UNIT 4

# Staying Alive



## In this unit, you will

- read about public health, life expectancy, and the impact of vaccination around the world.
- review identifying main ideas vs. supporting details.
- increase your understanding of the target academic words for this unit.

**READING SKILLS** Interpreting Charts, Graphs, and Tables

## Self-Assessment

Think about how well you know each target word, and check (✓) the appropriate column. I have...

| TARGET WORDS (AWL) | never seen the word before | seen the word but am not sure what it means | seen the word and understand what it means | used the word, but am not sure if correctly | used the word confidently in *either* speaking *or* writing | used the word confidently in *both* speaking *and* writing |
|---|---|---|---|---|---|---|
| approximate | | | | | | |
| aspect | | | | | | |
| assure | | | | | | |
| compensate | | | | | | |
| definite | | | | | | |
| empirical | | | | | | |
| hierarchy | | | | | | |
| isolate | | | | | | |
| layer | | | | | | |
| outcome | | | | | | |
| radical | | | | | | |
| recover | | | | | | |
| resolve | | | | | | |
| straightforward | | | | | | |

**Outside the Reading** What do you know about public health?
Watch the video on the student website to find out more.

Oxford 3000™ keywords



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## Before You Read

**A.** **Answer these questions. Discuss your answers in a small group.**

1. Who is the oldest person that you know? How is this person's health?

_____

_____

2. What factors do you think have an impact on life expectancy? Rank these factors from *1* (most important) to *10* (least important).

___ nutrition
___ health
___ education
___ income
___ occupation
___ family history
___ medical care
___ geographic location
___ lifestyle
___ other: _____

3. If you had lived in a different time in history, do you think you would have reached your current age, or would you have died already? Why?

_____

_____

_____

**B.** **This reading contains several graphs and charts. Preview them and predict what the article will be about. Quickly discuss your predictions with a partner.**

### MORE WORDS YOU'LL NEED

**eradicate:** to destroy something (usually a disease) completely
**immunity:** the state of being unaffected by a disease
**immunize:** to protect someone against a disease by giving a vaccine
**life expectancy:** the average number of years a person can expect to live
**mortality:** the number of deaths in a certain period of time or in a certain place
**vaccine:** a substance that is given to people to protect them against a particular disease



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## Read

**This research report discusses the factors that affect life expectancy.**

# The Determinants of Mortality

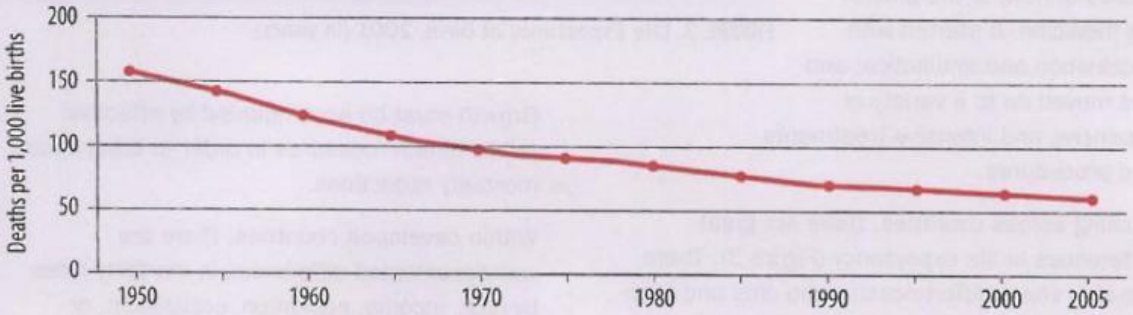



**FIGURE 1. World Infant Mortality Rates, 1950–2005.** *(Data source: UN)*

For most of human history, life expectancy has been short—**approximately** 25 years for our ancient ancestors, and only 37 years for residents of England in 1700. In just the past century, however, life expectancy has increased by over 30 years.

