



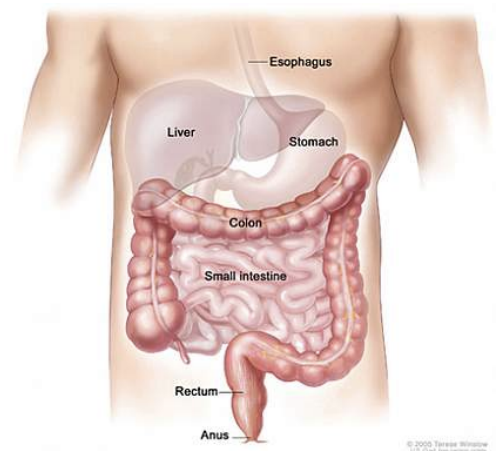
**SIGNS OF
BRAIN CANCER**

- *Sudden headaches
- *Worsening headaches
- *Difficulty with balance
- *Confusion
- *Loss of recall
- *Nausea or vomiting
- *Seizures
- *Dizziness
- *Hearing impairment
- *Vision impairment
- *Loss of sensation
- *Changes in personality, behavior, or mood

**The TRUTH About
CANCER**
educate • expose • eradicate

Cancer survival rates in the United States

By Ruth Holley and Chun Lam



Abstract

Background information

In this project, we focused on doing an Analysis on cancer survival rates in the United States from a total time interval of 1963 to 2013 . We were interested in this topic because we both knew people who died from various type of cancers.

Methods

The cancer survival dataset we used comes from the website: DataWorldMakeovermonday. R programming was used to help us answer a specific set of questions we came up with. We used the dplyr package to perform the necessary data manipulation and aggregations. Additionally, we used ggplot and ggplot2 to generate our graphs.

Analysis

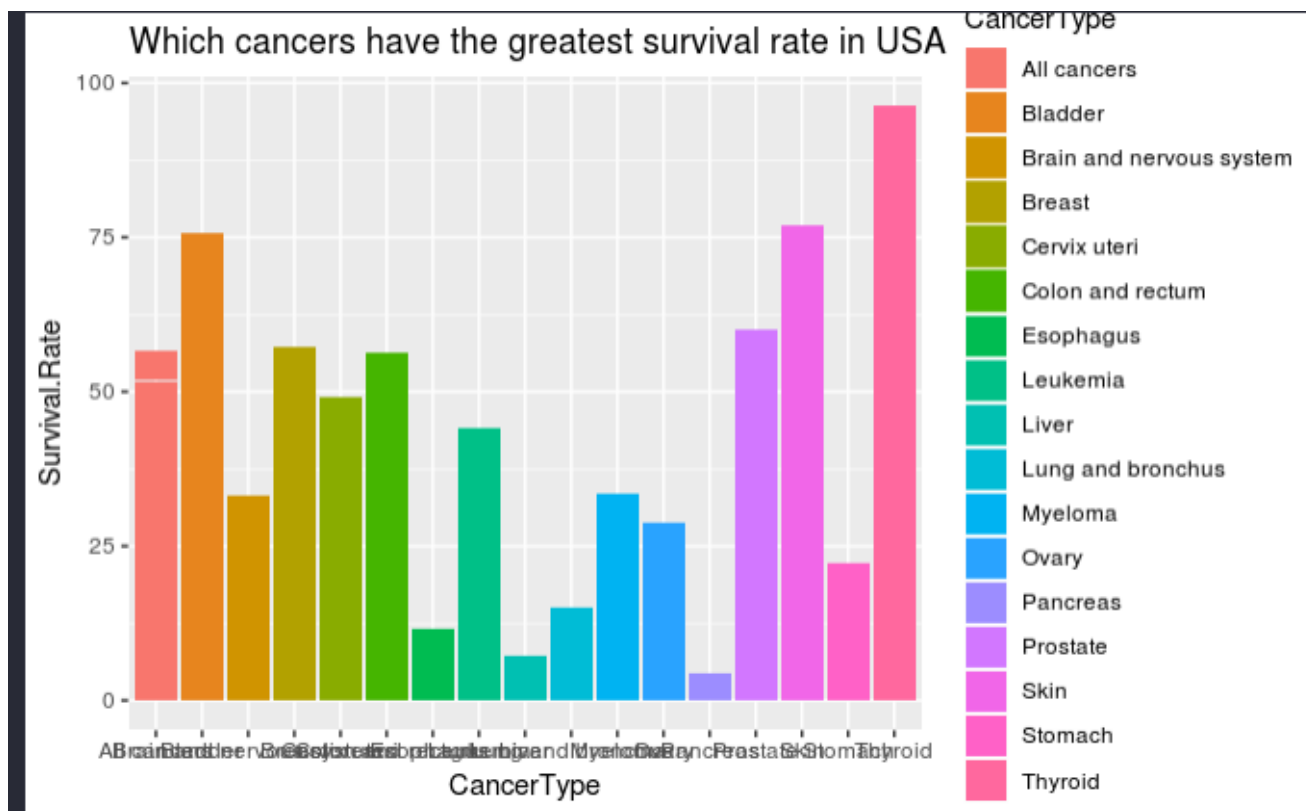
Through our exploration of the dataset, we will attempt to answer the following questions using the methods described above.

1. Which types of cancers have the greatest survival rate in the United States
2. Which types of cancers affects mostly women versus men?

3. Is race a factor in cancer survival rate?
4. How has the cancer survival rate increased in 50 years?
5. How has the cancer survival rate changed in mostly 10 year intervals for both genders?

