This is just an export of the website we are using for our process book.
Please go to the following url to see the process book: https://sway.com/MuG5yRgnxRmMMLLV

America's Obesity Epidemic

Team Members

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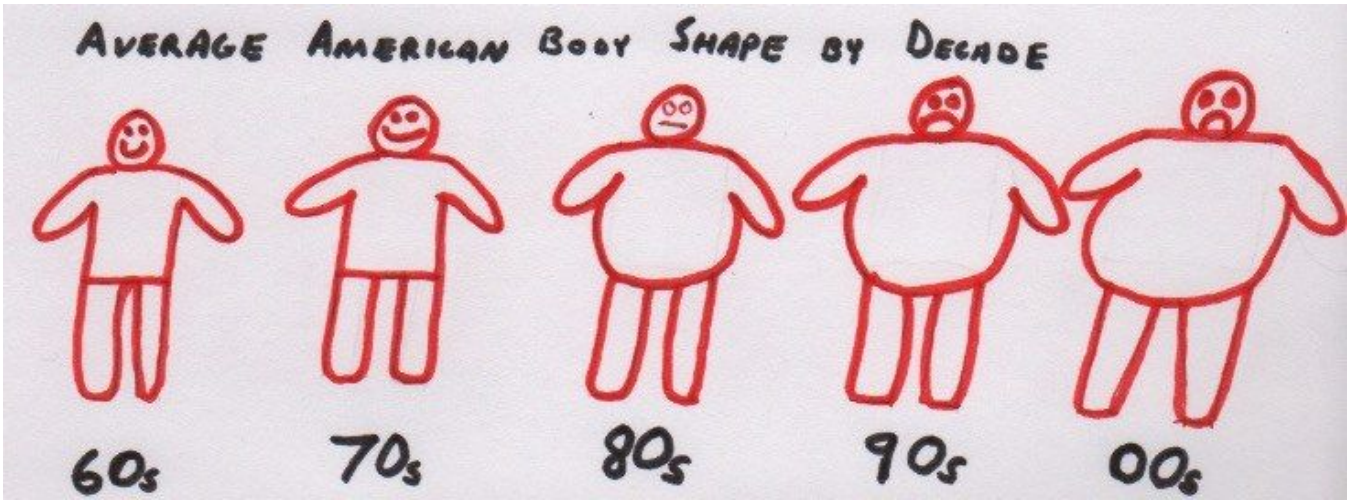
Goals

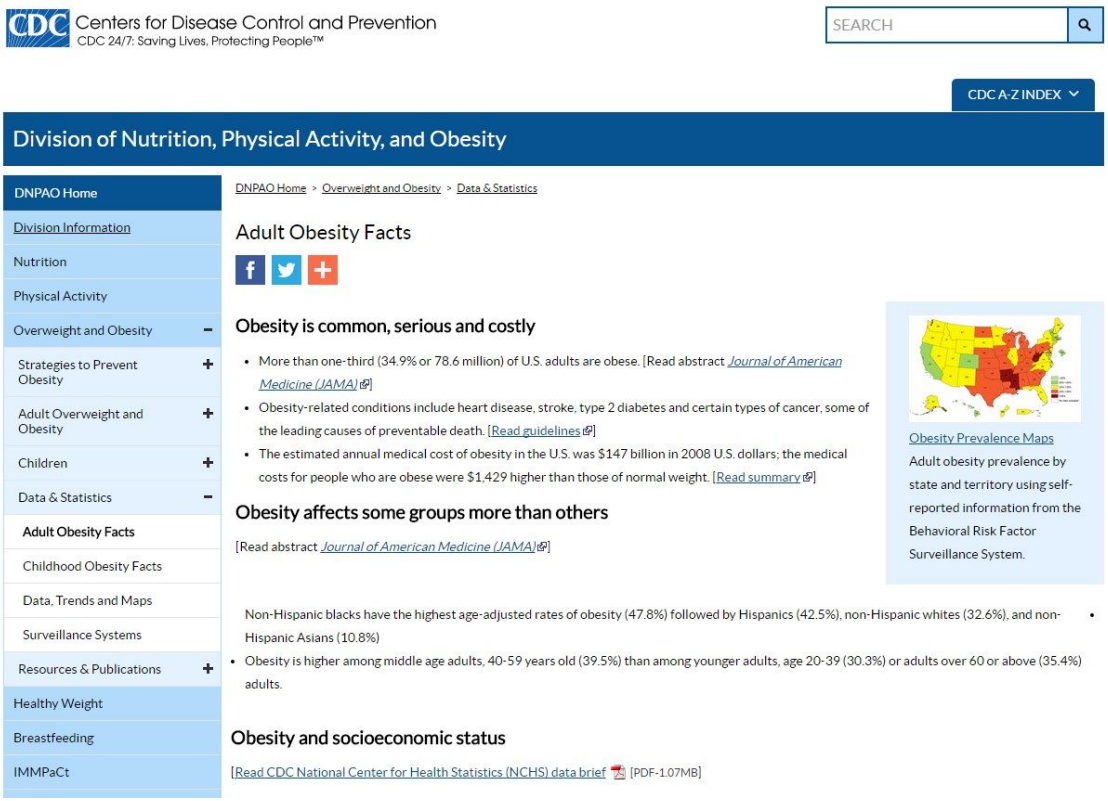


Summary - The goal of this project is to raise awareness of this serious issue that affects people of all ages and demographics. We want to create a place where people can clearly see how the prevalence of obesity has changed over time, and what other factors are strongly associated with it.

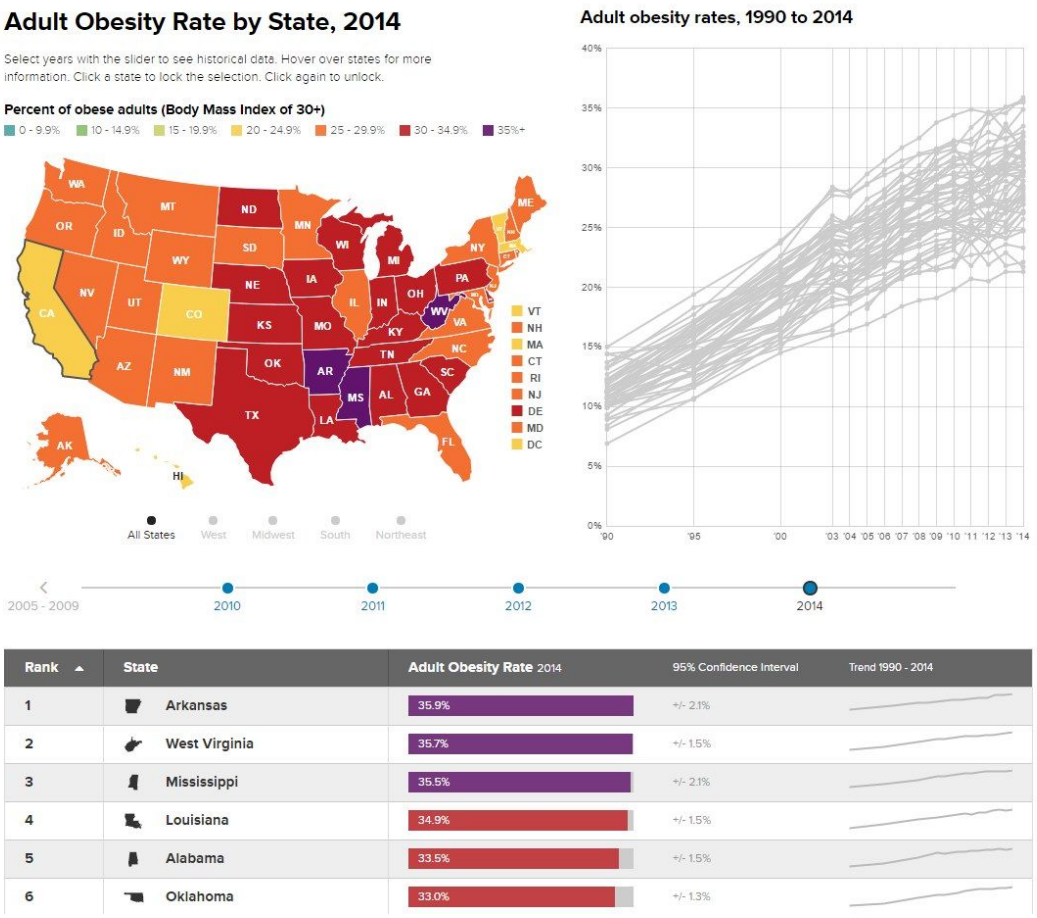
The hope is that our project will reveal insightful and meaningful information that will lead to change for individuals and possibly for new policy changes in organizations. If just one person is affected from our project and alters his or her lifestyle as a result, enjoying a lifetime of healthy-weight benefits, we consider our project a success.

Related Work

There a couple of websites dedicated to showing information about obesity. Some of the websites do better jobs than others at effectively communicating the main important facts about obesity. Most of the websites that we looked at were either very heavy in text or they only had charts without any explanations.



