

Development of state cancer profile



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Database Project Report

Background Information

1. Why was the State Cancer Profile created?

The information aimed at prompting efforts to control cancer through proper planning and surveillance. The profile was also formed to describe cancer incidences according to regions and demographic groups to identify health disparities (National Cancer Institute, n. d.). Therefore, the profile would help in determining where to direct efforts during cancer management.

2. Who oversees the website?

The National Cancer Institute (NCI) and the Centers for Disease Control and Prevention (CDC) administer the website together.

3. How often is the database updated?

The database is updated when CDC and NCI obtain new information but they usually update statistics on incidence and mortality rates every year around the month of June (National Cancer Institute, n. d.).

4. Briefly describe the Data Use Restrictions and why it is important.

The data use restrictions section explains how users should utilize the data obtained from the website. Notably, the data cannot be utilized for other purposes except for statistical reporting and examination (National Cancer Institute, n. d.). The users are not supposed to try to determine the identities of the individuals and institutions described in the data or to disclose the identities in case they learn them accidentally. The restrictions crucial in

preventing misuse of the website's data. Additionally, the clause promotes the confidentiality of the data.

5. What statistical methods are used?

The State Cancer Profile used both inferential and descriptive statistical methods to profile different kinds of cancers. For instance, the website indicates information using tables, graphs, frequencies, and distributions (National Cancer Institute, n. d.). While descriptive statistics utilize indexes including standard deviation and mean to summarize data, inferential statistics make conclusions from data that has random variation. Descriptive and inferential statistics facilitated the presentation of valuable information related to cancer.

Data Table

1. Using the Cancer State Profile, research Melanoma of the Skin and enter the Incidence Rate (age-adjusted) and Mortality Rate (age-adjusted) as requested in the Database Project Report for the following: USA, California, Maine, North Dakota, and Texas

The age-adjusted incidence rate of melanoma of the skin for USA is 21.3 and the age-adjusted mortality rate is 2.6 per 100,000

The age-adjusted incidence rate of melanoma of the skin for California is 22.1 and the age-adjusted mortality rate is 2.4 per 100,000 (National Cancer Institute, n. d.).

The age-adjusted incidence rate of melanoma of the skin for Maine is 24.8 and the age-adjusted mortality rate is 2.9 per 100,000.

The age-adjusted incidence rate of melanoma of the skin for North Dakota is 23.2 and the age-adjusted mortality rate is 2.3 per 100,000.

The age-adjusted incidence rate of melanoma of the skin for Texas is 13.2 and the age-adjusted mortality rate is 2.2 per 100,000.

Analysis

1. How can the information in the State Cancer Profile be used?

The information delivered from the State Cancer Profile could be applied in profiling different types of cancers and determining health disparities across different races, ages, economic status, and regions (Percy-Laurry & Tatalovich, 2014). Thus, the information would facilitate the formulation of effective programs to control cancer. Moreover, the information can promote the identification of trends, risks, and burden of cancer to support informed decisions. Governmental agencies, health care professionals, and organizations can conduct research on cancer using the data.

2. Are there any limitations? Explain

The data in the State Cancer Profile might fail to indicate the potential risk factors for different types of cancers. Additionally, some forms of cancers are underreported because some patients are treated in non-hospital facilities that do not have a reliable reporting system (Percy-Laurry & Tatalovich, 2014). Collection of information on cancer across ethnicity and race is inconsistent. Notably, some providers determine the patients' race through observation or self-report. Another limitation of the data obtained from the

website is that the rules and codes used to calculate cases of cancer change overtime.

3. Comparing the four states:

1. Which state had the lowest age-adjusted incidence rate?

Texas State had the lowest age-adjusted incidence rate of 13. 2 (National Cancer Institute, n. d.).

2. Which state had the highest age-adjusted incidence rate?

Maine's age-adjusted incidence rate of 24. 8 was the highest.

