

The Power of a Dime

Introduction

This lesson coordinates with the *You Are There 1955: Ending Polio* component of the *Indiana Experience* at the Eugene and Marilyn Glick Indiana History Center. In this experience, visitors are invited to become a part of the action as Eli Lilly and Company employees work to package and ship vials of Jonas Salk's polio vaccine to devastated communities nationwide. Visitors interact with assembly-line workers and learn how this Indiana company helped end America's polio panic. The curriculum is intended to provide historical context for the nationwide public health crisis of polio, the celebrated creation of the polio vaccine, and the importance of the pharmaceutical industry to Indiana's economy. The lesson may be used to prepare students for a visit to the *You Are There 1955: Ending Polio* experience or it may be used as a follow-up to a visit. In addition, the historical context and themes will be relevant to classroom instruction even if a visit is not possible. *You Are There 1955: Ending Polio* will remain open through September 14, 2013.

Overview/Description

In this lesson, students will learn about the National Foundation for Infantile Paralysis and its fund-raising campaign, the March of Dimes. Students will also explore the contributions they can make to the modern March of Dimes and Riley Hospital, organizations that promote the health of newborns and children and were very involved in providing care for polio patients in the 1940s and 1950s.

Grade Level

Elementary (grade 4)

Academic Standards

Math 4.2.2—Represent as multiplication any situation involving repeated addition.

Math 4.6.2—Interpret data graphs to answer questions about a situation.

Math 4.7.8—Make precise calculations and check the validity of the results in the context of the problem.

Social Studies 1.2.4—Describe ways that individual actions can contribute to the common good of the community. (Individuals, Society and Culture)

Social Studies 4.1.13—Identify and describe important events and movements that changed life in Indiana from the mid-twentieth century to the present.

Science and Social Studies/Historical Concepts

Polio outbreaks of the twentieth century, America's response to the polio public health crisis, and service learning.

Learning/Instructional Objectives

Students will be able to:

- Accurately calculate the cost of equipment used to treat polio patients.
- Identify the NFIP as an organization that helped polio patients and provided funding for scientists searching for a vaccine to protect against polio.
- Recognize that the NFIP became the March of Dimes
- Identify Riley Hospital for Children in Indianapolis as the primary place of treatment for Indiana's most severe cases of polio in the twentieth century.
- Organize a service project in which they raise awareness about or money for the March of Dimes or Riley Hospital Foundation.

Time Required

Two class periods

Materials Required

- Enough dimes for each student in the class to have one (you may choose to collect these at the end of the lesson or allow students to keep them)
- Copies of "The Power of a Dime" chart from the NFIP 1954 Speaker's Handbook (Courtesy, Eli Lilly and Company Archives; see page 8 of this lesson)
- Copies of the "Riley Patients in Iron Lungs" image (Courtesy, IUPUI Archives; see page 9 of this lesson)
- Copies of the "Nurse and Patient at Riley Hospital" image (Courtesy, IUPUI Archives; see page 10 of this lesson)

Background/Historical Context

Refer to the "Polio and Lilly Background Essay" for more information.

Teacher's Instructional Plan

Introduction

Introduce the lesson by distributing a dime to each student in the class. Ask students if they can identify whose profile is on the dime. [Alternately, use this dime coloring page template from the U.S. Mint: http://www.usmint.gov/kids/coinNews/circulating/10centCoin_2003_obv.pdf (accessed July 3, 2012).] Once you have established that Franklin D. Roosevelt's profile appears on the dime and that Roosevelt was the thirty-second president of the United States, ask students if they know why Roosevelt is so closely associated with the dime.

Explain to students that Roosevelt contracted polio in 1921. The disease left him paralyzed from the waist down. During his presidential campaign and his presidency, Roosevelt downplayed his physical disability, though he never attempted to hide the fact that he had suffered from polio. It was very unusual for Roosevelt to appear in photographs or in public in his wheelchair or using the leg braces he required to walk.

In 1937 Roosevelt established an organization called the National Foundation for Infantile Paralysis, whose mission was to fight polio on two fronts. This organization provided funding to polio patients to help cover the cost of their treatment and the medical equipment needed for their treatment (e.g., iron lungs, rocking beds, physical therapy, etc.). The NFIP also provided grants to scientists who were studying polio and working on finding a cure or creating a vaccine that would prevent the disease.

The NFIP raised these funds through one of the most successful fund-raising campaigns in history. Comedian Eddie Cantor suggested a fundraising campaign called the “March of Dimes,” playing off of the name for popular newsreels of the era, “March of Time.” In a radio broadcast on January 3, 1938, Cantor suggested, “The March of Dimes will enable all persons, even the children, to show our President that they are with him in this battle against this disease. Nearly everyone can send in a dime, or several dimes. However, it takes only ten dimes to make a dollar and if a million people send only one dime, the total will be \$100,000.”¹ By the end of January, a total of 2.68 million dimes (\$268,000) had been sent to the White House in support of the campaign.