For example, the website http://www.cdc.gov/ has a lot of information about obesity, but the visualizations are fairly limited in functionality and the website could do a better job at telling the story about obesity.



Rank	State	Adult Obesity Rate 2014	95% Confidence Interval	Trend 1990 - 2014
1	Arkansas	35.9%	+/- 2.1%	
2	West Virginia	35.7%	+/- 1.5%	
3	Mississippi	35.5%	+/- 2.1%	
4	Louisiana	34.9%	+/- 1.5%	
5	Alabama	33.5%	+/- 1.5%	
6	Oklahoma	33.0%	+/- 1.3%	

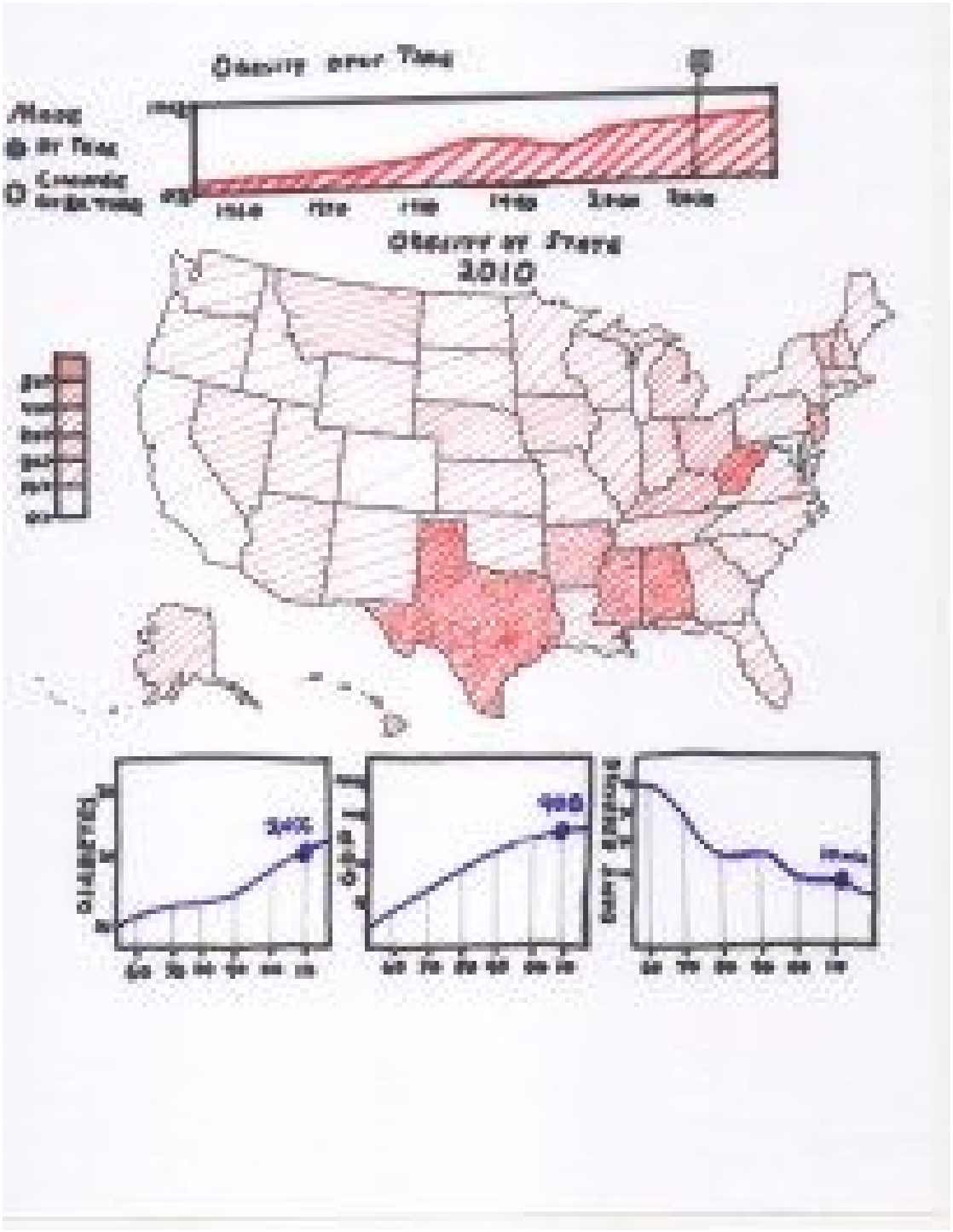
One website that has a nice visualization is http://stateofobesity.org/adult-obesity/. We like how it allows you to see obesity rates by state as well as the trends over the years.

Questions We had

When did obesity start becoming a problem?

It is hard to know if we are getting better as a nation unless we know how we have done in the past. We would like to know if there was a certain point in time when obesity became a problem. We would also like to know if it is getting better or worse. Being able to identify when it became a problem may highlight some other factors that may be associated with obesity.

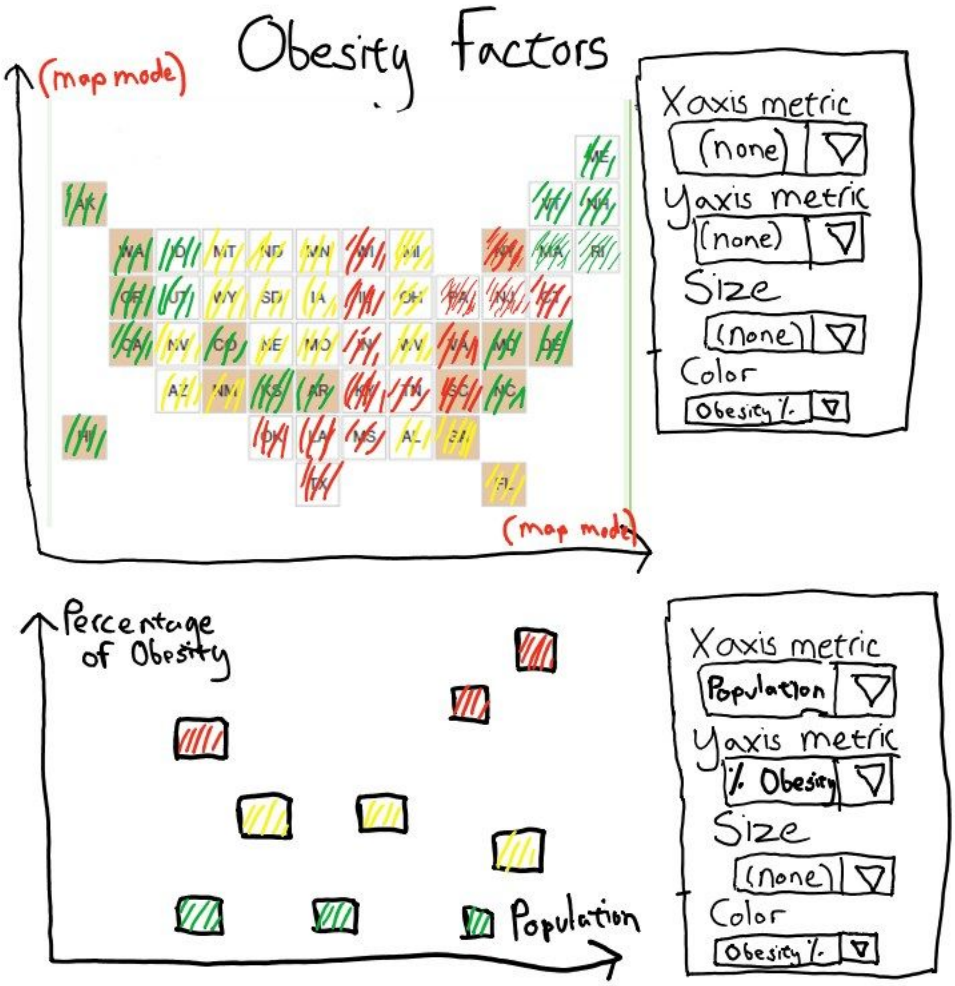
Initial Timeline Concept



We initially, wanted to capture quantitative data related to publication frequency but after discussion we are learning towards a timeline of related obesity events to support our message.