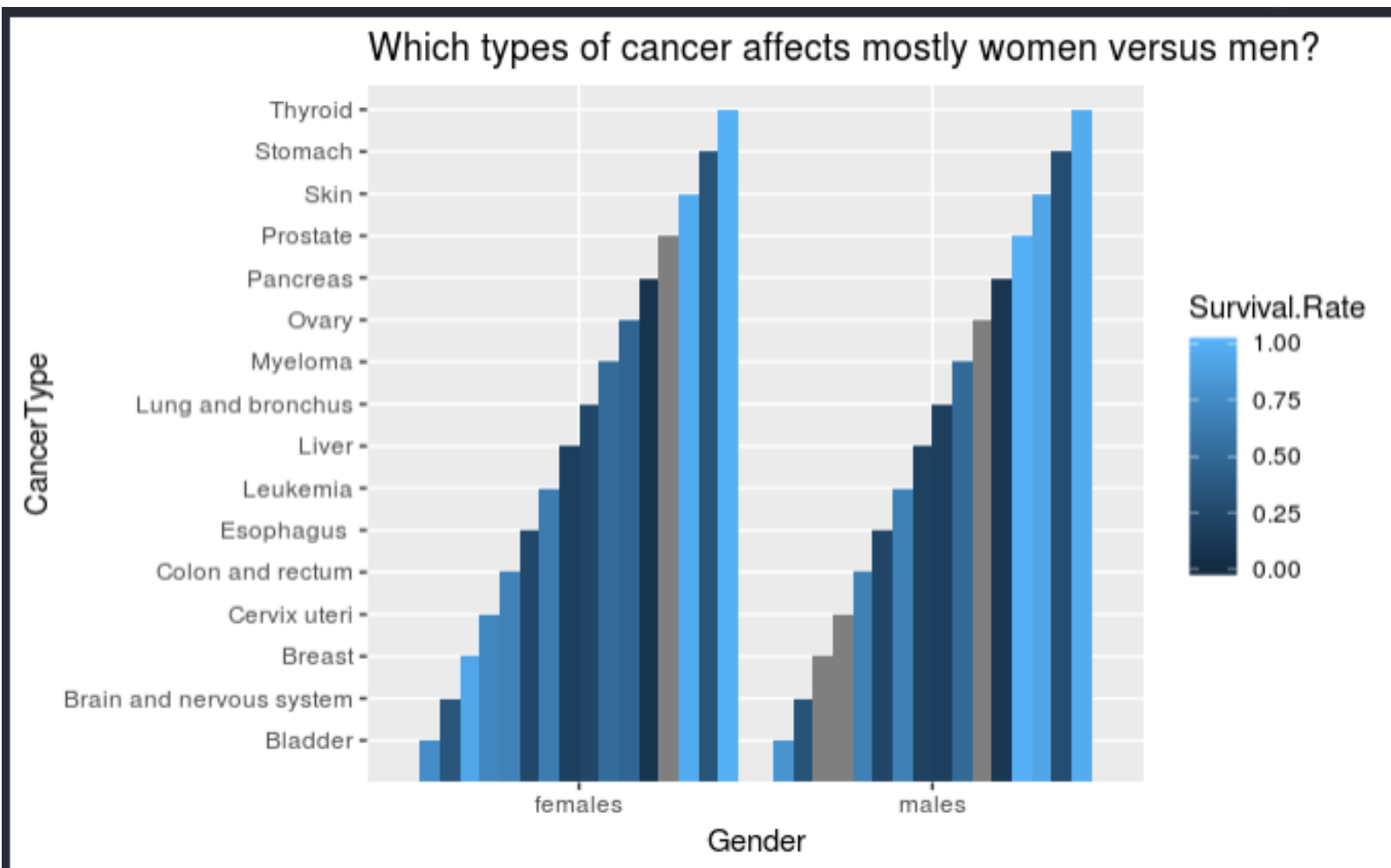
Discussion

We will start our discussion by doing some analysis on question number one. *Which types of cancers have the greatest survival rate in the United States?*