The March of Dimes allowed ordinary people to provide a small donation in support of a cause that was of great concern to most Americans. It was a very successful grassroots effort, and in fact it was these small donations that added up to provide most of the funding for the scientific research into polio and treatment of polio patients.

Procedure

- Distribute copies of “The Power of a Dime” chart from the NFIP 1954 Speaker’s Handbook to students (Courtesy, Eli Lilly and Company Archives; see page 8 of this lesson). Help children to understand how each of these items may have helped polio patients by sharing with them definitions of the objects in the glossary.
- Ask students to work independently to figure out the cost in dollars of each item shown on the chart. For example, an iron lung cost 16,000 dimes in 1954. Students will need to multiply 16,000 by .10 to determine the cost in dollars. (Answer: \$1,600).
- After allowing ten minutes for students to complete their computations, gather the class together again, and ask for volunteers to answer the following questions:

¹ March of Dimes, “Eddie Cantor and the Origin of the March of Dimes” from “About Us: Heroes of the March of Dimes,” March of Dimes Web site, http://www.milesforbabies.org/24161_24234.asp (accessed July 3, 2012).

- Which item listed on the chart cost the least amount of money? (A dose of gamma globulin at \$1.50.)
 - Which item listed on the chart cost the most amount of money? (An electron microscope at \$15,000.)
 - Do students find the cost of items on the chart to be surprising? Why or why not?
 - Ask students to speculate about how costs might add up quickly for families of polio patients who needed months of care.
 - Tell students that this chart was created to help NFIP representatives encourage donations to the annual March of Dimes fund-raising campaign. Ask students to consider whether or not this chart would help convince them to donate a dime or more?
- Distribute copies of the “Riley Patients in Iron Lungs” and “Nurse and Patient at Riley Hospital” images to the students. Tell them that the first image shows children with polio receiving treatment in iron lungs. The second shows a patient receiving physical therapy to help his muscles that have been affected by polio. These patients are at Riley Hospital for Children in Indianapolis. Riley Hospital opened in 1924 through generous memorial donations by the friends of poet James Whitcomb Riley. Since its early days, Riley Hospital treated children with polio from all over Indiana. In 1935 Roosevelt came to the hospital to dedicate a hydrotherapeutic pool for children with polio. Frances Ekstam, who was a physical therapist at the hospital during the 1940s and 1950s, remembered what it was like at Riley during the years of the worst polio outbreaks:
 - “It was common to have 100 children in Riley Hospital, in addition to the polio patients staying in the Rotary Convalescent Home (another hospital area at Indiana University Medical Center).”²
 - “We had to put children in the halls, especially during the late 1940s. It wasn’t unusual for us to work for 24 hours, sometimes even two days, without stopping to sleep.”³
 - Tell students it is likely that some of the equipment such as iron lungs and rocking beds used to treat children at Riley Hospital was purchased through donations given to the March of Dimes fund-raiser held by the NFIP. Also, explain to students that even though polio is no longer a threat due to the vaccine, Riley Hospital continues to treat children with other life-threatening illnesses and conditions.

² Pamela Perry. “Polio: Enemy of Youth” *Inquiry* (Winter 1979-1980). <http://medicine.iu.edu/history/historical-resources/polio-enemy-of-youth/>, p. 1 (accessed July 5, 2012).

³ Perry, “Polio,” 3.

- Explain to students that a few years after the discovery of the polio vaccine the NFIP changed its name and its mission. Due to the effectiveness of the vaccine, it seemed that polio was well on its way to being eradicated, and that the organization could begin to focus on other concerns. In keeping with a focus on disorders and disabilities associated with infancy and childhood, Basil O'Connor, the head of the NFIP, decided to make the prevention of birth defects the organization's new mission (see glossary for definition of birth defects to share with students). O'Connor also decided to rename the organization after its well-known and very successful fund-raising campaign, the March of Dimes.
- Today, the March of Dimes works to raise funds to study birth defects, find cures for them, and help treat babies with birth defects. The organization also provides resources to help women have healthy pregnancies so that birth defects may be prevented.
- Visit the Riley Foundation and the March of Dimes Web sites for more information about how your students can get involved in supporting these organizations.
 - The Kids Caring and Sharing for Riley Hospital program encourages kids to be young philanthropists and helps Riley Hospital at the same time. So far, the Kids Caring and Sharing program has raised more than \$11 million for Riley Hospital through teacher and kid-organized and executed fund-raising programs.
(<http://kidscaringandsharing.org/>)
 - The March of Dimes encourages young people to get involved in its efforts through volunteering and fund-raising.
(<http://www.marchofdimes.com/volunteers/teamyouth.html>)
- Work with your class to organize a fund-raising or volunteer project that benefits one of these organizations or another organization that supports children's health. Students might plan a dance-a-thon or jump rope-a-thon and collect pledges to raise money for the organization of their choice. Set a goal for the amount your class wants to raise and choose a date for your event/end of the campaign. Put some students in charge of publicity for the event and assign them to create posters that can be placed around the school or fliers that can be sent home with students. Other students may work on event logistics, securing any equipment needed for the event (e.g., jump ropes, a sound system) from various teachers and departments within the school. Yet others may contact the benefiting organization to arrange for the donation. There are many roles that students can take on to make sure the event goes smoothly.
- Have individual students set a personal fund-raising goal and graph their pledges/donations toward this goal. Keep a class graph that charts the students' progress toward their overall goal. As your campaign wraps up, have students figure the percentage of total donations to the goal. Did they reach 100 percent of their goal? Did they go above and beyond? By what percentage?