Dramatic changes began in the 18th century. Life expectancy in England rose to 41 years by 1820, 50 years by the early 20th century, and 78 years today. A similar shift took place in all developed countries. The drop in mortality rates was particularly **radical** among children (Figure 1). This was because of the near eradication of deaths from infectious diseases—formerly the most common cause of death, since the young are most likely to get infections.

The most important **aspects** of daily life that affected mortality reduction were nutrition, public health measures, and medicine.

The history of mortality reduction is spoken of in terms of three phases. In the first phase, from the mid-18th century to the mid-19th century, improved agricultural techniques played a large role. These techniques resulted in increased food supply, better nutrition, and economic growth. Emerging public health measures also played a role at this stage. The second phase ran from the end of the 19th century into the 20th. Public health became more important. People were given advice about personal health practices based on a growing understanding of the causes of disease. Because of high mortality rates in

| | Total Reduction in Mortality Rate 1900–1936 | Share of Total Due to Clean Water |
|---|---|---|
| Typhoid Mortality | 96% | 96%* |
| Total Mortality | 30% | 43% |
| Infant Mortality | 62% | 74% |
| Child Mortality | 81% | 62% |

**FIGURE 2. Effect of Filtration and Chlorination on Mortality**
*Achieved five years after adoption of clean water technologies.



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cities, urban centers started to deliver clean water (Figure 2) and remove waste. With the improved water supply, sewage, and general personal hygiene, there was a dramatic reduction in water- and food-borne diseases—typhoid, cholera, dysentery, and tuberculosis.

The third phase, from the 1930s to now, is the time of big medicine. It started with vaccination and antibiotics, and has moved on to a variety of expensive and intensive treatments and procedures.

Looking across countries, there are great differences in life expectancy (Figure 3). There are also sharp differences in who dies and from what. Deaths among children account for **approximately** 30 percent of deaths in poor countries but less than 1 percent of deaths in rich countries. Most deaths in rich countries are from cancers and cardiovascular disease, while most deaths in poor countries are from infectious diseases.

Though differences persist, many poorer countries have recently experienced large improvements in life expectancy. In India and China, life expectancy has risen by 30 years since 1950. Even in Africa, life expectancy rose by 13 years from the early 1950s until the late 1980s, when the spread of HIV/AIDS reversed the trend.

What factors explain this **outcome**? Some of the main factors are changes in income, literacy (especially among women), and the supply of calories. Public health interventions, such as immunization campaigns, improvements in water supply, and the use of antibiotics, have also made a big difference.

Although the connection between economic growth and improved health seems **straightforward**, the **empirical** evidence for this is not completely clear. This may be because urbanization[1] often goes along with growth.

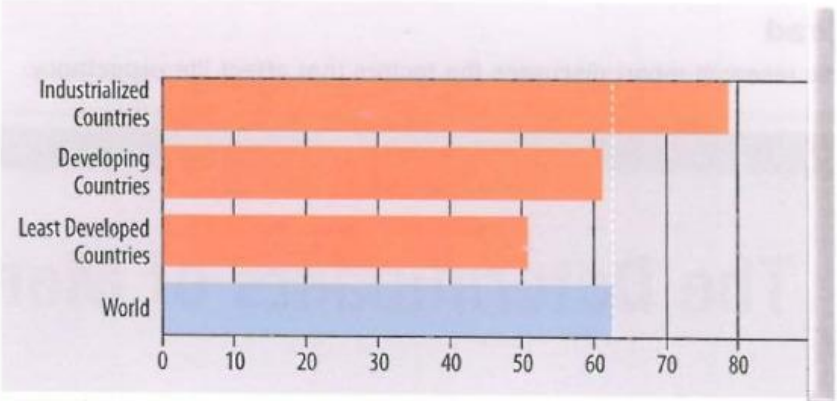



**FIGURE 3.** Life Expectancy at Birth, 2001 (in years)

Growth must be accompanied by effective public health measures in order to bring about mortality reductions.