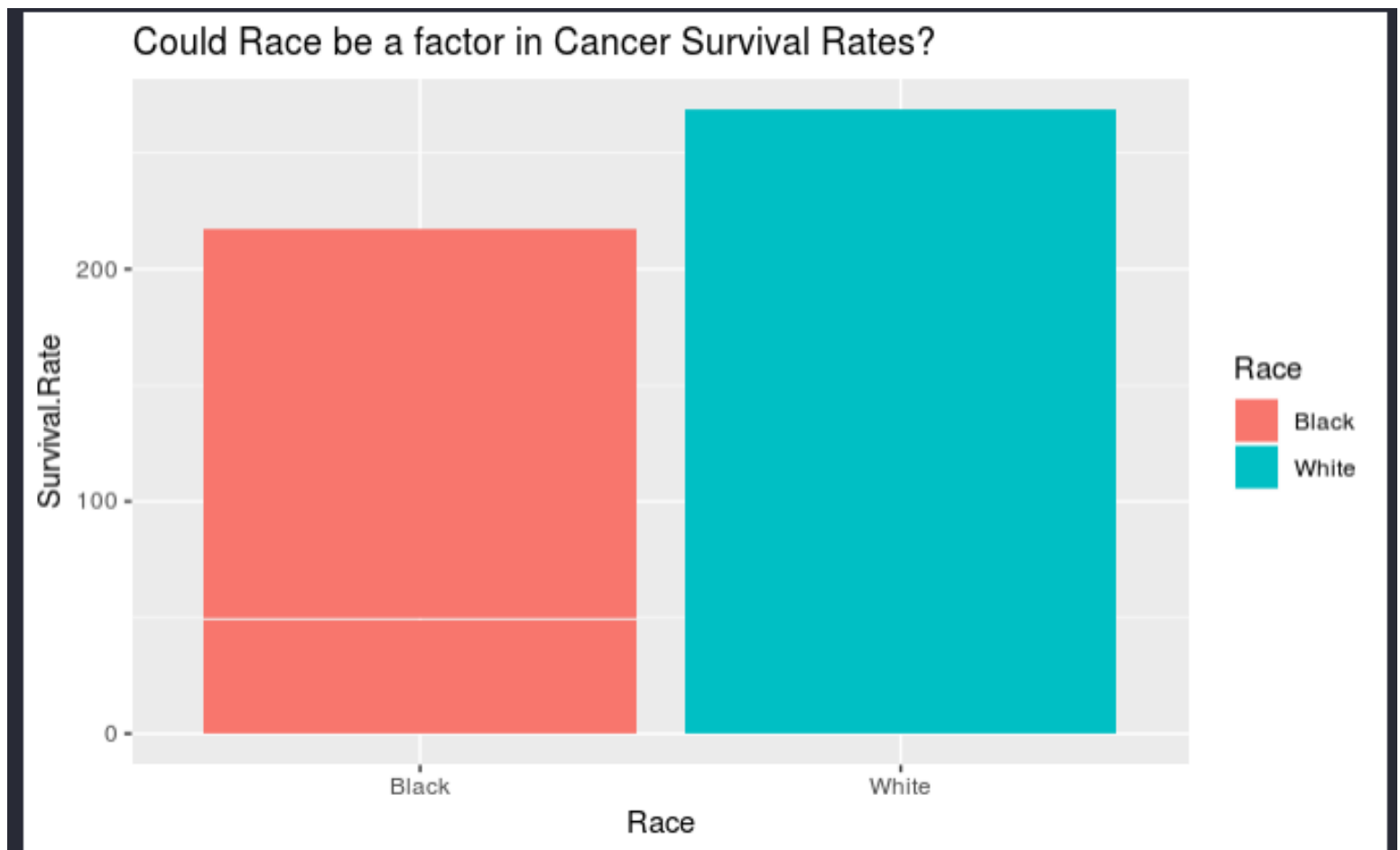
As you can see from the graph above, Thyroid followed by skin and Prostate cancer has the highest survival rates whereas Liver and Pancreas has some of the lowest rates.

Now we move on to doing our analysis on question number two. Which types of cancers affects mostly women versus men?



The graph above shows us that both men and women are equally affected by Thyroid , Stomach, and Skin cancers. Females do not suffer from prostate cancer so that item has been grayed out as it is not relevant for that population. In turn, Men do not suffer from Ovary, Cervix uteri, and Breast cancer so those items have been grayed out as well.

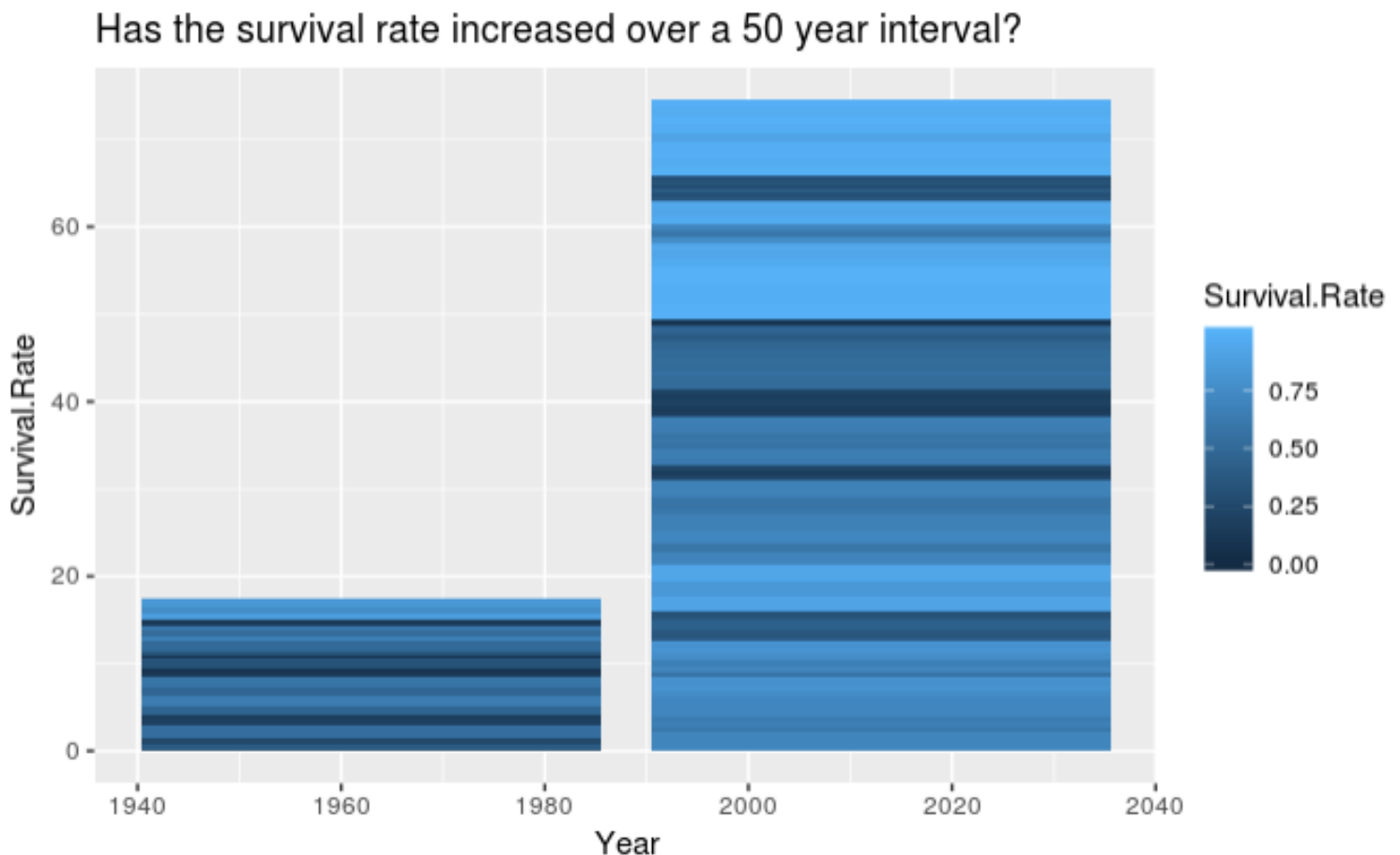
For our third questions, we will do some analysis on whether or not race a factor in cancer survival rate?