Glossary

Iron Lung—A respirator that encloses the whole body except the head. The iron lung works by using bursts of high and low pressure to cause the lungs to fill with air and deflate, forcing the patient to breathe. The iron lung was used to treat polio patients who had trouble breathing.

Electron microscope—A very high-powered microscope that works by using magnetic lenses to focus beams of electrons that create a magnified image. Electron microscopes were used by scientists studying the poliovirus and working to develop a vaccine.

Physical therapy—The treatment of a physical disability, malfunction, or pain using exercise, hydrotherapy (as in a special therapy pool), massage, etc. Polio patients with paralysis received physical therapy as part of their treatment.

Rocking bed—A motorized bed that alternately raised the head and then the feet. The principle behind the bed was that when the feet were down, the internal organs were pulled down by gravity, pulling the diaphragm down with them and sucking air into the lungs, when the head was down organs were pushed against the diaphragm and air was forced out of the lungs. Usually, polio patients used rocking beds after they had some control of their breathing and could be released from the iron lung.

Research fellowship—A job doing research that has been funded by a university, foundation, or other agency. The NFIP funded research fellowships for scientists to study polio and search for a cure or vaccine.

Gamma globulin—A substance found in human blood plasma that is rich in proteins and contains antibodies that help protect the body against infectious diseases such as polio. In 1950, William Hammon, a researcher at the University of Pittsburgh, purified the gamma globulin from polio survivors. This gamma globulin contained antibodies that helped the body defend itself against polio. Although gamma globulin was effective in helping to prevent people from contracting paralytic polio and in reducing the severity of the disease in those who did contract it, it was not a practical treatment because of the shortage of blood plasma supplies. Therefore, scientists continued to search for a vaccine.

Chest respirator—Developed in 1948 by an Ann Arbor, Michigan, physician and a Chicago engineer, the chest respirator was up to 400 times lighter than the iron lung, but used the same principle of bursts of pressure forcing air into and out of the patient's lungs. It allowed the patient to use muscles that were paralyzed by the disease and to lie in a regular bed and even sit up in a wheelchair. On the downside, chest respirators were not as effective as iron lungs, and so were mainly used on patients whose breathing muscles had some function.

Birth defects—Physical, mental, or biochemical abnormalities (problems) that develop before or at birth and are present at birth. Birth defects may be the result of infection, injury, abnormal development, or a genetic problem.

Assessment

Use a teacher-developed rubric to assess student analysis of primary sources, mathematical computations, participation in class discussions, and role in organizing the benefit event.

Additional Resources

If your school is located in the Indianapolis area, you may wish to contact Don Sprinkle. Sprinkle, who contracted polio at age nine in the fall of 1954, visits schools to share his experience with polio and his time at Riley Hospital. Sprinkle's phone number is (317) 422-9250.

Publications

Panchyk, Richard. *Franklin Delano Roosevelt for Kids: His Life and Times in 21 Activities*. For Kids Series. Chicago: Chicago Review Press, 2007.

In addition to focusing on the Roosevelt presidency and his family, this book discusses Roosevelt's battle with polio and his subsequent physical disability.

Web sites

The United States Mint. "Giving Back" lesson plan.

<http://www.usmint.gov/kids/teachers/features/2002/08.cfm> (accessed July 3, 2012).

This lesson plan from the United States Mint briefly discusses the March of Dimes fund-raising campaign and its relationship to the dime. It encourages students to choose a cause and raise money toward it over the course of the school year. Students then graph their progress.

Indiana University Health. Riley Hospital for Children. "History."

<http://iuhealth.org/riley/about/history/> (accessed July 5, 2012).

Time line of Riley Hospital's history.