Within developed countries, there are well-documented differences in mortality rates by race, income, education, occupation, or urban/rural status. There is a **definite** **hierarchy** to healthiness—the higher the socioeconomic status of a group, generally the lower the mortality rate. Some explanations for this include **definite** differences in access to medical care, in access to the resources needed to buy food and shelter, in health-related behaviors such as smoking, and in levels of "psychosocial stress."

The link between social status and health is likely not due to any **isolated** factor. Education, however, seems to have a positive effect on health. This may be due to increased knowledge about health and technology.

Is there a universal theory of mortality that can explain improvements over time, differences across countries, and differences across groups? It can be argued that knowledge, science, and technology are important **aspects** of any logical explanation. As for the future, an increase in the production of new knowledge and treatments is likely to increase inequality in health **outcomes** in the short term. The silver lining,[2] though, is that help is on the way, not only for those who receive it first, but eventually for everyone.

[1] *urbanization:* taking on the characteristics of city life
[2] *silver lining:* referring to the expression "every cloud has a silver lining," it is the one good **aspect** of something generally bad.



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## Reading Comprehension

**Answer the questions below. Look back at Reading 1 as necessary. Then compare your answers with a partner.**

1. What has happened to life expectancy in the past 30 years?
   *It has increased.*

2. Which age group was affected the most? Why?

3. What major changes occurred during these time periods?

| Time Period | Change |
|---|---|
| mid-18th to mid-19th century | |
| end of 19th to early 20th century | |
| mid-20th century to now | |

4. According to Reading 1, which of these factors positively affect life expectancy? Put a check (✓) next to them. Be prepared to explain your choices.

___infectious diseases
___better nutrition
___young parents
___many doctors in the community
___clean water
___warm climate
___intense medical treatments
___living in a city
___antibiotics
___lower socioeconomic status

5. What does the article predict for the future of health outcomes?

## READING SKILL Interpreting Charts, Graphs, and Tables

### LEARN

Charts, graphs, and tables provide vital information and support the information in a text. By presenting information graphically, the reader can see trends and patterns more easily.

People often refer to graphic information as *charts*, regardless of their actual type (chart, graph, table, etc). In academic texts, however, graphic information is usually cited as a *figure*, as in Reading 1. Sometimes, an author will cite figures and tables separately.

### APPLY

**A. Match the chart from Reading 1 with its topic.**

___1. Figure 1
___2. Figure 2
___3. Figure 3

a. effects of water purification
b. life expectancy at birth
c. world infant mortality rates



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**B.** With a partner, discuss the charts in Reading 1 by answering these questions.

Figure 1: What general trend can you see? What do you expect to happen in the future, based on this information?

Figure 2: What percentage of reduction in infant mortality is a result of clean water? What conclusions can you draw about clean water and mortality rate?

Figure 3: Which region has the lowest life expectancy at birth? Which region has the highest? What is surprising or interesting to you in this chart? Based on this chart, how long can you expect to live? Do you agree with the prediction? Why or why not?

## Vocabulary Activities STEP I: Word Level

**A.** Scan Reading 1 for these target vocabulary words and match them with their definitions. Use a dictionary to help you.

| | |
|---|---|
| ___ 1. radical | a. an end result; consequence |
| ___ 2. aspect | b. easy to understand, simple |
| ___ 3. approximately | c. very great, extreme |
| ___ 4. outcome | d. certain, without doubt |
| ___ 5. straightforward | e. not quite exact or correct |
| ___ 6. empirical | f. solitary; alone |
| ___ 7. definite | g. a distinct feature or element |
| ___ 8. isolated | h. based on experiments or practical experience, not ideas |

The words *radical* (adjective) and *radically* (adverb) are used to describe changes in something. The noun *radical* means "a person who wants great social or political changes."