So from our chart above we can see that White people have a greater can-

cer survival rate than Black people. We can draw some conclusions that perhaps white people have greater access to cancer related healthcare and or greater financial resources than black people. It would be interesting to see the rates of cancer survival in other ethic groups besides black and white but we were unable to find a dataset with this type of information.

In our fourth question, has the survival rate increased over a mostly 50 years interval?



This graph clearly shows how the cancer survival rate has drastically increased from 1963 to 2013. It shows that improvements in modern medicine is really starting to payoff and we should see further increases in the cancer survival rate as medicine for it continues to get better.

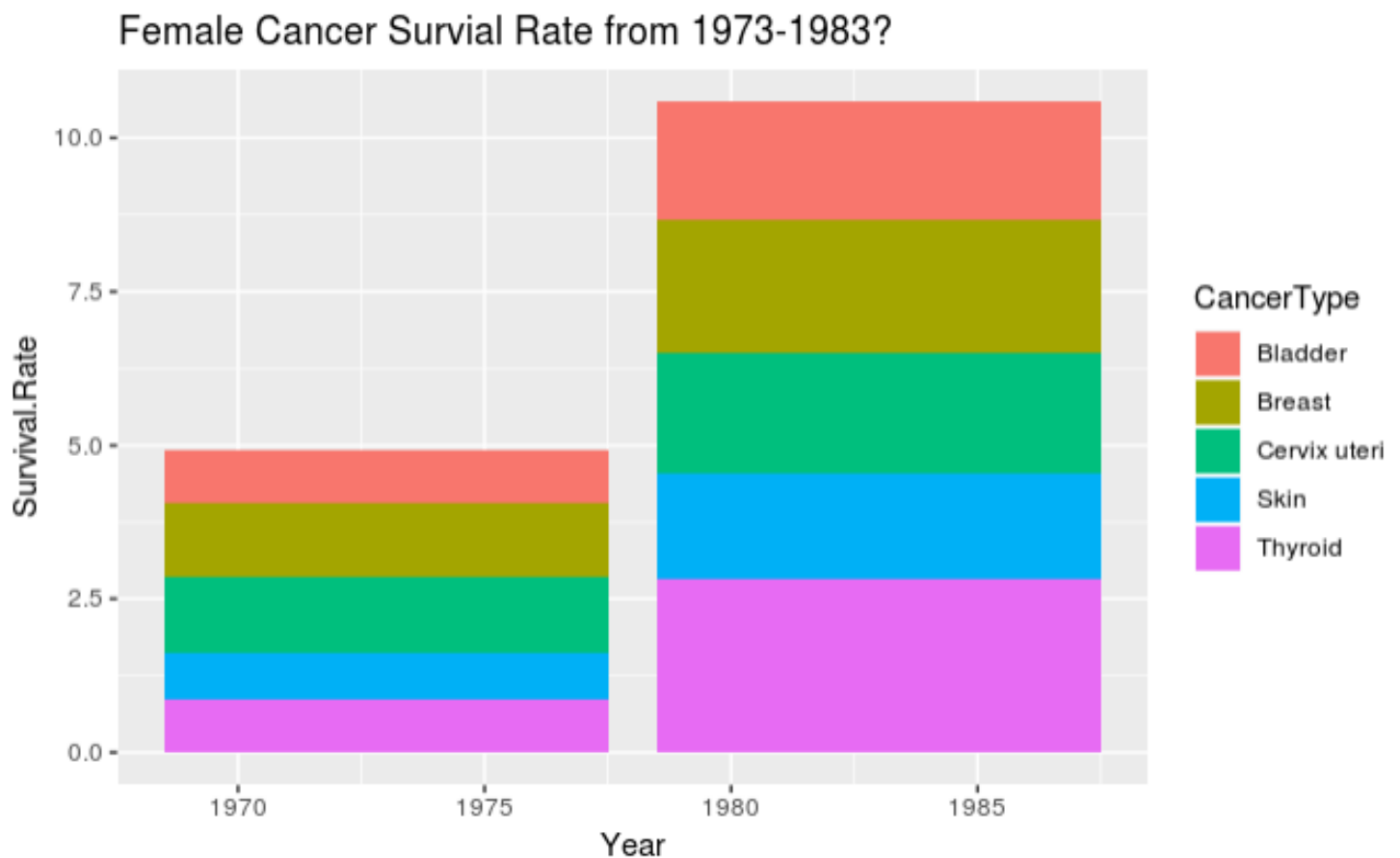
For our last question we will discuss How has the cancer survival rate changed in mostly 10 year intervals for both genders?