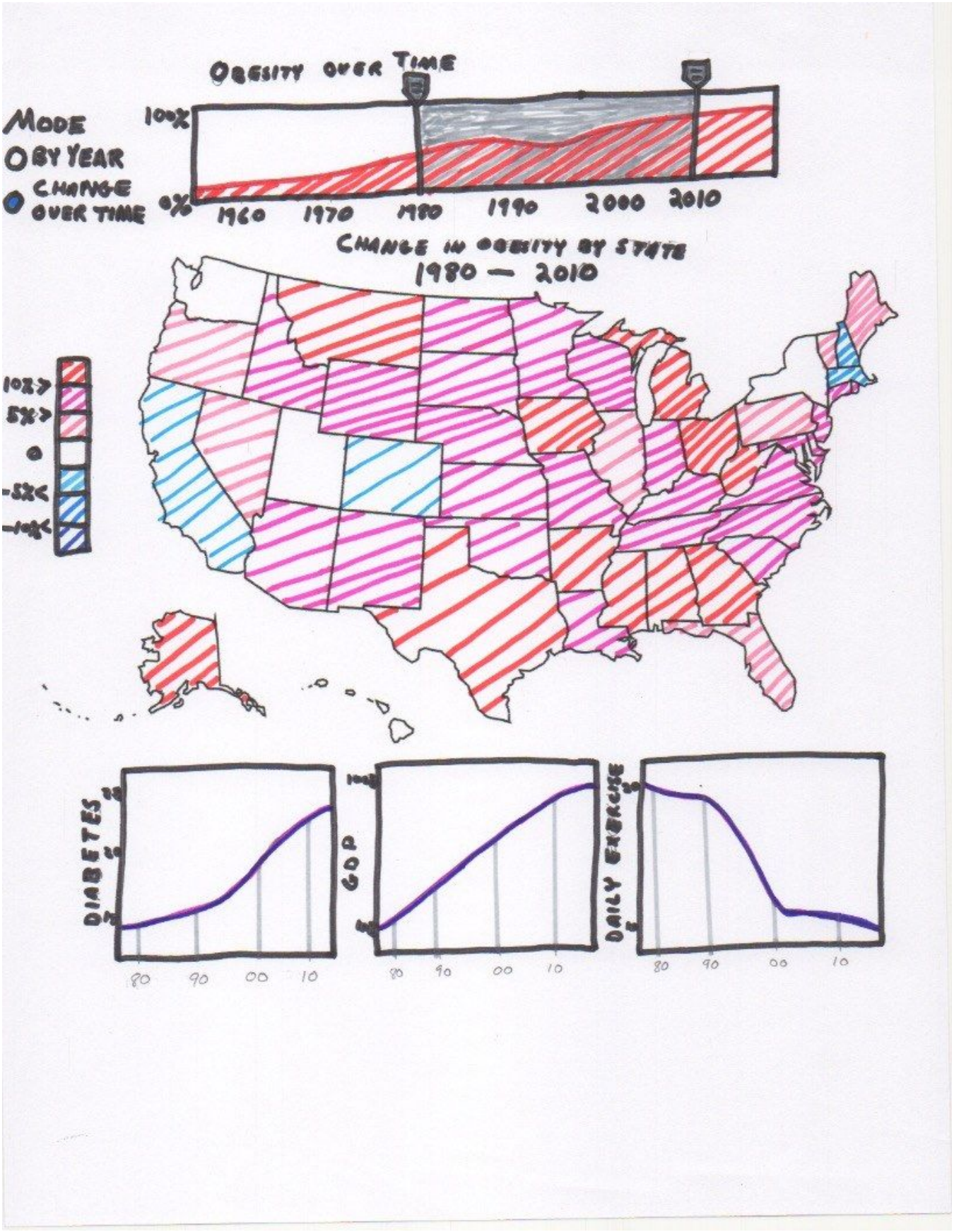
2. What factors are strongly correlated with obesity?

We would like to know if there are any factors that may look like leading causes of obesity. Some factors to consider are: physical activity, diets, and income. Knowing what factors are strongly related to obesity can help us make better decisions to fight obesity.



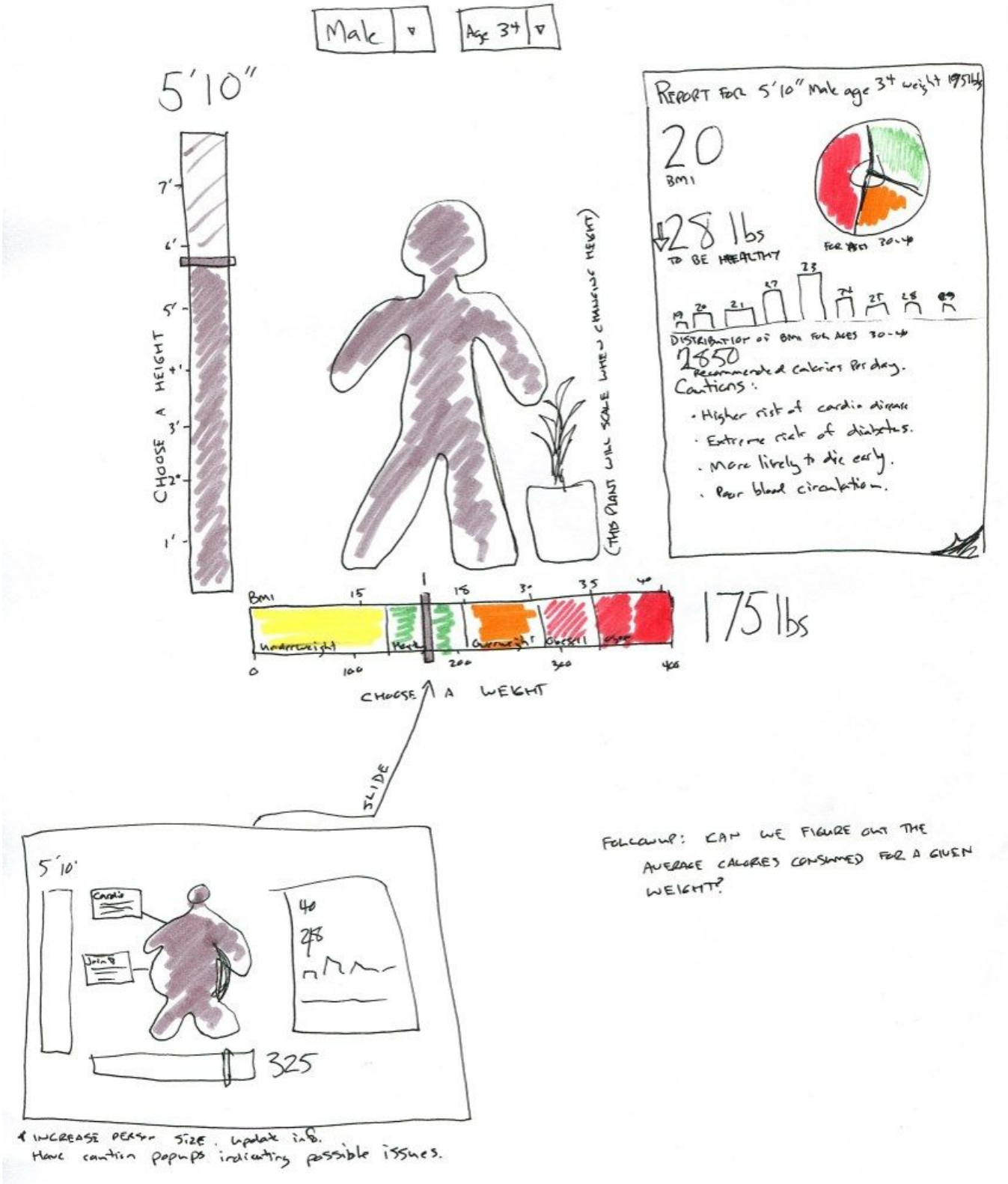
3. Where is obesity the most prevalent?

We would like to learn which states have the highest and lowest rates of obesity. The states with the highest and lowest rates may be able to indicate what other factors are related to obesity.



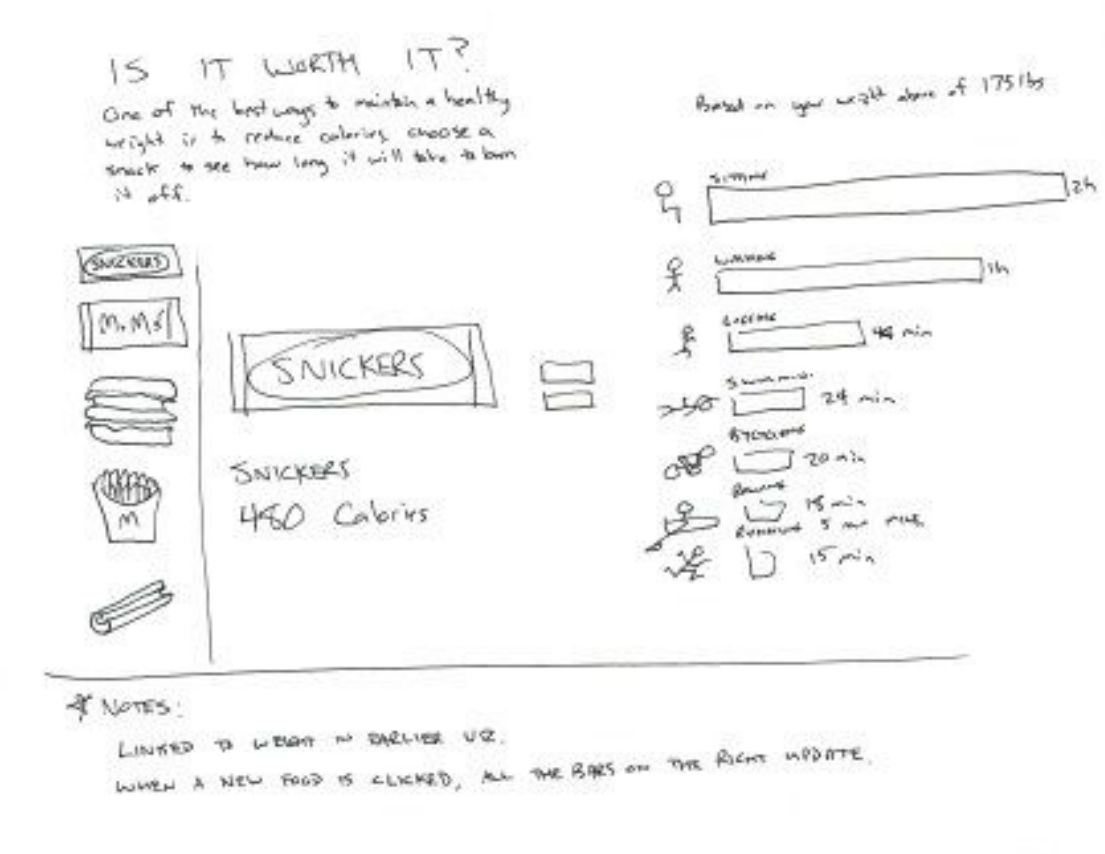
4. What are the consequences of obesity?

