



Center for Clinical and  
Translational Science

**19<sup>th</sup> Annual CCTS Spring Conference**

**Dissemination and Implementation  
Across the Translational Spectrum**

**Tuesday, April 9, 2024  
Central Bank Center**

**Frederick Douglass High School  
Poster Abstracts**

**Presentation 229**

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Abstract Title: **Geographical Correlation with Breast Cancer in Women**

Author(s): A. V. Dambacher, High School Student, Frederick Douglass High School; A. K. Pietrowski, High School Student, Frederick Douglass High School; J. D. Ashburn, High School Student, Frederick Douglass High School; M. G. Bivins, High School Student, Frederick Douglass High School

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**Abstract:** Breast cancer accounts for 12.5% of all new annual cancer cases worldwide. The data compiled for this project serves to describe the geographical impact and demographics in relation to breast cancer in women, further educating the general public on the incidence and mortality of this cancer. Thorough data analysis from relevant peer reviewed databases such as CDC and NIH conclude that urban areas have high rates of incidence, and low rates of mortality. Rural areas have low rates of incidence and high rates of mortality, these statistics remain constant statewide, nationally, and globally. This is due in part to advanced technologies in hospitals of urbanized areas that are capable of accurately diagnosing (leading to higher incidence) and successfully terminating (leading to lower mortality) breast cancer, as opposed to more rural areas that are lacking in these technologies. Rural citizens likely travel to urban hospitals for better care, increasing the apparent incidence in urban areas.

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Supported by: University of Kentucky, Department of Biostatistics

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**Presentation 231**

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Abstract Title: **The Impact of Demographic Differences on Bladder Cancer**

Author(s): W. E. Brown, High School Student, Frederick Douglass High School; K. E. Boyd, High School Student, Frederick Douglass High School; C. M. Atkins, High School Student, Frederick Douglass High School

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**Abstract:** The incidence and mortality of bladder cancer within different demographic groups were evaluated on state, national, and international levels. The hypothesis was that America would have a relatively high bladder cancer rate compared to international levels regardless of the demographic group. Cancer statistics and graphs were analyzed from databases such as the American Cancer Society and the Center for Disease Control. America has high incidence rates on an international level, and Kentucky has a slightly higher incidence than the US, but mortality rates are equal to the rest of the nation. Incidence and mortality increase significantly with the older age groups, and white non-Hispanics have the highest incidence rate compared to other races. The most significant finding was that males have higher incidence rates than females, measured on an international level. The reason for this could be that men are statistically more exposed to environmental factors like smoking, occupational exposures, and high-meat diets leading to bladder cancer.

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**Poster Number 233**

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Abstract Title: **The Impact of Lung Cancer on Kentuckians**

Author(s): B. N. Fisher, High School Student, Frederick Douglass High School; I. M. Bliziotis, High School Student, Frederick Douglass High School; L. G. Golinski, High School Student, Frederick Douglass High School

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**Abstract:** Lung cancer is the leading cause of death for both men and women today. Depending on where you live, these cancer rates differ on your region and environmental factors. The goal of this project is to compare how geographical/ demographic factors affect lung cancer. Peer reviewed data such as the CDC and the American Cancer Society was used to research how lung cancer affected Kentuckians. In the state of Kentucky, it was determined that the eastern part had the highest incidence of lung cancer. The mortality rate is scattered all over Kentucky, but it is most common in Eastern Kentucky. These cancers are most common in eastern Kentucky because most coal mines in Kentucky are located in the eastern region. The coal mines emit fumes that can impact the development of cancer in the lungs. Also, smoking in Kentucky is most common in the eastern region, which is the most common cause of lung cancer.

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**Presentation 235**

Abstract Title: **The correlation between Non-Hodgkin Lymphoma (NHL) and population demographics within America.**

Author(s): J. T. Nichols, High School Student, Frederick Douglass High School; A. E. Jarvis, High School Students, Frederick Douglass High School; J. A. Harmon, High School Student, Frederick Douglass High School.