We decided to do 10 year intervals because we were interest in seeing how cancer research and innovations has impacted the cancer survival rates per decade.

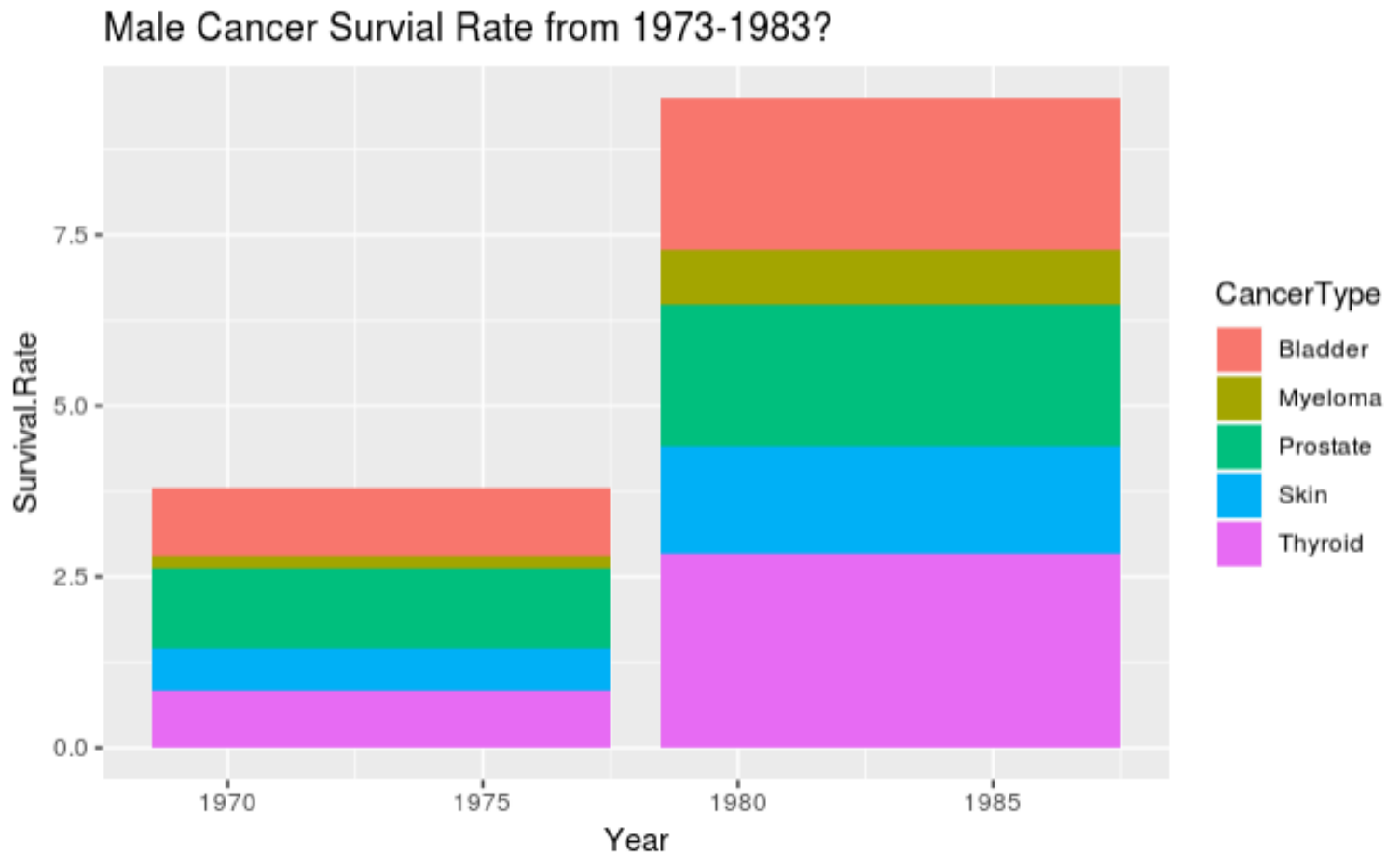
So for our first 10 year interval, we will examine the time period of 1973-1983.

1973	Male	Female	1983	Male	Female
1	Thyroid	Thyroid		Thyroid	Thyroid
2	Prostate	Skin		Bladder	Skin
3	Skin	Breast		Skin	Breast
4	Bladder	Cervix		Prostate	Bladder
5	Myeloma	Bladder		Colon and Rectum	Cervix Un- teri

During our analysis we discovered that Thyroid cancer was the top survivable cancer for both male and female during this time period. For men in 1973, Prostate cancer had the second highest survival rate but in 1983 we saw that Bladder cancer had the second highest survival rate.



We can see from our chart, for women that the cancer survival rate has greatly increased during this time period. So can conclude that cancer research and medical technology has seen many improvements during this decade.