**B.** Complete these sentences with the correct form of *radical*.

1. There were _____radical_____ changes in life expectancy with the introduction of clean water.
2. The life expectancy of infants changed _____ with the use of vaccinations.
3. In the early days of vaccination, some doctors were considered _____ for supporting the idea of mass immunization.
4. The aspect of public health that has most _____ affected people's lives is clean water.
5. The spread of HIV/AIDS has made a _____ difference in public health policy around the world.



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The word *aspect* refers to one of the qualities or parts of a situation, idea, or problem. It takes the preposition *of*.

*One **aspect** of a person's socioeconomic status is income level.*




**C.** **What are some aspects of these situations that a person should consider before making a decision? Discuss with a partner.**

1. deciding which college to attend
2. deciding on a career path
3. choosing a movie to watch with a friend
4. choosing a movie to watch with your mother
5. making vacation plans
6. renting an apartment

## Vocabulary Activities STEP II: Sentence Level

**D.** **Which of these things is straightforward? Do any of them have aspects that are straightforward but are not straightforward as a whole? Discuss your answers in a small group. Give examples to support your ideas.**

1. buying a used car
2. communicating with your boss
3. going to the doctor
4. picking up a package
5. doing homework
6. trading music with a friend

**Word Form Chart**

| Noun | Verb | Adjective | Adverb |
|---|---|---|---|
| approximation | approximate | approximate | approximately |
| definiteness | _____ | definite | definitely |
| isolation | isolate | isolated | _____ |

**E.** **Read the information about the effects of clean water on public health. In your notebook, restate each sentence using the word in parentheses. Discuss your sentences with a partner or in a small group.**

1. At the start of the 20th century, high mortality rates were common, specifically in urban areas. Yet by the mid-1900s, these rates had dropped, with life expectancy rising in developed nations. (*isolated, definite*)

   *Early in the 20th century, high mortality rates were somewhat **isolated** in urban areas, but by the mid-1900s there was a **definite** drop and people were living much longer in developed nations.*

2. The introduction of a plentiful supply of clean water in major cities accounted for roughly half of the 30 percent decline in urban death rates during the early 1900s. (*approximately* or *approximate*)
3. Clean water was, without a doubt, one of the most significant causes of rapid health improvements at the beginning of the 20th century. (*definitely*)
4. Researchers began focusing on the role of clean water alone, after they discovered that deaths dropped sharply in cities that filtered their drinking water. (*isolate* or *isolated*)



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**F.** **Rewrite this sentence two ways, using the form of *approximate* indicated.**

Clean water was responsible for cutting about three-quarters of deaths and nearly two-thirds of child mortality in the first 40 years of the 20th century.

1. approximate (*adjective*)

_____

_____

_____

_____

2. approximately

_____

_____

_____

_____

A *hierarchy* is "a system of organization that has many grades or ranks from the lowest to the highest." The adjective form is *hierarchical*.

*I prefer to work in a cooperative setting, with people at my level. I don't want to be in a* ***hierarchical*** *organization with lots of bosses.*

CORPUS

**G.** **What do you think is the hierarchy in each of these situations? Rank the people from most important (1) to least important (5) in each case. Discuss your hierarchies in a small group. In what other situations have you noticed hierarchies?**

a. School

___ teacher
___ principal/director
___ older students
___ my class
___ new students

b. Health center

___ doctor
___ nurse
___ patient
___ technicians
___ clerks

c. Family

___ mother
___ me
___ grandparents
___ siblings
___ father



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## Before You Read

**A.** **Read these questions. Discuss your answers in a small group.**

1. What are some common childhood diseases? Did you have any of them?
2. Do you know which vaccines you received as a child? If so, what were they for? How were they delivered (by mouth, by injection, etc.)? If you remember the experience, what was it like? Were you scared? Did it hurt?
3. Imagine that a drug company develops a vaccine that it says will protect against all major diseases. They need volunteers to test the vaccine. Would you volunteer? Why or why not?