**Abstract:** In this it will describe the relationship between the incidence and mortality rate of NHL in Kentucky compared to nationwide and globally. Kentucky is on the higher end of the spectrum for NHL rates in its population compared to other areas in the country and world. The data for this was collected and analyzed from multiple peer reviewed databases that include Mayo Clinic and NIH. Each had data from the years of 2016 to 2020. Findings show that throughout the US the majority of NHL incidence and mortality was found in the Northeastern region of the country. Then within Kentucky incidence is prevalent around the central counties with the state averaging a high mortality rate above half of the states. The findings described above show that the prevalence of NHL results from high chemical exposure from industry development. Counties in Kentucky and states with more industrial workers had the greatest prevalence in the state and across the United States. The increase in chemical exposure links to a rise in autoimmune disorder development that is a direct effect to an increase in the risk for developing NHL.

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**Presentation 237**

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Abstract Title: **The Impact of Gastric Cancer Among Different Population Demographics**

Author(s): A.I. Marquez, High School Student, Frederick Douglass High School; D. Aleman, High School Student, Frederick Douglass High School; K. Ippongi, High School Student, Frederick Douglass High School

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**Abstract:** The purpose of this research is to understand the incidence and mortality rate of Gastric cancer in the United States. Data was collected and analyzed from peer reviewed databases such as the CDC, World Health Organization, and the American Cancer Society through various demographics from 2016 to 2020. Within those findings, the United States ranks as the 4th leading cause of cancer death in both sexes. In the United States the incidence and mortality is most prevalent in the southern regions. It can be inferred that this could be caused by the higher prevalence of obesity in the southern regions of the United States. Another inference applied to the high mortality and incidence in the South is the high number of food and drinks processed. Western Kentucky has one of the highest prevalence rates due to the high activities of coal mining.

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**Presentation 239**

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Abstract Title: **The Impact of Leukemia on a State and National Level**

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Author(s): R. N. Franklin, High School Student, Frederick Douglass High School; M. Prewitt, High School Student, Frederick Douglass High School; L. Hudson, High School Student, Frederick Douglass High School

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**Abstract:** The purpose of this research project is to understand how leukemia impacts different populations in America, specifically Kentucky, and determine the possible correlation between certain demographics and leukemia. It is predicted that Kentucky will have higher incidence and mortality rates on a national level. Statistical information from the years 2016 to 2020 was gathered from peer-reviewed databases such as American Cancer Society, CDC, and World Health Organization. Through data analysis, the Southeast region of the United States was found to have the greatest presence of leukemia, causing the highest incidence and mortality rates compared to the rest of the country. Accordingly, Kentucky ranks 3rd in mortality and 8th in incidence. The lack of access to advanced healthcare in these areas may be a factor contributing to this geographical trend. Additionally, the higher consumption rate of fast food and sugary drinks, resulting in higher obesity rates seen in the South, is another possible correlating factor. In America and around the world, leukemia affects different populations based on particular risk factors.

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**Presentation 241**

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Abstract Title: **Incidence and Mortality of Gastric Cancer by Geography, Ethnicity, and Sex on a State, Country, and Global Level.**

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Author(s): C. H. Hartlep, High School Student, Frederick Douglass High School; J. O. Kufour, High School Student, Frederick Douglass High School; M. L. Siewert, High School Student, Frederick Douglass High School

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**Abstract:** This project intends to further the public understanding of gastrointestinal cancer including, but not limited to: risk factors, incidence rate, and mortality rate in Kentucky, the United States, and other counties. This project compiles and analyzes research from relevant, peer-reviewed, databases such as The Center for Disease Control and Prevention (CDC), National Institutes of Health (NIH), and The National Cancer Institute's Center for Cancer Research (CCR). Through data analysis it was concluded that the incidence rate of gastric cancer in Kentucky is 6.3 cases per 100,000 people, with a mortality rate of 2.7 cases per 100,000 people. The incidence rate of gastric cancer has slowly decreased over the past 10 years, but the mortality rate remains very high. Factors that contribute to gastric cancer include Helicobacter pylori infection (a bacterial infection often spread through contact with saliva or stool, or contaminated food), nutrient-deficient diet, smoking, and consuming alcohol. Research findings suggest that males are more likely to acquire gastric cancer, and most cases do come from a bacterial infection of Helicobacter pylori.