We would like to know what costs we are paying for obesity. Some possible topics include financial costs for healthcare, food, clothing, illnesses, mental and social issues. Understanding the issues caused by obesity can highlight the benefits we will receive if we can reduce the rate of obesity in our nation.



5. Am I obese or overweight? (Optional Question)

We would like to know how we personally rate on the scale of obesity. We would like to know how much weight we can lose/gain to be in a healthy weight zone. This is beneficial for people to know how they personally are doing.



Week of the Project (Deliverable for 4/4)

Team Roles

Team Coordinator - Jonny

The team coordinator will submit assignments and coordinate meeting times and communications.

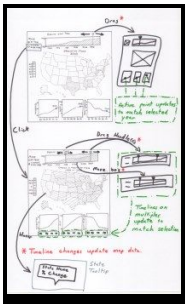
Visual Lead - Kevin

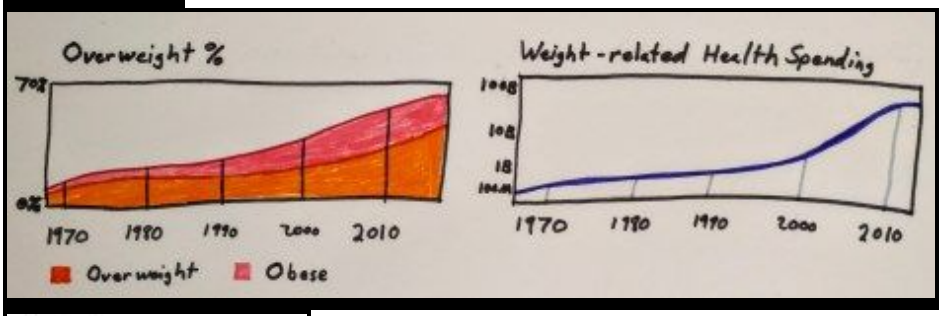
The visual lead will be responsible for the overall look of the project, ensuring that all the necessary sketches and storyboards are accounted for, and maintaining a unified look and experience from all the team members' contributions.

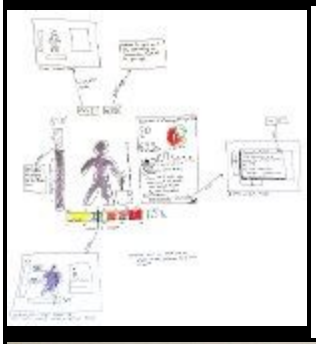
Data Wrangler - Thomas

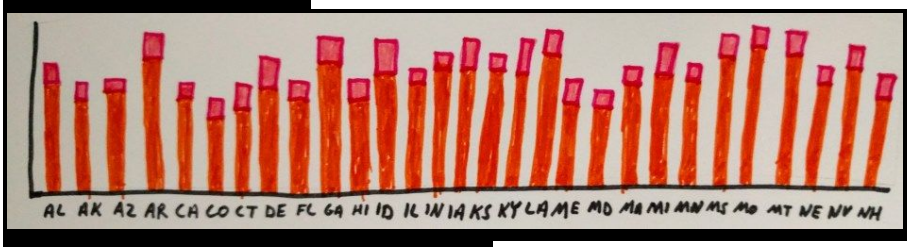
The data wrangler is in charge of overseeing tasks related to the data, finding the proper data sets, and preparing it for use within the project.

Incremental Sketches

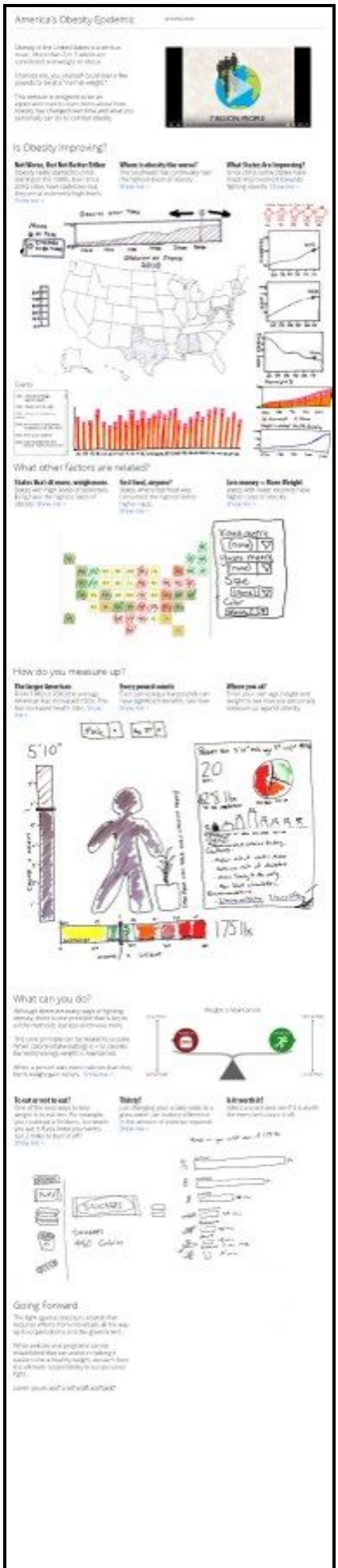


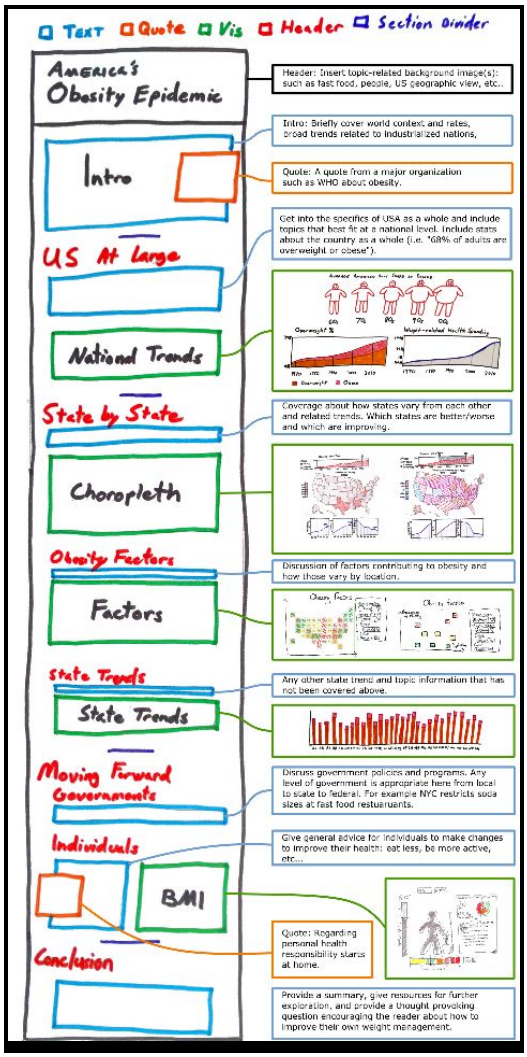






Web Layout Designs

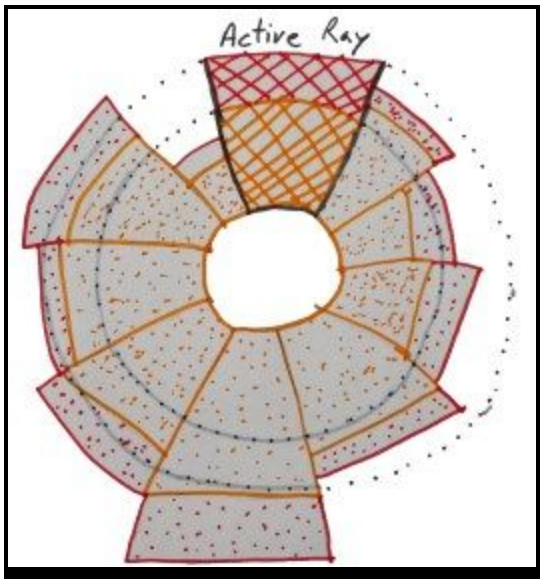

America's Obesity Epidemic
Is Obesity Improving?
What other factors are related?
How do you measure up?
5'10"
175lb
What can you do?
Going Forward