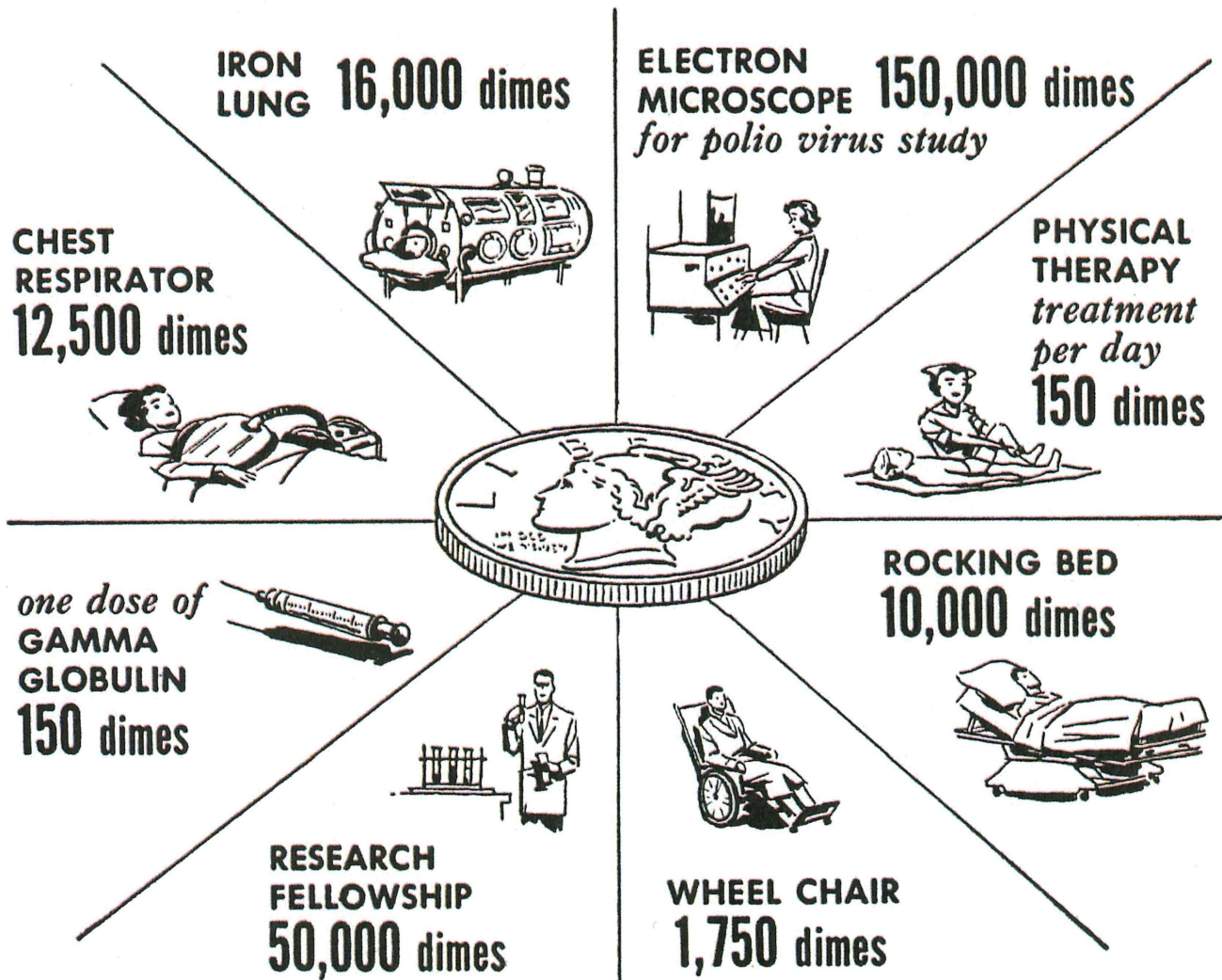
Indiana University Health. "Polio: Enemy of Youth," *Inquiry* (Winter 1979-1980). Reprinted on the Indiana University School of Medicine Centennial Celebration Web site.

<http://medicine.iu.edu/history/historical-resources/polio-enemy-of-youth/>. (accessed July 5, 2012).

This article is reprinted from a 1979 publication. It discusses the polio epidemic and how polio patients were treated at Riley Hospital. It also looks at the success the vaccine has had in eradicating polio in the United States, but warns that if parents do not vaccinate their children, polio may have a resurgence.

The **POWER** *of a* **DIME**

march of dimes polio care and cost



“The Power of a Dime” chart from the NFIP 1954 Speaker’s Handbook (Courtesy, Eli Lilly and Company Archives)



“Riley Patients in Iron Lungs” image (Courtesy, IUPUI Archives)



“Nurse and Patient at Riley Hospital” image (Courtesy, IUPUI Archives)