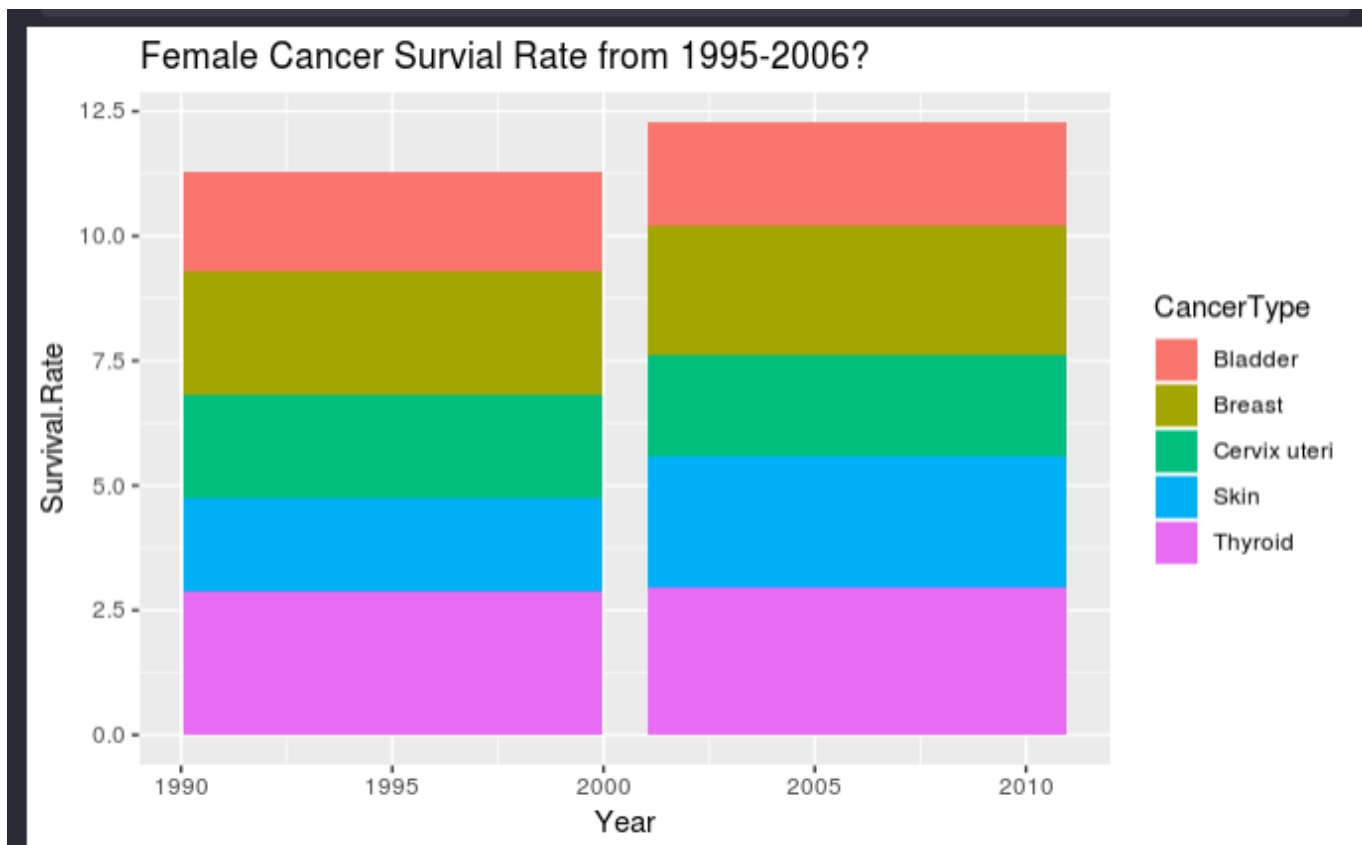


We see also during this time period the survival rates for males also greatly increased about the same percentage as females.

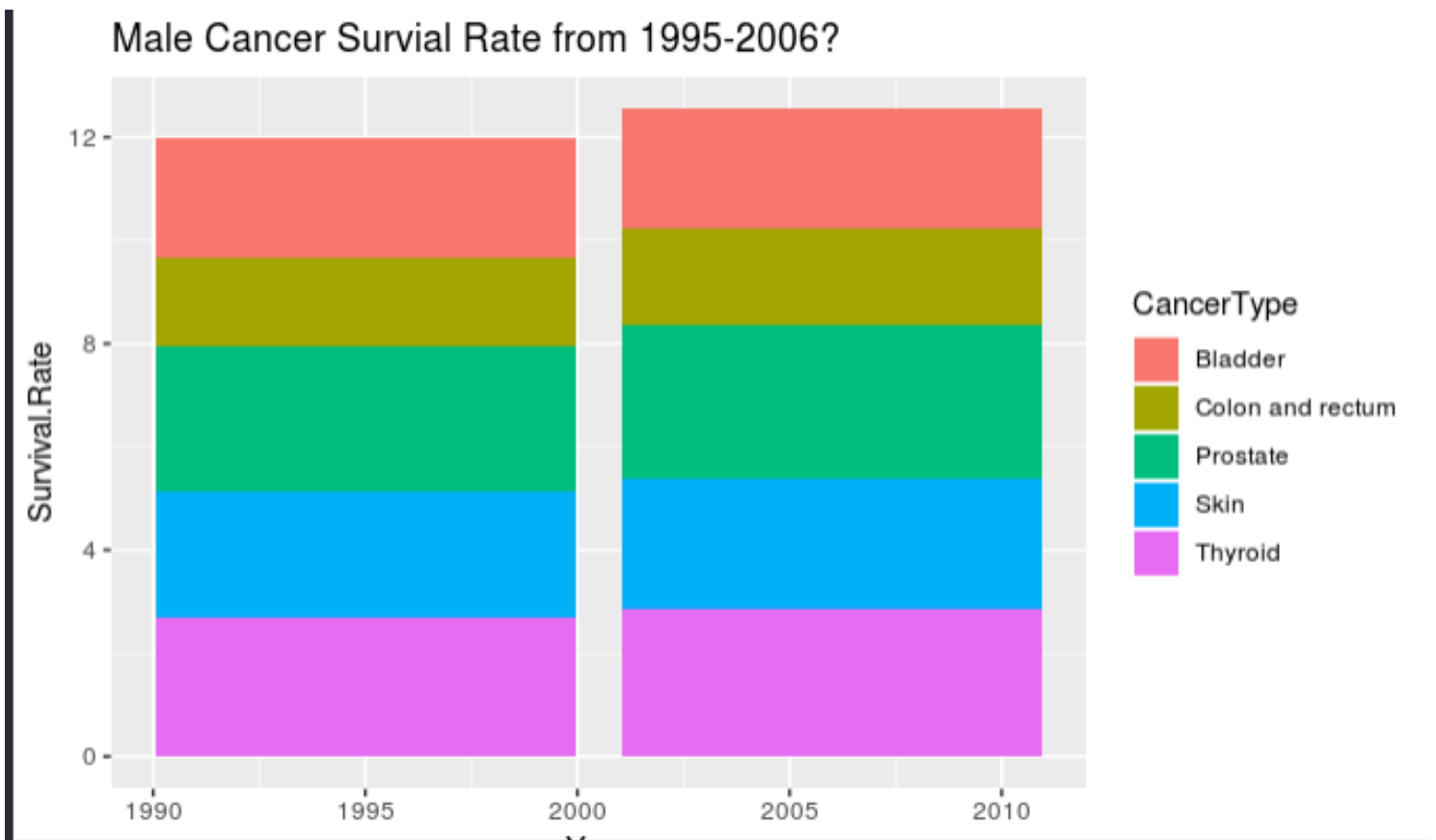
So for our second 10 year interval, we will examine the time period of 1995-2006.