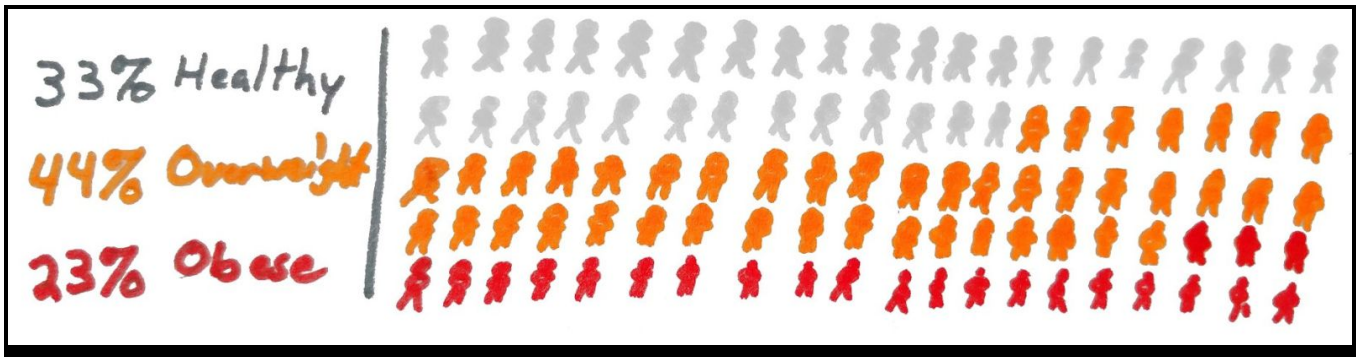


After Lecture 9 we implemented the following major changes:

- Sunburst visualization incorporated to avoid the mundane stacked bar of state trends
- Updates to the intro visualization to include figurines to display proportions of weight categories

Redesign

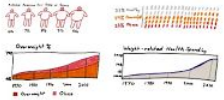




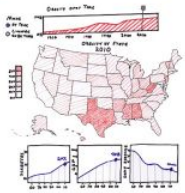
Animation 1

Obesity Epidemic

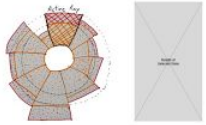
"Obesity has reached epidemic proportions globally".



Obesity by State



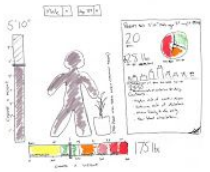
State Trends



Obesity Factors

Individual Health

How do you measure up?



What can you do?

"Physical fitness is not only one of the most important keys to a healthy body, it is the basis of dynamic and creative intellectual activity".

Conclusion

After feedback from Group 3 we will implement the following changes:

Include filtering and sorting for the state trends visualization via the sunburst visualization

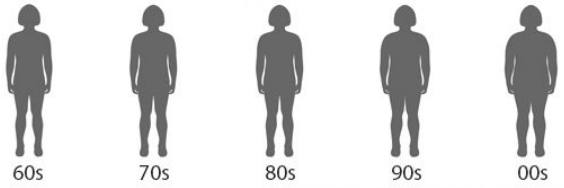
Improve the interface for the factors chart and improve the labeling to be more accessible

Enhance the BMI calculator graphic by including small icons/glyphs

Prototype V1

This week we split the website into 3 main sections and each team member took a section. We implemented the redesigned sketches from last week. The implementation has gone fairly smooth. We feel that a lot of it had to do with the well-formatted data and the clear vision we had from the sketches. It was also very effective to have the work divided evenly so that we could all work in parallel and not be blocked by each other.

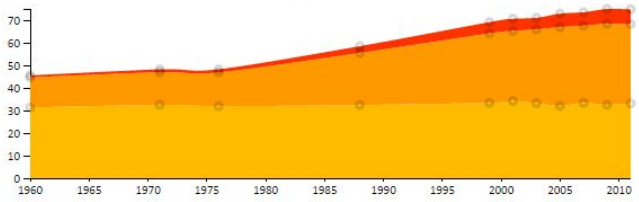
Average American Body Shape By Decade



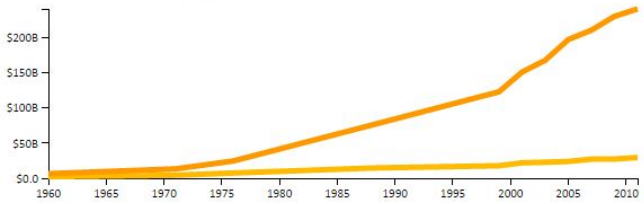
* approximate body shape for women ages 20-74

Weight Distribution of Americans

Overweight and Obesity Over Time

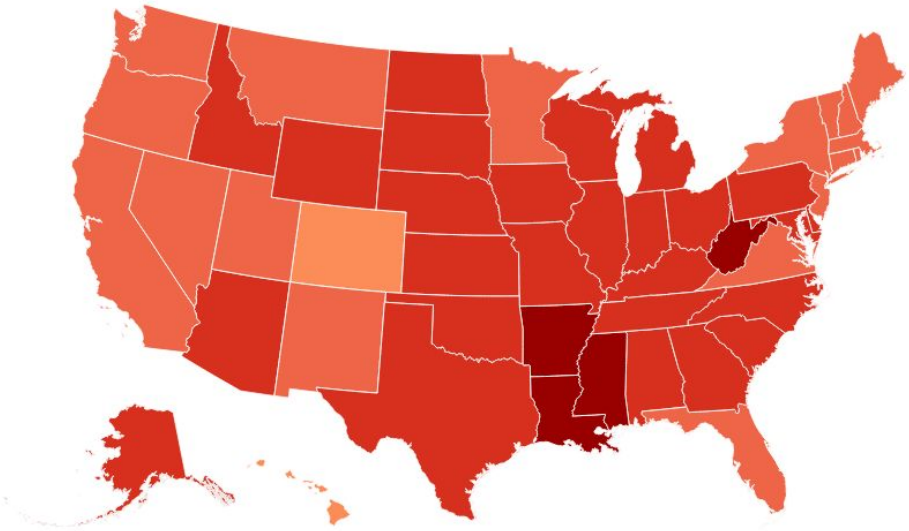


Health Spending Over Time



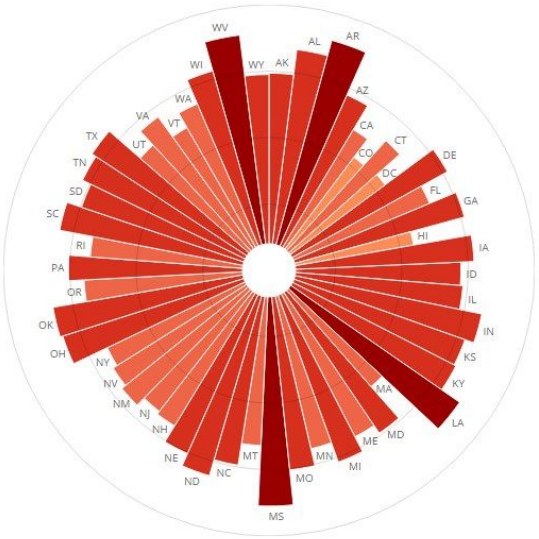
Mode

- **Obesity Rates**
- **Change Over Time**



State Trends

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor in
ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in r
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id e



States that sit more, weigh more.

States with high levels of sedentary living have the highest rates of obesity.

Show me »

Fast food, anyone?

States where fast food was consumed the highest led to higher rates.

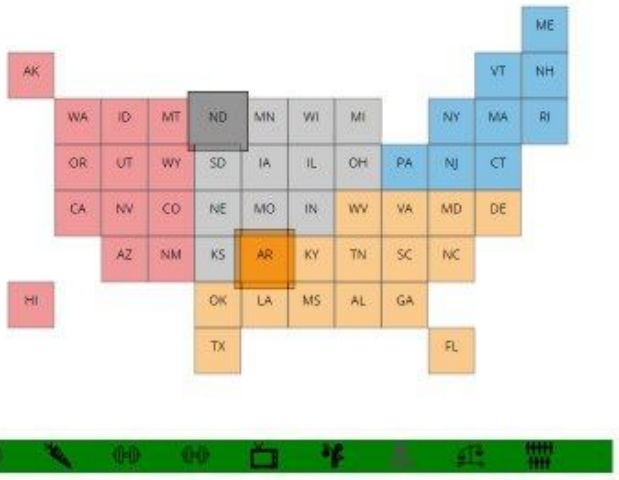
Show me »