**B.** **Preview the tables in Reading 2. What do you think this text will discuss? Compare your ideas with a partner.**

## Read

**This report from the World Health Organization recounts the positive effect that immunizations have had around the world.**

# Immunization against Diseases of Public Health Importance

### THE BENEFITS OF IMMUNIZATION

Vaccines—which protect against disease by **assuring** immunity—are widely and routinely given around the world. This practice is based on the idea that it is better to keep people from falling ill than to focus only on helping them **recover** once they are ill. Suffering, disability, and death are avoided. Immunization is thought to prevent two to three million childhood deaths each year. In addition, infection is reduced, strain on health-care systems is eased, and money is frequently saved that can be used for other health services.

Immunization is a proven tool for controlling and even eradicating disease. An immunization campaign carried out by the World Health Organization (WHO) from 1967 to 1977 eradicated the natural occurrence of smallpox. When the program began, the disease still threatened 60% of the world's population and killed every fourth victim. Eradication of poliomyelitis is within reach. Since the launch by WHO and its partners of the Global Polio Eradication Initiative in 1988, infections have fallen by 99%, and about five million people have escaped paralysis. Between 2000 and 2008, measles deaths dropped worldwide by almost 78%, and some regions have **resolved** to eliminate the disease.

### GLOBAL IMMUNIZATION COVERAGE

Coverage has greatly increased since WHO's Expanded Program on Immunization began in 1974, and the results are encouraging (Table 1). In 2009, global DTP3 (three doses of the diphtheria-tetanus-pertussis combination



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vaccine) coverage was 82%—up from 20% in 1980. However, millions of children worldwide were not reached by DTP3 in 2009, including many in South Asia and sub-Saharan Africa.

**TABLE 1.**

| Annual deaths* in 2002 from vaccine-preventable diseases | | | |
|---|---|---|---|
| **Disease** | **Under 5** | **Over 5** | **Total** |
| Diphtheria | 4,000 | 1,000 | 5,000 |
| Measles | 540,000 | 70,000 | 610,000 |
| Polio | ——— | ——— | 1,000 |
| Tetanus | 198,000 | 15,000 | 213,000 |
| Pertussis | 294,000 | ——— | 294,000 |
| Hepatitis B | ——— | 600,000 | 600,000 |
| Haemophilus influenzae b (Hib) | 386,000 | ——— | 386,000 |
| Yellow fever | 15,000 | 15,000 | 30,000 |
| **TOTAL** | **1,437,000** | **701,000** | **2,138,000** |

** WHO Estimates (January 2005)*

## NEW VACCINES

Numerous new vaccines with major potential for improving health in developing countries have been produced since 2002. Incidence of meningitis, rotavirus, and pneumococcal disease, which killed millions of children annually (Table 2), has fallen in areas where the new vaccines have been introduced.

**TABLE 2.**

| Annual deaths in 2002 from diseases for which vaccines are now available | | | |
|---|---|---|---|
| **Disease** | **Under 5** | **Over 5** | **Total** |
| Meningitis AC* | 10,000 | 16,000 | 26,000 |
| Rotavirus* | 402,000 | 47,000 | 449,000 |
| Pneumococcal Disease* | 716,000 | 897,000 | 1,612,000 |
| **TOTAL** | **1,128,000** | **960,000** | **2,087,000** |

** WHO Estimates (January 2005)*

## HISTORY

Introducing a small amount of smallpox virus by inhaling through the nose or by making a number of small pricks through the **layers** of skin (variolation) to create resistance to the disease began in the 10th or 11th century in Central Asia. Variolation was introduced into England in 1721. There, in 1798, Edward Jenner began treatments against smallpox, the first systematic effort to control a disease through immunization.