	1995	Male	Female		2006	Male	Female
	1	Prostate	Thyroid			Prostate	Thyroid
	2	Thyroid	Skin			Thyroid	Skin
	3	Skin	Breast			Skin	Breast
	4	Bladder	Bladder			Bladder	Bladder
	5	Colon and Rectum	Cervix Uteri			Colon and Rectum	Cervix Uteri

During our analysis we discovered that Thyroid cancer was still the top survivable cancer for female during this time period. However for men in 1995, Prostate cancer moved up to be the top highest survival rate.



We can see from our chart that for women the cancer survival rate has roughly stayed the same during this time period. There was only a slight increase of the cancer survival rate. So can conclude that cancer research remain the same during this decade.

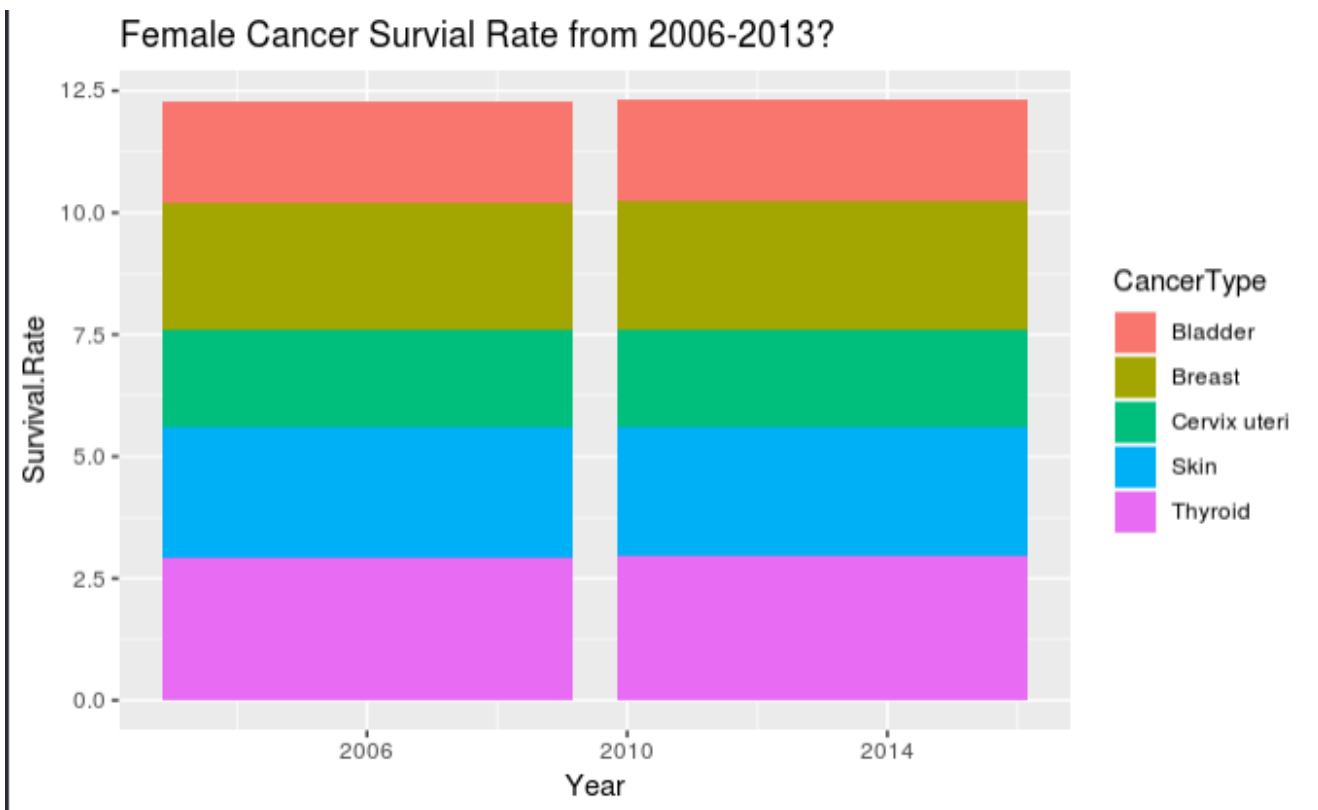


We can see from our chart that we see the same result as for females. The cancer survival rate has roughly stayed the same with only a slight increase during this time period.