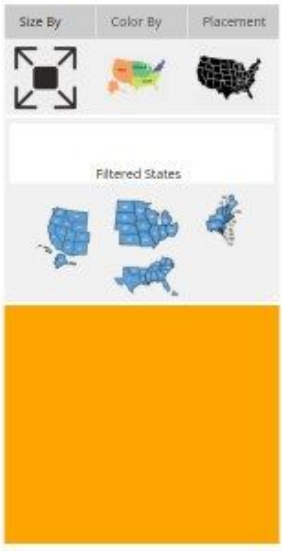
Less money = More Weight

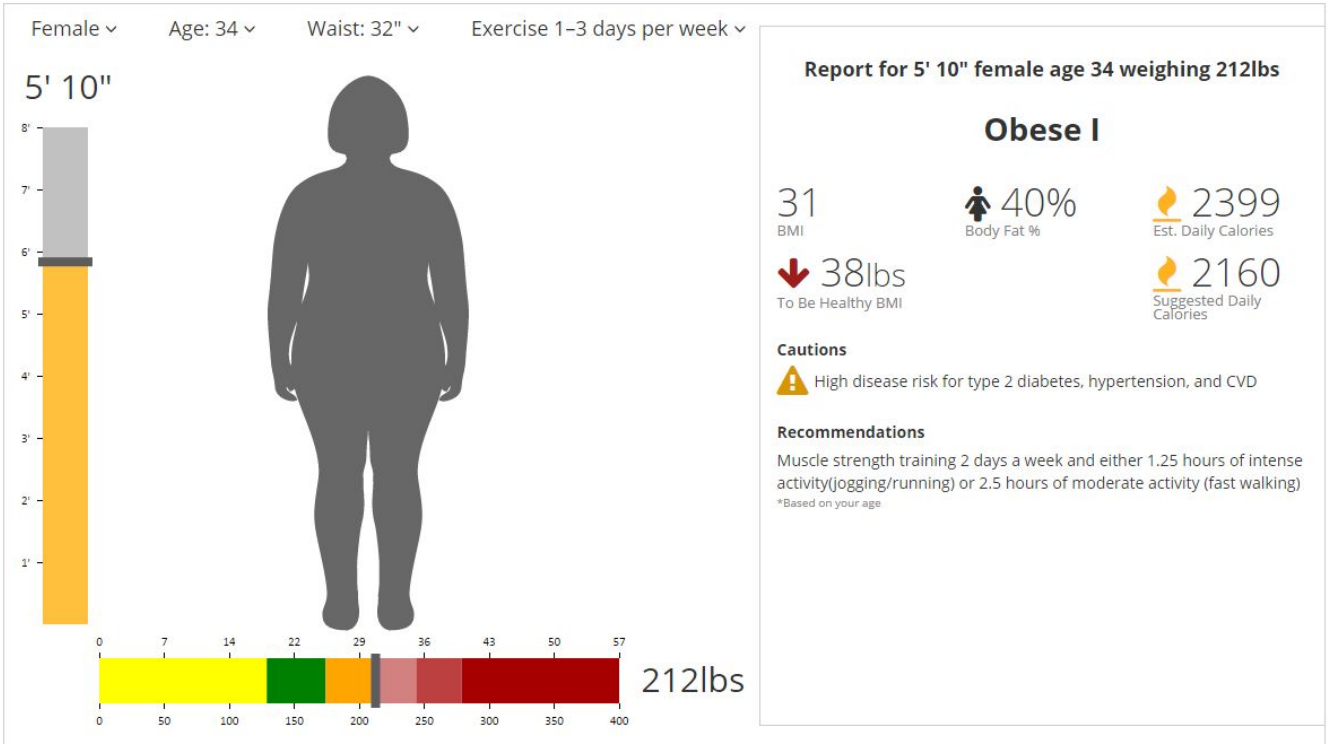
States with lower incomes have higher rates of obesity.

Show me »

Obesity Factors Cartoid/Scatter







Prototype V2

This week we focused on refining the visualizations and creating consistent interface. Some examples of item that we recognized that could be changed to create a more uniform look include:

- Using the same colors for all the visualizations on the page. This allows a user to easily identify the data being encoded in new visualizations lower on the page.
- Using the same dropdowns between visualizations. Once again, this creates a uniform look for the page.
- Updating the tooltips to match.
- Updating the selection mode of states between the visualizations.
- Updating the icons to be from the same icon set.

We also added some "Show Me" sections to some of the visualizations. These sections allow a user to view pre-configured states of the visualizations which highlight important aspects of the data being displayed. For example, the choropleth visualization now has a "Show Me" box with the following: "In 2011, all states were over 20% obesity rate. The last hold out, Colorado, increased from 19.8% in 2010 to 20.7% in 2011. > Show Me". When the user clicks show me, the choropleth displays the 2011 rates.

Some other updates include:

We also added additional snacks to the snacks visualization to make it more informative.

Added the male body shape to the BMI calculator.

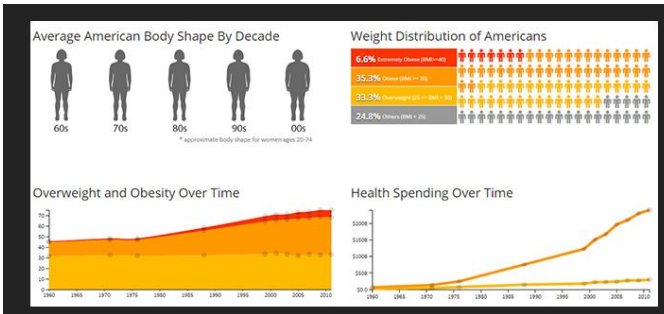
Revised the selection modes for the Obesity factors section. We found that the selecting states could be confusing. We opted for a simpler method of modifying the state selection.

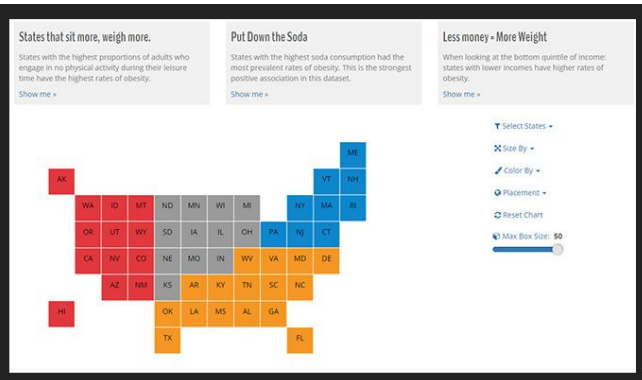
We changed the default view of the Detailed State viz to be by Obesity Rate instead of Alphabetical. This makes it easier to quickly identify which states are the best and which are the worst.

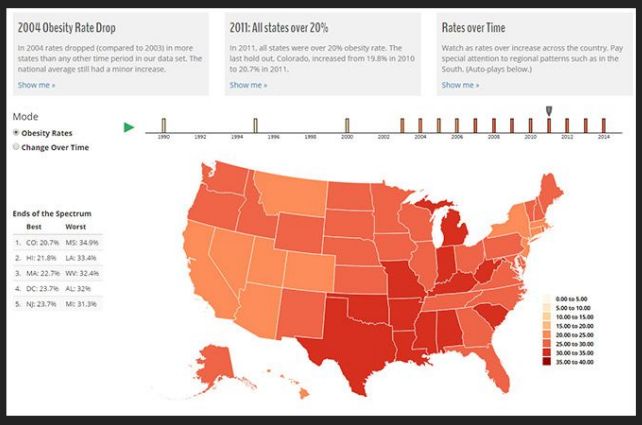
We added legends to the choropleth, detailed states, and obesity factor visualizations.

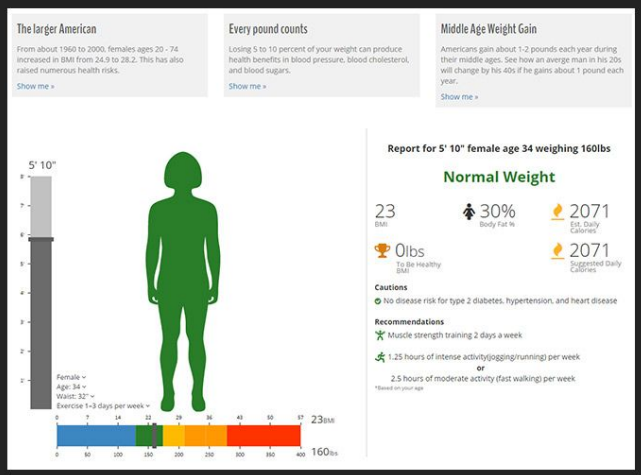
In addition, we fine tuned the interactions to have more intuitive interactions.

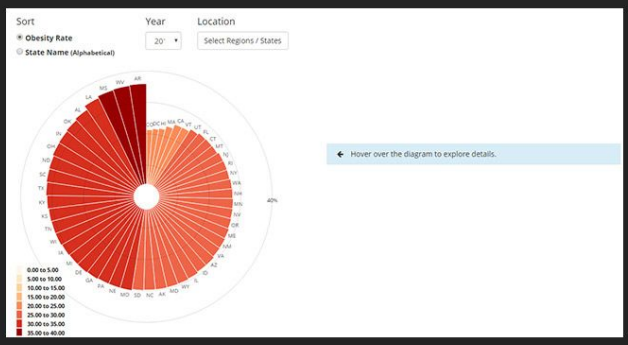
Below are the updated visualizations.

