

Preventing Disabilities in Children

Some disabilities which affect children can be prevented. For example, polio is a disease that weakens the muscles and can cause paralysis. It is caused by a virus and can be prevented by giving a vaccine (either by injection or by mouth).

UNICEF is active in a global campaign with many organizations to wipe out polio. Rotary International's Polio Plus program has raised more than \$800 million since 1985.¹

In 1988, there were 350,000 cases of polio in 125 countries around the world. By the end of 2008, there were fewer than 2,000 cases of polio reported, with only 18 countries still affected by this disease.²

By continuing its work in providing children with polio vaccines, UNICEF and other organizations hope to wipe out polio completely.

You can use statistics to calculate how fast polio is being wiped out in different countries. Learn how to do this by using statistics from Rwanda, and following these directions:

- First, calculate the change in the percentage of immunized children in Rwanda from 1997 to 2007. You can do this by subtracting the percentage in Column A from the percentage in Column B. Write the result in Column C.
- Next, calculate the rate of change in immunization from 1997 to 2007 for Rwanda. You can do this by dividing the percentage in Column C by the percentage in Column A and then multiply this result by 100. Write this number in Column D.

$$\text{Rate of Change} = (\text{value at the end of the period} - \text{value at the beginning of period}) / \text{value at the beginning of period} \times 100$$

Here's an example:

Country	Column A: % of 1-year-olds immunized against polio in 1997	Column B: % of 1-year-olds immunized against polio in 2007	Column C: % change from 1997 to 2007	Column D: Rate of change from 1997 to 2007
Rwanda ³	77	98	21	27.27%

1 Source: <http://www.polioeradication.org/content/general/histcontributionweb.18.march.10.pdf>

2 Source: Global Polio Eradication Initiative, <http://www.polioeradication.org>

3 Source: 1999 *State of the World's Children* report (reflects 1997 data)—Table 3: Health, <http://www.unicef.org/sowc99/sowc99d.pdf>;
2009 *State of the World's Children* report (reflects 2007 data)—Table 3, Health, http://www.unicef.org/sowc09/docs/SOWC09_Table_3.pdf.

In Rwanda, 77 % of 1-year-olds were immunized against polio in 1997. By 2007, 98% of children of this age were immunized.

The change in the percentage of children immunized from 1997 to 2007 in Rwanda was 21% ($98\% - 77\% = 21\%$).

The rate of change during this 10 year period was 27.27% ($21/77 = .2727$. Multiplying this result by 100 gives a rate of change of 27.27% over 10 years.)

Now try calculating the rates of change in polio immunization in these countries:

Country	Column A: % of 1-year-olds immunized against polio in 1997	Column B: % of 1-year-olds immunized against polio in 2007	Column C: % change from 1997 to 2007	Column D: Rate of change from 1997 to 2007
Afghanistan	45	83		
Colombia	85	93		
Iraq	92	66		
Nigeria	25	61		
United States	84	92		
Uzbekistan	97	98		

Based on your calculations, answer these questions:

1. Was there anything that surprised you about these statistics?
2. Why do the countries with the highest immunization rates have the smallest rates of change? Why do the countries with the lowest immunization rates have the highest rates of change?
3. Which country's immunization rates went down instead of up between 1997 and 2007? Why do you think this happened?
4. In general, how would you describe the progress being made in wiping out polio?

Sources of statistics: 1999 *State of the World's Children* report (report reflects 1997 data):

Table 2: Nutrition, <http://www.unicef.org/sowc99/sowc99d.pdf>

Table 3: Health, <http://www.unicef.org/sowc99/sowc99d.pdf>

2009 *State of the World's Children* report (report reflects 2007 data):

Table 2, Nutrition: http://www.unicef.org/sowc09/docs/SOWC09_Table_2.pdf

Table 3, Health, http://www.unicef.org/sowc09/docs/SOWC09_Table_3.pdf