In 1885, Louis Pasteur developed the first vaccine to protect humans against rabies. Vaccines against diphtheria and tetanus were introduced in the early 1900s, the Calmette-Guérin vaccine (against tuberculosis) in 1927, the Salk polio vaccine in 1955, and vaccines against measles and mumps in the 1960s.

## HOW VACCINES WORK

Vaccines typically provide the immune system with harmless copies of an *antigen:* a portion of the surface of a bacterium or virus that the immune system recognizes as "foreign." A vaccine may also provide a non-active version of a toxin—a poison produced by a bacterium—so that the body can create a defense against it.

Once an antigen is noticed by the immune system, white blood cells called B-lymphocytes create a protein called an antibody that is designed to attach to that antigen. Many copies of this antibody are produced. If a true infection of the same disease occurs, still more antibodies are created, and as they attach to their targets they may block the activity of the virus or bacterial strain directly, thus fighting infection. In addition, once in place, the antibodies make it much easier for other parts of the immune system to recognize and destroy the invading agent.

Immune systems are designed to "remember." Once exposed to a particular bacterium or virus, they retain immunity against it for years, decades, or even a lifetime. This means they are prepared to quickly defeat a later infection. This is a huge benefit because a body encountering



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a germ for the first time may need from seven to twelve days to effectively defend it, and by then serious illness and even death may occur.

### EFFECTIVENESS AND SAFETY

All vaccines used for routine immunization are very effective in preventing disease, although no vaccine attains 100% effectiveness. More than one dose of a vaccine is generally given to increase the chance of developing immunity.

Vaccines are very safe, and side effects are minor—especially when compared with the diseases they are designed to prevent. Serious complications occur rarely. For example, severe allergic reactions result at a rate of one for every 100,000 doses of measles vaccine. Two to four cases of vaccine-associated paralytic polio have been reported for every one million children receiving oral polio vaccine.

### COST-EFFECTIVENESS OF IMMUNIZATION

Immunization is considered among the most cost-effective of health investments. There is a well-defined target group; contact with the health system is only needed at the time of delivery; and vaccination does not require any major change of lifestyle.

A recent study estimated that if the coverage for the pneumococcal disease vaccine reached the levels of DTP3 coverage in Latin America and the Caribbean, it would prevent over half of all cases of the disease and about 9,500 deaths annually. This could be achieved at a cost of as low as 62 U.S. dollars per life saved. The cost of the immunizations is clearly **compensated** for by its life-saving value.

### THE DECADE OF VACCINES

The effort to increase immunization coverage around the world is continuing with the Global Vaccine Action Plan. This plan promotes the discovery and development of vaccines as well as their delivery to the world's poorest countries. The aim is to prevent the deaths of millions of children over the next decade.

## Reading Comprehension

**A. Mark each sentence as *T* (true) or *F* (false) according to the information in Reading 2. In your notebook, cite the location of the information by line number, and correct each false statement.**

___1. Vaccines protect against suffering, disability, and death.

___2. Smallpox has been eradicated through immunization.

___3. Variolation first began in West Africa.

___4. The first vaccine was developed to protect humans against rabies.

___5. There is no problem reaching all of the children worldwide with immunizations.

___6. Once immune systems are exposed to a bacterium or virus, they "remember" it and can easily fight against an infection later.

___7. Side effects and serious complications from vaccines occur frequently.

___8. Immunization is extremely expensive and not very cost effective.



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**B.** Use the tables in Reading 2 to complete these sentences.

1. One thousand deaths were caused by polio in 2002.
2. The disease _____ caused the same number of deaths in people under five and over five in 2002.
3. _____ caused the most total deaths in 2002.
4. _____ killed more people over five years old than small children.
5. _____ deaths from meningitis in 2002 could have been prevented if there was a vaccine.
6. The vaccine for rotavirus will have the most effect on people who are _____ .

**REVIEW A SKILL** **Identifying Main Ideas vs. Supporting Details** (See p. 20)

In your notebook, create an outline of the article using the main ideas and supporting details from each section.

