

NEBRASKA

Nebraska Cancer Registry; Lifeng Li, Ming Qu

Examining the Disparities of Pediatric Cancer Incidence Using Early Case Capture Data

NATIONAL PROGRAM OF CANCER REGISTRIES SUCCESS STORY

SUMMARY: Recent data have shown that Nebraska has higher incidence of pediatric cancers than the national average. To better understand the latest pattern and burden of pediatric cancers in Nebraska, we use the Early Case Capture (ECC) data to analyze the incidence of pediatric cancers and examine the disparities by demographics and geographic locations. We found a total of 602 cases of invasive pediatric cancers among children and adolescents in Nebraska from 2012 to 2017, which can be translated into an age-adjusted incidence rate of 191.3 cases per 1,000,000 population. The incidence rates of three most commonly diagnosed types of pediatric cancers—Brain and other Central Nervous System tumors, Leukemia, and Lymphoma—are all higher in Nebraska than those of the United States. Consistent with several studies on pediatric cancers, the incidence of pediatric cancers also distributed differently by demographics and geographic locations in Nebraska. The ECC data allow us to detect the latest pattern of the pediatric cancer in Nebraska and provide up-to-date information to guide future public health planning, research, and interventions. To sustain the success, we are about to expand the ECC data items by linking them with other databases such as American Community Survey (ACS) to identify correlates of the disparities in pediatric cancer incidence in Nebraska.

CHALLENGE: Cancer is the second leading cause of death among children ages 1 to 14 in the United States. In 2016, about 15,681 children and adolescents ages 0 to 19 were diagnosed with cancer and about 1,920 children at the same age range died from cancer¹. Data from United States Cancer Statistics show that the average incidence of pediatric cancer in Nebraska slightly exceeds the national average from 2011-2015 (195.3 versus 186.1 per 1,000,000 population)². Recent study also showed geographic variation of the incidence of pediatric cancers in Nebraska³. To better understand the latest pattern and burden of pediatric cancers in Nebraska, we need up-to-date data to analyze the incidence of pediatric cancers and examine the disparities of the incidence by demographics and geographic locations. But the majority of studies and reports on pediatric cancer in Nebraska and the United States used data up to 2015^{3, 4}.

SOLUTION: The availability of the Early Case Capture (ECC) data makes it feasible to examine the latest pediatric cancer burden in Nebraska. The Early Case Capture (ECC) program was initiated by CDC in 2012 and aims to improve pediatric cancer research by increasing the speed and quality of cancer case reporting. Nebraska was one of the seven state cancer registries who were awarded for funding of the Early Case Capture (ECC) program by CDC. Under ECC program the new pediatric cancer cases are required to be reported within 30 days of diagnosis. Therefore, the ECC program allows us to collect and analyze pediatric cancer data up to 2018.

RESULTS: We found a total of 602 invasive pediatric cancer cases among children and adolescents in Nebraska from 2012 to 2017.

Overall, pediatric cancers account for about 1% of the total number of cancer diagnoses among Nebraska residents. Between 2012 and 2017, the most frequently diagnosed pediatric cancer in Nebraska was brain and other Central Nervous System tumors (including benign cases) (about 55 cases per 1 million population), followed by leukemia (about 51 cases per 1 million population) and lymphoma (about 30 cases per 1 million population). We also found that the pediatric cancer incidence differs by age, race/ethnicity, and regions in Nebraska. Infants (younger than 1 year old) tended to have the highest pediatric cancer diagnoses among children age 0-19 in Nebraska. The lowest incidence rate occurred among children ages 10-14. Leukemia were the most commonly diagnosed pediatric cancer among children under 5 years old and brain and other Central Nervous System tumors were mostly diagnosed among children of 5 to 14 years old. Non-Hispanic White had the highest incidence rates of pediatric cancer from 2012 to 2017. In terms of geographic variation, we found that the southwest and central of Nebraska had higher pediatric cancer incidence compared with other regions. Data from the ECC program provide the most up-to-date source of information concerning the burden of pediatric cancer in Nebraska.

SUSTAINING SUCCESS: The ECC data allow us to track the latest pattern and examine the disparities of the pediatric cancers incidence in Nebraska. The information would be useful for pediatric cancer prevention and control in Nebraska. It is only the first step to detect the incidence of pediatric cancers, further analysis can be done to examine the correlates of the pattern and disparities of pediatric cancer incidence. In the near future, we are planning to expand the ECC data items by linking them with other available database such as American Community Surveys (ACS) or Hospital Discharge Data in order to enhance ECC data utilization.

REFERENCES

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