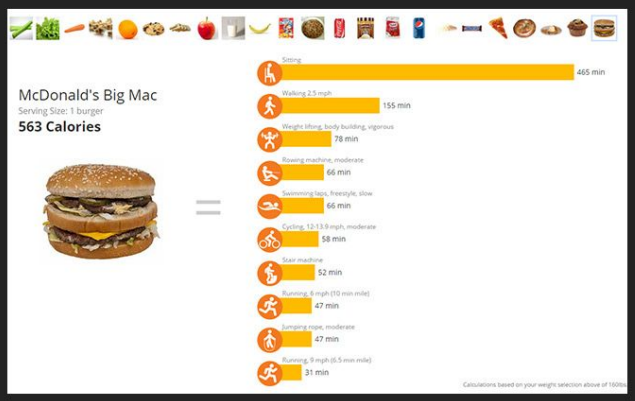

Average American Body Shape By Decade
60s
70s
80s
90s
00s
* approximate body shape for women ages 20-74
Weight Distribution of Americans
6.6% Extremely Obese (BMI>=40)
35.3% Obese (BMI >= 30)
33.3% Overweight (25 <= BMI < 30)
24.8% Others (BMI < 25)
Overweight and Obesity Over Time
Health Spending Over Time


States that sit more, weigh more.
States with the highest proportions of adults who engage in no physical activity during their leisure time have the highest rates of obesity.
Show me »
Put Down the Soda
States with the highest soda consumption had the most prevalent rates of obesity. This is the strongest positive association in this dataset.
Show me »
Less money = More Weight
When looking at the bottom quintile of income: states with lower incomes have higher rates of obesity.
Show me »
Select States
Size By
Color By
Placement
Reset Chart
Max Box Size: 50


2004 Obesity Rate Drop
In 2004 rates dropped (compared to 2003) in more states than any other time period in our data set. The national average still had a minor increase.
Show me »
2011: All states over 20%
In 2011, all states were over 20% obesity rate. The last hold out, Colorado, increased from 19.8% in 2010 to 20.7% in 2011.
Show me »
Rates over Time
Watch as rates over increase across the country. Pay special attention to regional patterns such as in the South. (Auto-plays below.)
Show me »
Mode
Obesity Rates
Change Over Time
Ends of the Spectrum
Best
Worst
1. CO: 20.7% MS: 34.9%
2. HI: 21.8% LA: 33.4%
3. MA: 22.7% WV: 32.4%
4. DC: 23.7% AL: 32%
5. NJ: 23.7% MI: 31.3%
0.00 to 5.00
5.00 to 10.00
10.00 to 15.00
15.00 to 20.00
20.00 to 25.00
25.00 to 30.00
30.00 to 35.00
35.00 to 40.00


The larger American
From about 1960 to 2000, females ages 20 - 74 increased in BMI from 24.9 to 28.2. This has also raised numerous health risks.
Show me »
Every pound counts
Losing 5 to 10 percent of your weight can produce health benefits in blood pressure, blood cholesterol, and blood sugars.
Show me »
Middle Age Weight Gain
Americans gain about 1-2 pounds each year during their middle ages. See how an averge man in his 20s will change by his 40s if he gains about 1 pound each year.
Show me »
5' 10"
Female
Age: 34
Waist: 32"
Exercise 1-3 days per week
23BMI
160lbs
Report for 5' 10" female age 34 weighing 160lbs
Normal Weight
23
BMI
30%
Body Fat %
2071
Est. Daily Calories
0lbs
To Be Healthy BMI
2071
Suggested Daily Calories
Cautions
No disease risk for type 2 diabetes, hypertension, and heart disease
Recommendations
Muscle strength training 2 days a week
1.25 hours of intense activity(jogging/running) per week
or
2.5 hours of moderate activity (fast walking) per week

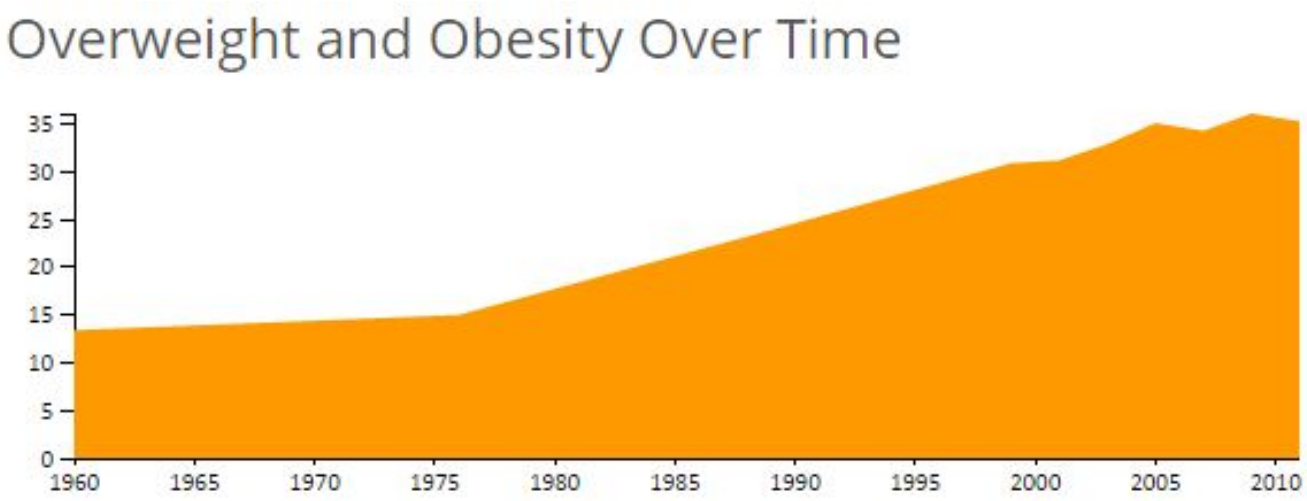

Sort
Obesity Rate
State Name (Alphabetical)
Year
Location
Select Regions / States
Hover over the diagram to explore details.
0.00 to 5.00
5.00 to 10.00
10.00 to 15.00
15.00 to 20.00
20.00 to 25.00
25.00 to 30.00
30.00 to 35.00
35.00 to 40.00


McDonald's Big Mac
Serving Size: 1 burger
563 Calories
Sitting
465 min
Walking 2.5 mph
155 min
Weight lifting, body building, vigorous
78 min
Rowing machine, moderate
66 min
Swimming laps, freestyle, slow
66 min
Cycling, 12-13.9 mph, moderate
58 min
Stair machine
52 min
Running, 6 mph (10 min mile)
47 min
Jumping rope, moderate
47 min
Running, 9 mph (6.5 min mile)
31 min
Calculations based on your weight selection above of 160lbs

Evaluation

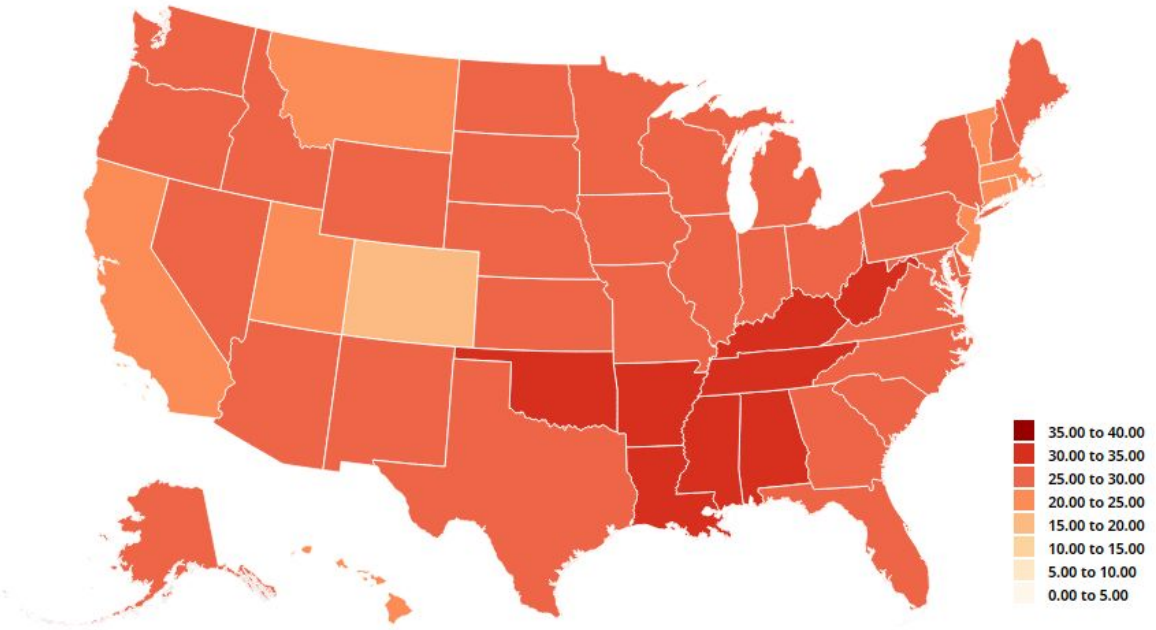
Using our visualizations has revealed some interesting details about obesity in the United States.

