



NR586NP Application of Epidemiology

Name:

General Instructions

Carefully read the assignment guidelines and rubric and complete each section of the worksheet below using complete sentences. Integrate sufficient scholarly literature to support the information presented.

Include the following sections:

Prevalent Infectious and Chronic Diseases

a. Describe the selected geographic region.

Located on the west bank of the Mississippi River, just below its confluence with the Missouri River, St. Louis, Missouri is famously known as the "Gateway to the West" due to its pivotal role in the westward expansion of the United States. The city's most iconic landmark is the Gateway Arch, a 630-foot stainless steel monument, the world's tallest man-made structure. St. Louis is the largest metropolitan area in Missouri and the second largest in Illinois, with its combined statistical area ranking as the 20th-largest in the United States. Before European settlement, the land that would become St. Louis had been inhabited by Native American cultures for countless generations. As of July 1, 2023, the population of St. Louis, Missouri was 281,754. This is a continuation of the city's population decline, which has averaged around 6,000 residents lost per year over the last three years (World Population,2024).

b. Identify the prevalent infectious and chronic diseases in the region.



The St. Louis region has a high prevalence of heart disease and other chronic illnesses, and the county and city see multiple infectious disease outbreaks every year. In St. Louis County, heart disease is a leading cause of death, ranking as the first or second leading cause from 2016 to 2020. In 2018, the death rate due to cardiovascular disease (CVD) in St. Louis City surpassed that of St. Louis County and St. Charles County. Contributing factors to CVD in St. Louis City include unhealthy lifestyle choices, diabetes, high blood pressure, and high blood cholesterol (St.Louis, 2024).

As of 2022, heart disease and cancer continue to be the top two causes of death in Missouri and across the nation, with unintentional injuries and COVID-19 ranking third and fourth, respectively. In 2021, COVID-19 replaced unintentional injury as the third leading cause, but that trend has since reversed (St.Louis,2024).

- c. Compare and contrast the prevalence of diseases in the selected region with disease rates and trends in a different geographic area of your choosing, noting similarities and differences.

My area of comparison with Saint Louis, Missouri is Chicago, Illinois.



- d. Discuss the variables that contribute to the noted similarities and differences.

Similarities:

Saint Louis, MO, and Chicago, IL, both grapple with significant public health challenges stemming from various diseases. These cities have high incidences of chronic diseases such as heart disease, cancer, and diabetes, with heart disease and cancer being the leading causes of death. Additionally, both cities report high asthma rates, particularly among children (Illinois Public Health Department, 2023). Infectious diseases have also impacted these cities, with high rates of COVID-19 infections and deaths. HIV is prevalent in both cities, with similar prevalence rates, and they also report high incidences of other infectious diseases such as influenza (CDC, 2024).

Differences:

Despite the aforementioned similarities, the two cities exhibit significantly different rates of common diseases. With Chicago reporting a high diabetes prevalence of 20% and Missouri showing a lower prevalence of 11.5%, the disparity is evident. Moreover, Chicago faces a heightened susceptibility to newly emerging infectious diseases compared to Saint Louis, attributed to similar yet less affluent living conditions and densely populated neighborhoods. The



primary concern in Chicago revolves around the escalating incidence of infectious illnesses such as sinus infections and strep throat (Healthy People 2030, 2022).

Application of the Epidemiological Model

- a. Select and describe one of the prevalent diseases noted in the previous section.

Diabetes is a chronic condition that occurs when the body is unable to produce enough insulin or effectively use the insulin it produces, leading to high blood sugar levels. Over time, diabetes can lead to serious complications affecting the eyes, heart, blood vessels, nerves, and kidneys (Chapel, 2019).

There are various types of diabetes, including type 1 and type 2, as well as gestational diabetes, maturity-onset diabetes of the young (MODY), neonatal diabetes, and steroid-induced diabetes. Type 1 diabetes, also known as juvenile diabetes, occurs when the pancreas produces little to no insulin. Type 2 diabetes is the most common type and typically develops in adults (Chapel, 2019).

Some symptoms of diabetes include: Frequent urination, Thirst, Constant hunger, Weight loss, Vision changes, Fatigue, Blurred vision, Slow-healing sores, and Infections.

There's no cure for diabetes, but lifestyle changes and medication can help. Some lifestyle changes that can help include: Eating healthy foods, Getting active, Losing weight, and Avoiding long periods of inactivity.