## READING SKILL Interpreting Charts, Graphs, and Tables

### LEARN

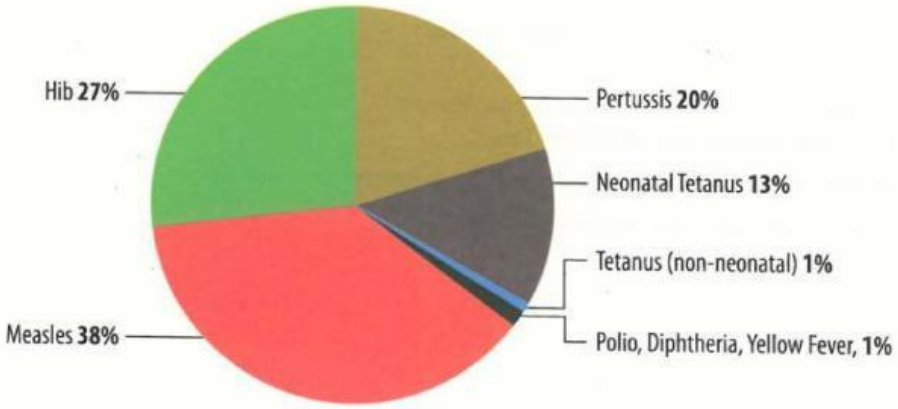
Another type of chart is called a *pie chart*. It is used to show how one thing or group of things is divided.

### APPLY

**A.** Study this example of a pie chart and answer the questions below in your notebook.

**Vaccine-Preventable Diseases**

In 2002, WHO estimated that 1.4 million deaths among children under five years were due to diseases that could have been prevented by routine vaccination.




1. What percentage of children who died from preventable diseases died from Hib?
2. What was the most common preventable disease that killed children?
3. How many actual deaths were caused by Pertussis?



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**B.** **Read this paragraph about a polio outbreak. Then create a chart, graph, table, or pie chart in your notebook depicting some or all of the information. Discuss your chart in a small group.**

Although the incidence of polio has been reduced worldwide by 99% since 1988, outbreaks are still occurring in some areas, particularly when the vaccination program is not kept up. A recent outbreak in West Africa spread from Nigeria, where there were 798 cases in 2008. That year, there was 1 case in Côte d'Ivoire, and 6 in Benin, but no cases in Mauritania, Sierra Leone, Liberia and Cameroon. In 2009, the number of cases in Nigeria fell to 388, but the outbreak had spread. Côte d'Ivore had 26 cases, Benin had 20, Mauritania had 13, Sierra Leone and Liberia had 11, and Cameroon had 3.

## Vocabulary Activities STEP I: Word Level

**A.** **Read these facts about the eradication of smallpox. Then complete the sentences using the target vocabulary in the box.**

| | | | |
|---|---|---|---|
| approximately | isolated | outcome | recovered |
| assured | layers | radical | resolved |
| definite | | | |

1. During the 15th century, an early form of smallpox vaccination was practiced in China and other parts of the world. Healthy people were intentionally infected through the _____ of skin with substances from the pustules of people suffering from smallpox.
2. Later, in the 18th century, this practice was adopted in England, where smallpox was the most common disease, causing _____ 20% of all deaths in London. An expression of the times was, "Mothers counted their children only after they had had the smallpox."
3. An English doctor, Edward Jenner, created the first vaccine in 1796. Dr. Jenner had heard that dairymaids, _____ from other people in the countryside, often had cowpox, a milder disease related to smallpox.
4. After the dairymaids _____ from cowpox, they were immune to smallpox. Jenner _____ to find out why.
5. Jenner performed the first vaccination on a boy with material taken from lesions of cowpox. The _____ was that the boy, and all people who received the vaccine later, were immune to smallpox.
6. In the 19th century, vaccination laws were established in Europe and the United States. These laws _____ people that vaccination was safe, and they began to be vaccinated against smallpox routinely. In the 20th century, vaccination against smallpox became a worldwide effort.
7. The last _____ case of smallpox in the United States was reported in 1949, and routine vaccination of children in the United States ended in 1971. The last case of smallpox in the world was in Ethiopia in 1976.
8. In 1980, scientists announced that the once _____ idea of vaccines had been successful at eradicating smallpox from the world.


