and his foundation, considers some of the arguments made against Gates’s goal, and ends up suggesting that the battle could be won.

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Suggested answer: So much of the hard work of eradicating polio has already been done. When the Gates project started, there were outbreaks of the disease in more than 125 countries; now it is native to only four countries. With more effort, the project should be able to reach the finish line. [paragraph 13]

7. The passage states that warfare is one of the problems that makes it difficult to vaccinate children in the areas where polio remains. How might war in an area affect the ability to vaccinate children?

Suggested answer: When war is being fought in an area, it is unsafe for people to move about. Workers who want to vaccinate children may be unwilling to travel where there is shooting going on, and children and their families will be too frightened to go outside. [paragraph 10]

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In the 1970s, Donald Henderson led the WHO's program to eradicate *smallpox*, a deadly viral disease that has been called history's greatest mass murderer.

Who? Donald Henderson

(did) What? **led the WHO's program**

When? **in the 1970s**

Why? **to eradicate smallpox, a deadly viral disease that has been called history's greatest mass murderer**

10. **Vocabulary Word:** reluctant: unwilling, not eager.

Use the vocabulary word in a sentence: answers may vary.