Are there disparities in childhood cancer?

Cancer occurs in children of all racial and ethnic groups. Although non-Hispanic white children are more likely to be diagnosed with cancer, children of other racial/ethnic groups are less likely to survive once diagnosed.

There are different ways to measure cancer in a group of people or in a community. Because groups or places with more people would be expected to have more people with cancer, researchers calculate cancer rates. Cancer rates show how many people in a group or a place would develop or die from cancer if there were a set number of people in it (usually 1 million for childhood cancers). Cancer rates estimate a person’s risk of developing or dying from cancer. The cancer incidence rate is the number of people in a group or community who were newly diagnosed with cancer, divided by the total number of people in the group or community. The cancer mortality rate is the number of people in a group or community who died from cancer, divided by the total number of people in the group or community.

Total cancers
Cancer occurs in children of all racial and ethnic groups. Figure 1 shows incidence and mortality rates for all types of cancer combined in the three largest racial/ethnic groups in New York State.

![Figure 1. Rates of childhood cancer (all types combined) in different racial/ethnic groups, New York State, 2008-2012](image)

Average annual incidence and mortality rates by racial/ethnic group, children ages 0-19, New York State, 2008-2012

Most children diagnosed with cancer survive the disease, and the cancer incidence rate is much greater than the rate of dying from cancer for children of all racial/ethnic groups. The incidence rate for all types of cancer combined is greatest in non-Hispanic whites. Non-Hispanic black children and Hispanic children are about 20% less likely to be diagnosed with cancer than non-Hispanic white children. However, mortality rates for the three racial/ethnic groups are similar. This means that although a non-
Hispanic black child or a Hispanic child is less likely to be diagnosed with cancer than a non-Hispanic white child, those who are diagnosed are less likely to survive.

By type
Cancer is not a single disease, but a collection of many different diseases. Each different type of cancer has its own occurrence pattern, outlook, effective treatments, and risk factors.

Children can develop many different types of cancer. Leukemia, lymphomas (including Hodgkin lymphoma and the non-Hodgkin lymphomas) and tumors of the brain and central nervous system are the cancers that children develop most often. Figure 2 shows incidence rates of these three types of childhood cancer for the three largest racial/ethnic groups in New York State.

Average annual incidence rates by racial/ethnic group, children ages 0-19, New York State, 2008-2012

As with total cancers, the incidence rate for each of these cancers is greatest for non-Hispanic whites. Hispanic children are almost as likely to develop leukemia as non-Hispanic white children, and more likely to develop it than non-Hispanic black children. On the other hand, non-Hispanic black children are more likely to develop tumors of the brain and central nervous system than are Hispanic children. Mortality rates for the three cancer types are similar for children of the different racial/ethnic groups (not shown).

Time trends
Figure 3 shows the trend in incidence rates for childhood cancers (all types combined) in New York State between 1990 and 2012. The trend is shown for all children, and for the three largest racial/ethnic groups. For all children (black line), childhood cancer incidence rates showed a steady increase over this time period. This increase amounted to an average of 1 percent per year, or a 17 percent increase over 23 years. The increase was seen in non-Hispanic white children and non-Hispanic black children. Rates for Hispanic children were more variable from year to year, and did not show any significant trend.

1Rates age-adjusted to the 2000 US population standard.

Despite increases in the incidence rates of childhood cancers, deaths from childhood cancers have declined. Figure 4 shows the trend in mortality rates for childhood cancer in New York State from 1990 through 2012 for all children, and for the three largest racial/ethnic groups. For all children, the rate of children dying from cancer declined by an average of 1.1 percent a year during this time period, so that by 2012 it was almost 20% less than what it was in 1990. Deaths from childhood cancers declined in both non-Hispanic whites and non-Hispanic blacks. Rates in Hispanics were again more variable, and did not change significantly over this time period. Mortality rates for the three racial/ethnic groups were similar throughout this time.
A number of factors may contribute to childhood cancer disparities. Socioeconomic differences could influence the risk factors to which children are exposed as well as their access to and quality of medical care, including participation in clinical trials. Genetic differences may influence children’s responses to available treatments, or the likelihood of finding bone marrow donors for some cancers. Research on the causes and treatment of childhood cancers is needed to better understand the causes of these disparities and find ways to reduce and eliminate them.

More research is needed to better understand and address differences in childhood cancer occurrence and survival between racial and ethnic groups.