Introduction:

What inspired me to pursue this capstone project?

Breast Cancer is in my family and for us, we are fortunate that my cousin was able to have access to the medical treatment and her cancer is now in remission.

However, I realized that not a lot of women and families can share the same experience as my family in having a member survive breast cancer.

My primary goal of my capstone project is to continue to bring awareness to the importance of combating breast cancer deaths amongst our female population.

Currently, the best way to find breast cancer for most women is through a mammogram, according to the American Cancer Society (ACS).

The ACS recommends women aged 40 to 44 should get mammogram screenings at least one a year and annual screenings for women aged 45 to 49.

For this project, I wanted to look at the mortality rates of women by county within Tennessee and the number of FDA approve mammograph facilities and see if there is a correlation to having access to these facilities for possible screening.

So, for counties that have a higher death rate, how many FDA approve mammograph facilities are located within the county?

In addition, I also wanted to look at another additional factor, such as insurance, that could possibly play a contributing factor to a higher death rate.

Dataset:

Breast Cancer Death Rates by County are from the State Cancer Profile site.

The data compile looks at death rates by County during the 2016-2020 timeframe. However, the data set did have it some limitations due to data suppression. Data has been suppressed to ensure confidentiality and stability of rate estimates. Counts are suppressed if fewer than 16 records were reported in a specific area-sex-race category.

Due to the data suppression, it was quite difficulty to get a more defined looked at the death rates by races. Initially, I wanted to look and compare mortality rates amongst white, black, and brown women to highlight some of the healthcare disparities within our community, but due to how the data is suppressed, I am not able to paint that full picture for this project.

So, I had to switch gears and change my focus to look at mortality rates amongst all women in Tennessee.

The Insurance coverage was provided from the US Census Bureau and the location of FDA approved Mammograph facilities came from the FDA. Gov website.

Technologies: Python and Tableau

Analysis:

1. **Which counties had the highest BC death rates**
   1. Crockett County - 31.9
   2. Unicoi County - 31.7
   3. Scott County - 31.3
   4. Weakley County - 31.1
   5. Grundy County - 30.9
   6. Henderson County - 29.7
   7. Tipton County - 29.6
   8. Lauderdale County - 29.4
   9. Union County - 27.3
   10. Dickson County - 27.2
   11. Shelby County - 27
   12. Hickman County - 26.7
   13. Chester County - 26.6
   14. Morgan County - 26.5
   15. Cheatham County - 25.9

So in looking into these counties with the highest death rate, I wanted to see how many FDA Mammogram facilities are located within these counties?

In TN, there are 192 FDA approved Mammogram facilities. Within the 15 TN counties with the highest mortality rates…8 of the counties has a mammogram facility or facilities. However, I did notice that Shelby County had the largest number of mammogram facilities, 26, but has a high BC mortality rate of 27%.

So, my first data question is partially answered, the counties that have 1 or fewer than 2 mammogram facilities, did have a higher mortality rate. However, what is going on with Shelby County.

This brings me to my second data question, is there another factor, such as insurance that also plays a factor in higher mortality rates within these counties?

According to the US Census Data, between 2016-2020, Shelby County has the highest number of its population with no insurance coverage at 4,052,700. In taking a deeper look, Shelby County also has the highest number of uninsured females during the same timeframe at 264,365.

1. Which counties had the lowest BC death rates
   1. Roane County -14.6
   2. Hardin County - 15
   3. Greene County - 15
   4. Carter County - 16
   5. Franklin County - 16.9
   6. Fayette County - 16.9
   7. Maury County - 17.4
   8. Robertson County - 17.7
   9. Henry County - 18.6
   10. Jefferson County -18.7
   11. Rhea County - 19
   12. Blount County - 19.1
   13. Knox County - 19.3
   14. Montgomery County - 19.4
   15. Cocke County - 19.4

In looking at the counties with the lowest morality rates, 14 out of the 15 counties had 1 or 2 mammogram facilities, with Knox County leading the pack with 17 facilities.

In looking at the insurance factor, the top 15 had the lowest number of uninsured females during 2016-2020. Knox county, which had the highest number of mammogram facilities, also had the least amount of uninsured females compared to Shelby county, with approx. 91,969. The other counties on the list also had more insured females compared to the counties with the highest mortality rate.

Conclusion: Insurance and access to adequate healthcare plays a key part in contributing to high mortality rates of breast cancer amongst women in TN.