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To *assure* means "to promise somebody something will certainly happen or will be true, especially if he/she is worried."

*The doctor **assured** us this vaccination is perfectly safe.*




**B.** **What might each of these people want to *assure* someone of? Discuss your ideas in a small group.**

1. a teenager to a parent
2. a student to a teacher
3. a friend to another friend
4. a husband to a wife
5. an employer to an employee

## Vocabulary Activities STEP II: Sentence Level

The verb *resolve* has two definitions. It can mean "to find a solution to a problem" or "to decide something and be determined not to change your mind."

*Most of the difficulties have been **resolved**.*

*Ray **resolved** never to let that same thing happen again.*

The noun *resolve* means "a strong determination to achieve something."

*The difficulties in her way merely strengthened her **resolve**.*

There is another noun form as well. *Resolution* is more formal and refers to a firm decision to do or not to do something.

*The United Nations passed a **resolution** to eradicate polio around the world.*




**C.** **Read these reasons why immunization is a cost-effective public health policy. In your notebook, restate each one using a form of the word *resolve*. Be prepared to read aloud or discuss your sentences in a small group or with the class.**

1. By preventing disease, immunization allows countries to reduce the amount of money spent on treatment and hospitalization costs.

   *If countries resolve to prevent disease through immunization, less money will be used on medical treatment or hospitalization.*

2. Immunization helps national governments avoid the expense of treating major outbreaks of disease and the loss of productivity that comes with these illnesses.
3. Immunization also increases productivity by allowing parents to work instead of staying home to care for sick children.
4. It costs just 17 U.S. dollars to immunize a child with the six core vaccines: polio, diphtheria, pertussis, measles, tetanus, and tuberculosis.
5. Most immunizations cost less than 50 U.S. dollars per healthy life year saved.



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**D.** **Review each section of Reading 2. Write 2–3 sentences in your notebook that summarize the main idea of each section. Use the target vocabulary in parentheses in your summaries.**

1. the benefits of immunization (*assure*, *resolve*)
2. global immunization coverage (*definite*)
3. new vaccines (*approximate*)
4. history (*layers*)
5. how vaccines work (*recover*)
6. effectiveness and safety (*aspect*)
7. the cost-effectiveness of immunization (*compensate*)

To *compensate* means "to remove or reduce the bad effect of something" or "to make up for something."

*He **compensated** for his lack of money by doing most of the work himself.*

As a noun, *compensation* can refer to the money that you pay to somebody or to something that removes or reduces the bad effect of something.

*Some companies provide a shuttle bus to the nearest train station as part of employee **compensation**.*

*The owner of the property had to pay **compensation** to the woman who slipped on his stairs and broke her leg.*

CORPUS

**E.** **What sort of compensation (if any) should the people get in each situation? Discuss your ideas in a small group. Then choose one situation and write a paragraph in your notebook explaining your opinion. Be prepared to read your work aloud to the class.**

1. Your son is riding his bicycle in a city park. He loses control for a moment and goes onto the grass. He hits a hole in the ground and is thrown from his bike, breaking his arm and ruining the bike.
2. Your friend has bought tickets to a sold-out concert of your favorite musician. You decide to take a nap before the show but sleep too long. The concert is half over by the time you wake up.
3. Your family is moving to a new apartment and there is a lot of mess and confusion. Your parents are stressed out and very busy. So busy, in fact, that they have clearly forgotten that today is your birthday.



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