Some details that we found are below. We have organized them by the original questions we created when we started this project.



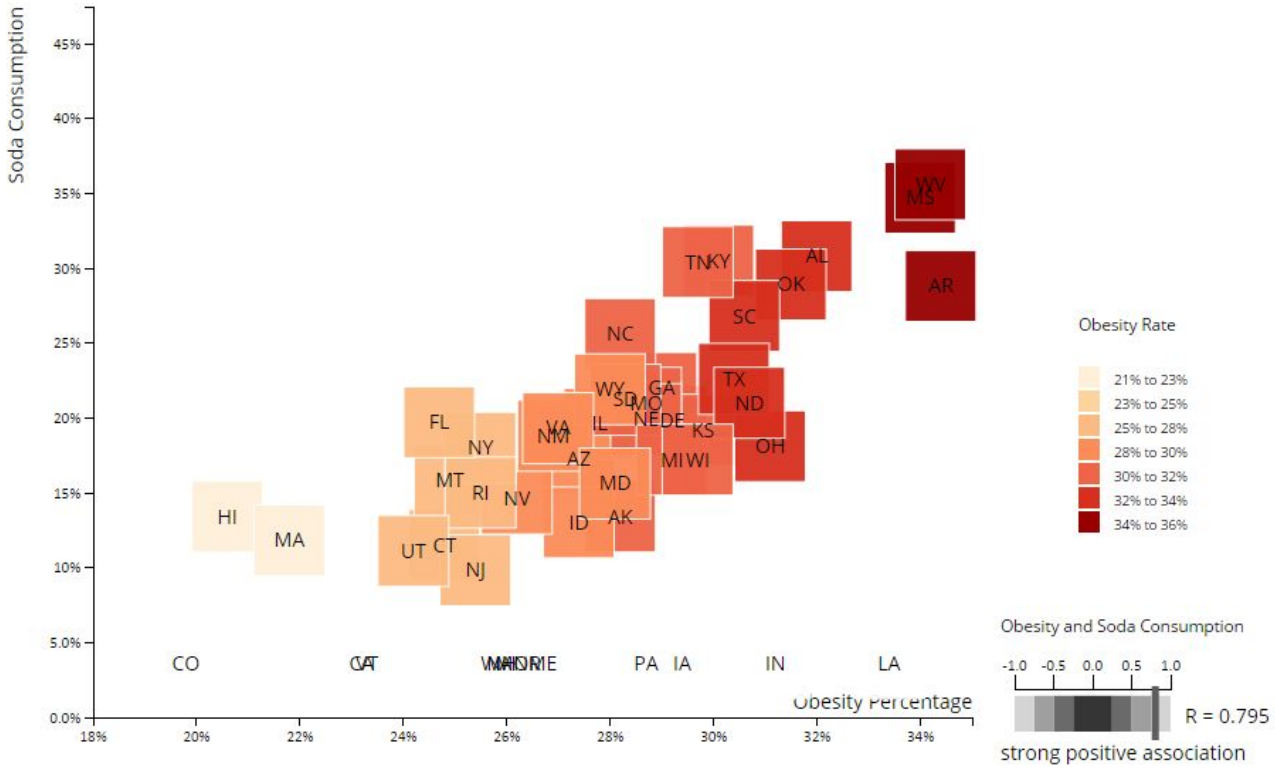
Question 1: When did obesity start becoming a problem?

This chart shows how obesity rates started to rise in about 1975.



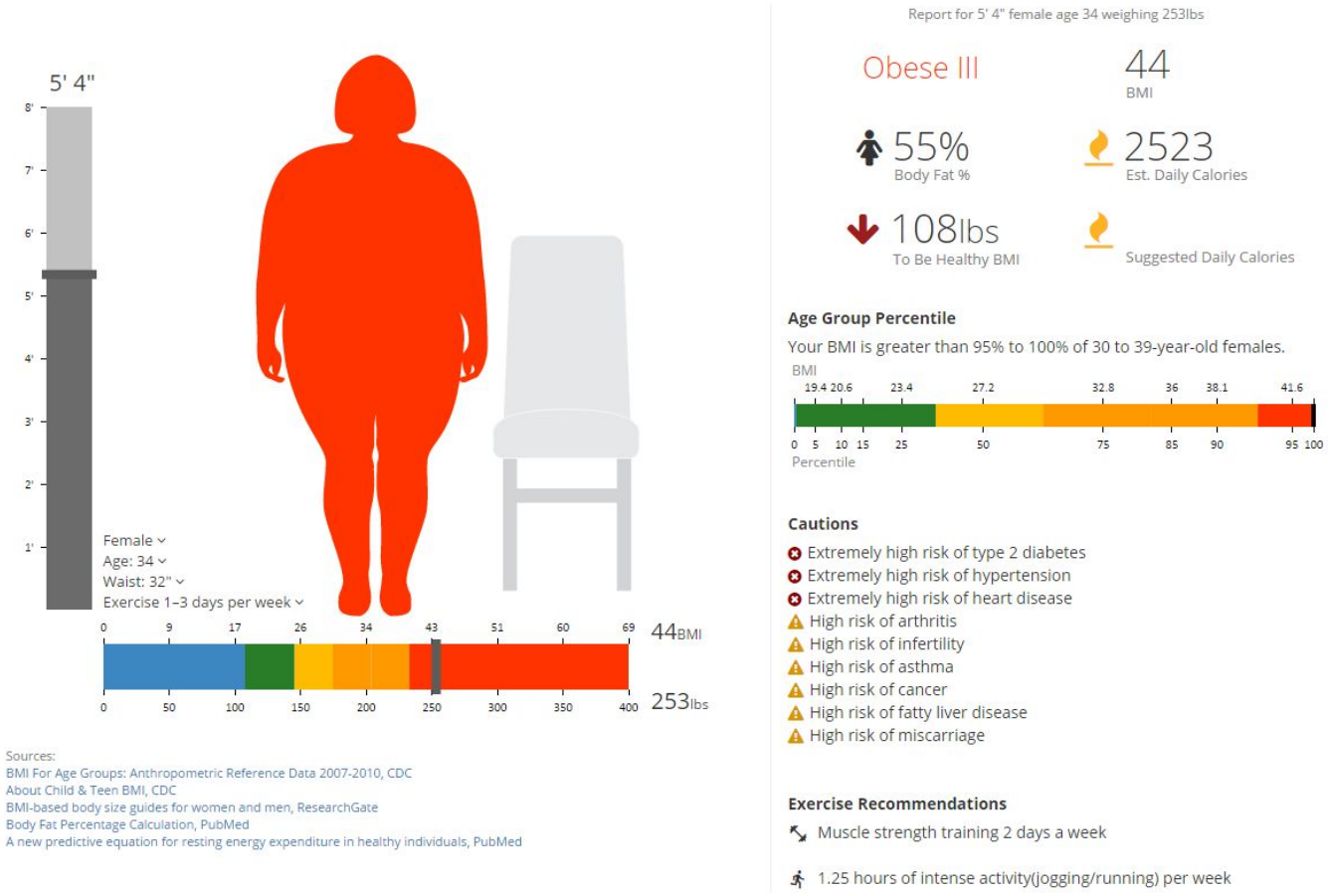
Question 2: Where is obesity the most prevalent?

The choropleth visualization reveals how the South is the area of the country that has struggled the most with increasing obesity rates.



Question 3: What factors are strongly correlated with obesity?

The Obesity Factors visualization reveals what factors are highly correlated with obesity. From this visualization we discovered soda has
strongest positive association with obesity from our dataset.



Questions 4 and 5: What are the consequences of obesity? Am I obese or overweight?
This health report visualization gives detailed information based on an individuals information. It shows the consequences of being overweight and obese, based on an individual's BMI, age, and waist measurement.
Two small enhancements that were added from Prototype V2 were the chair in the background and the Age Group percentile.
The chair is present to give context as to how big the person is. As the user slides the height slider, the chair grows or shrinks, giving the impression that the person is smaller or bigger.
The Age Group Percentile allows a user to know how they personally compare to other people about their same age. This addition adds more value to the personalized health report.

We feel that the visualizations do a good job in answering our questions and enhancing our story. They seem to be easy to use and

clearly highlight the significant points to users. We also feel that the "Show Me" boxes are effective in guiding users through exploring the data and helping them understand how to comprehend the visualizations.

One future improvement that was beyond the scope of this project would be to connect the data so that it could always be up-to-date. For example, the website could dynamically load the data sets from data providers about the current obesity rates and other related factors. Unfortunately, there does not seem to be APIs for all the information that we need for the website.

Additionally, having access to a more granular resolution of the obesity data, county-level for instance, would have offered an additional view to drill into data and allow for more interaction within the interfaces for the choropleth, polar area and the carto-scatter plot. Another aspect of the data that would have been nice to explore, if we could find it, would have been plotting the interest in obesity via google and twitter data but they were too sparse to represent anything meaningful.