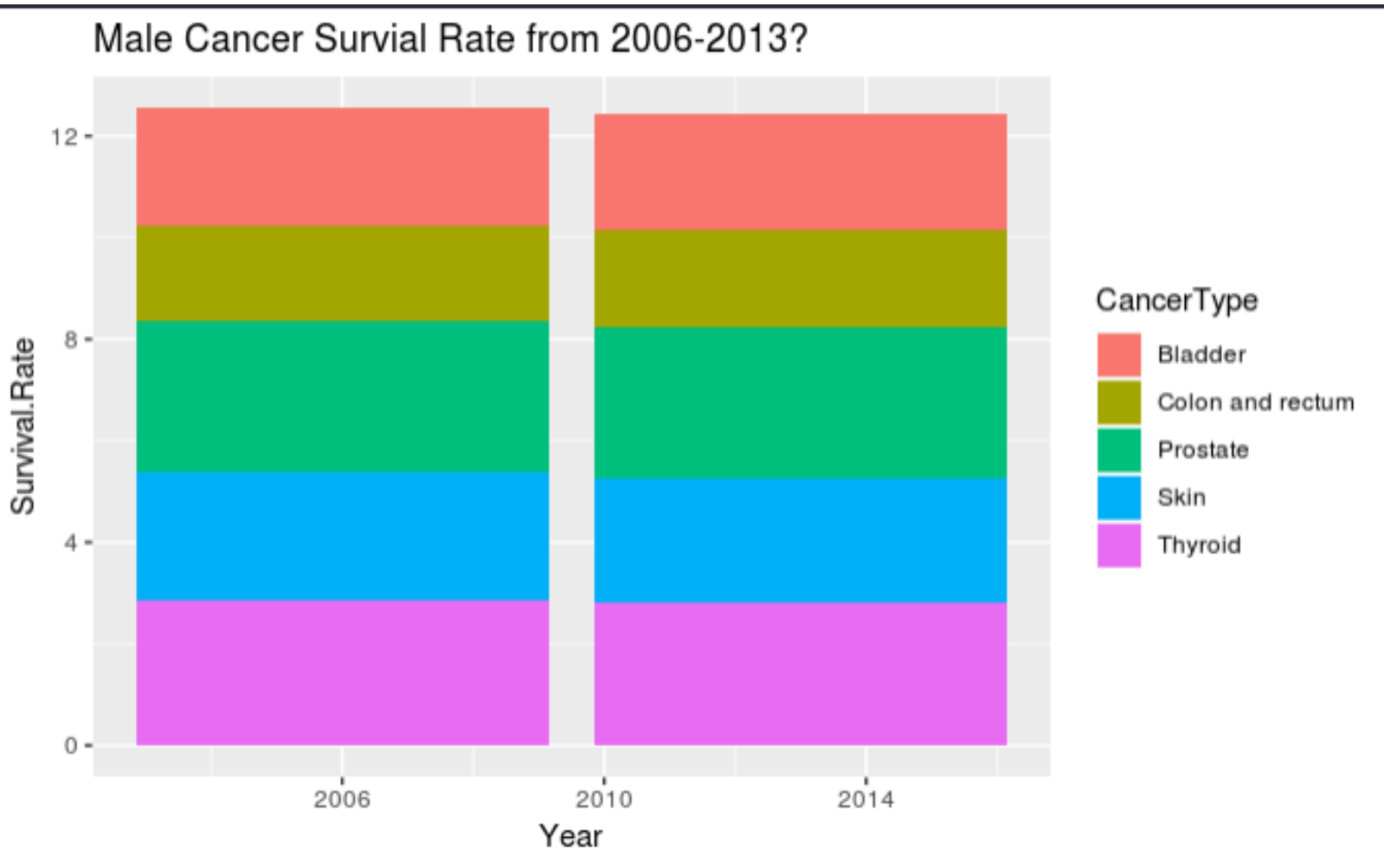
So for our third and final 10 year interval, we will examine the time period of 2006-2013.

	2006	Male	Female		2013	Male	Female
1		Prostate	Thyroid			Prostate	Thyroid
2		Thyroid	Skin			Thyroid	Skin
3		Skin	Breast			Skin	Breast
4		Bladder	Bladder			Bladder	Bladder
5		Colon and Rectum	Cervix Uteri			Colon and Rectum	Cervix Uteri

During our analysis we discovered that Thyroid cancer was still the top survivable cancer for female during and for men Prostate cancer still remained the top highest survival rate for this time period.



We can see from our chart that for women the cancer survival rate has roughly stayed the same during this time period. We can draw the conclusion that medical research has probably stayed the same.



We can see from our chart that for men the cancer survival rate also has roughly stayed the same during this time period.

This is how we determined what were the top 5 cancer rates for males and females. Using R code, We did a search on each year 1973, 1983, 1995, 2006, 2013 for males and females. After this we sorted by Survival Rate in descending order and picked the top five cancers that had the highest survival rate per gender and used this information as part of our analysis for Question five.

Conclusion

From the analysis, in general Prostate cancer has the highest survival rate for men and Thyroid cancer has the highest survival rate for females. In 1973 and 1983 men had a different type of cancer with the highest survival rate, which is thyroid cancer. Although men prostate cancer moved up to the highest survival after 1983, thyroid cancer was the second survival rate for men. Females top two survival cancer is Thyroid and skin cancer; the only difference is in 1973 females who had cervix cancer out beat the survival rate of bladder cancer.