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**Presentation 243**

Abstract Title: **The Geographical Impact of Colorectal Cancer in Kentucky**

Author(s): S. A. Williams, High School Student, Frederick Douglass High School; L. A. Kelly, High School Student, Frederick Douglass High School

**Abstract:** The purpose of this project is to further the understanding of the geographical impact of colorectal cancer in Kentucky. This data was collected by using relevant peer reviewed databases, created by the NIH and the CDC. Kentucky is ranked number 1 in the United States for incidence rate and mortality rate for colorectal cancer. The rate in Kentucky is 42.1% per 100,000 people. Kentucky has the highest percentage of colorectal cancer because it has a high poverty level and adequate access to medical care is limited for a large amount of people.

Supported by: University of Kentucky, Department of Biostatistics

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**Presentation 245**

Abstract Title: **The impact of Demographics relating to lung cancer**

Author(s): F. F. Cruse, High School Student, Frederick Douglass High School; J. C. Tietz, High School Student, Frederick Douglass High School; W. L. Worley, High School Student, Frederick Douglass High School

**Abstract:** Lung cancer is the leading cause of cancer death worldwide. Lung cancer accounts for 20% of all cancer deaths in the United States. Among men and women it ranks first and second as the leading cause of cancer death respectively. Lung cancer trends can also be broken up between race, gender, and geography. Through research of peer reviewed sources, such as CDC, NIH, The American Cancer Society, data was compiled to detail the demographics that relate to lung cancer. Lung cancer is a multi factorial disease, with different regions being affected in different aspects. In the United States, lung and bronchus cancer is most prevalent in the southeast region of the United States.

Supported by: University of Kentucky, Department of Biostatistics

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**Presentation 247**

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Abstract Title: **The Impact of Pancreatic Cancer On Americans With Emphasis On Kentuckians**

Author(s): N. B. Helm, High school student, frederick douglass high school; M. E. merrryweather, high school student, frederick douglass high school; B. A. plowman, high school student, frederick douglass high school

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**Abstract:** Pancreatic cancer is a deadly cancer that affects the human pancreas and is a significant problem in America today. The present hypothesis being America has a higher incidence rate and a lower mortality rate as it being a first world country economically and Kentucky being a higher incidence and lower mortality rate as it is one of the poorest states in America. The South-Eastern area in the US presented the highest mortality rate in relation to Pancreatic cancer. Using peer reviewed databases both measuring from years 2016-22, such as World Health Organization, CDC and the American Cancer Society was collected for the mortality and incidence rates. It was concluded that 11.5% of Mortality Rates of Kentuckians were affected. Incidence rates for this state are 13.4% also the highest rates from the Central and Western areas . This data can conclude that the overall state of Kentucky has a higher mortality rate and lower incidence rate as the United States has a higher mortality rate and a lower incidence rate as the cancer isn't highly diagnosed but is deadly.

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Supported by: world health organization, CDC, american cancer society

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**Presentation 249**

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Abstract Title: **The Impacts of Kidney and Renal Cancer on Kentucky and the United States**

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Author(s): D.A. Chhadh, High School Student, Frederick Douglass High School; S.R. Mayfield, High School Student, Frederick Douglass High School; K. McGillem, High School Student, Frederick Douglass High School; J.K. Williams, High School Student, Frederick Douglass High School

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**Abstract:** This research was conducted to investigate the influence of Kidney and Renal Cancer in areas of Kentucky and the United States. Data was collected from peer-reviewed articles such as the World Health Organization, CDC, and State Cancer Profiles. Demographics that showed mortality and incidence rates in Kentucky demonstrated that incidence rates were sporadic throughout the state, with no specific area of higher incidence rates, proving that there are no environmental risks. However, although rates are sporadic, incidence rates altogether are still high compared to surrounding states. This could potentially be due to factors like increased amounts of growing tobacco, obesity rates increasing much higher than other states, and leading the country with the highest smoking rates, all of which are factors that greatly contribute to a risk of Kidney Cancer. After analyzing the demographics of trends in the United States, it was found that the states located South and some of the Southeast have much higher incidence rates of Kidney Cancer than surrounding states do. This could be due to the increased rate of diabetes which is most likely caused by high carnivore diets in the south, both of which have a high correlation to Kidney Cancer. With the high amounts of farming in the South, pesticides used can increase the risk of Kidney Cancer. These points can be used as the first step toward understanding the causes and rates of Kidney Cancer in Kentucky and the U.S.

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Supported by: World Health Organization, Center for Disease Control, and State Cancer Profiles

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