3. Which state had the lowest age-adjusted mortality rate?

Texas had the lowest age-adjusted mortality rate of 2. 2.

4. Which state had the highest age-adjusted mortality rate?

Maine's age-adjusted mortality rate was the highest at 2. 9.

3. Based on the State Cancer Profile, are there any areas of significance or trends for melanoma of the skin within the United States?

The State Cancer Profile indicates that both the age-adjusted incidence and mortality rates of cancer are highest in Maine State. On the other hand, Texas had the lowest age-adjusted cancer incidence and mortality rates. Besides, most of the states had a higher age-adjusted incidence rate than the country's cancer rate. However, the age-adjusted mortality rate of cancer in a majority of the states reviewed was lower as compared to the nation's rate.

Application

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1. Based on your research, what are the benefits of data mining?

Data mining is crucial since it helps health care organizations to have readily available records. Providers can use information from data mining to determine the effectiveness of various treatments and discovering new treatments for diseases that are already in existence (Lee & Yoon, 2017).

Furthermore, data mining can result in the identification of the origin of new health conditions through the review of patterns in genetic illnesses.

Insurance firms are detecting medical fraud and claims by finding abnormal patterns when physicians, clinics, and hospitals are making claims. Decisions related to delivery of care to patients can also improve when facilities utilize data mining. Data mining also supports health care management by increasing efficiencies, promoting quality of care, and reducing costs. Finally, providers can use data mining to monitor the health of their patients.

2. What are the challenges of data mining?

One of the challenges of data mining is the violation of patient privacy and confidentiality as third parties could access personal information when it is being shared. The process of obtaining valuable information through data mining is expensive considering the need for costly instruments and personnel. Data mining is also affected by technical problems including getting variables with missing values, bias control, and curse of dimensionality (Lee & Yoon, 2017). The curse of dimensionality describes a situation where too many attributes are obtained when examining and organizing big data.

3. What is the correlation between data mining and evidenced-based practice?

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Data mining is related to evidence-based practice in that it allows for the analysis of data to determine the best practices of treating and managing illnesses. Specifically, after comparing the causes, signs, and treatments of different diseases during data mining, providers are able to select the most effective interventions for each group of patients (Lee & Yoon, 2017).

Besides, professionals use the data to create the best standards of delivering care. Additionally, data mining supports evidence-based practice by evaluating data to identify patient preferences and incorporate them in the provision of care.

4. How can leveraging data be used for quality improvement?

Leveraging data supports the analysis of complex health information thus enabling health care providers to introduce changes that promote quality improvement. According to Damato (2015), health leaders are leveraging data to develop innovative models of care that promote effective and sustainable health systems. Moreover, providers can use data to offer patient-centered and holistic care. For instance, by leveraging data, nurses and physicians can evaluate the patients' journey through the system by observing the effectiveness and cost of the interventions received. The use of data also facilitates careful planning, management of services, and provision of care within the available budget to improve patient outcomes significantly.

5. What is the role of informatics in data management?

Informatics play a fundamental role of enabling health care providers to collect, store, analyze, and produce valuable data. When facilities gather large amounts of structured data, they are able to convert it into good use

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through informatics. Besides, informatics improves data management by making sure the collected data is accurate (McGonigle & Mastrian, 2018). Organizations can also apply informatics in data management to use data effectively to solve problems related to delivery of care and formulate solutions.

6. In your role as a Nurse Administrator/Leader or Nurse Educator, how do you foresee using data and information? Include a specific example

Data and information have transformed the field of nursing administration, leadership, and education. Linnen (2016) pointed out that data converted into information can be utilized to develop nursing interventions. Therefore, as a nurse leader, I would evaluate data on various diseases to identify important trends including the number of patients affected, interventions used, and effectiveness of the treatments. For instance, I could use data and information to determine whether quality outcomes on falls and catheter-associated urinary tract infections in my organization are improving or worsening. Afterwards, I would utilize the results to improve care and reduce incidences of the two conditions.

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