Diabetes

LEADING CONTRIBUTING FACTORS

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Diabetes Onset and Diagnosis Review

- Data used
  - Kaggle data that contained 100,000 rows
  - CDC information provided 2018 research on diabetes and obseity for more than 3,141 counties in the United States
- Areas analyzed
  - Male and female populations
  - Age
  - Body Mass Index (BMI)
  - Smoking history
  - Hypertension
  - Fasting and non-fasting blood glucose levels
  - Heart disease
- Limitation
  - Neither source included patient race and/or ethnicity, though some hypotheses were developed after mapping the CDC data based on county codes, then referencing locations against U.S. Census data for those counties.

United States Diabetes Facts

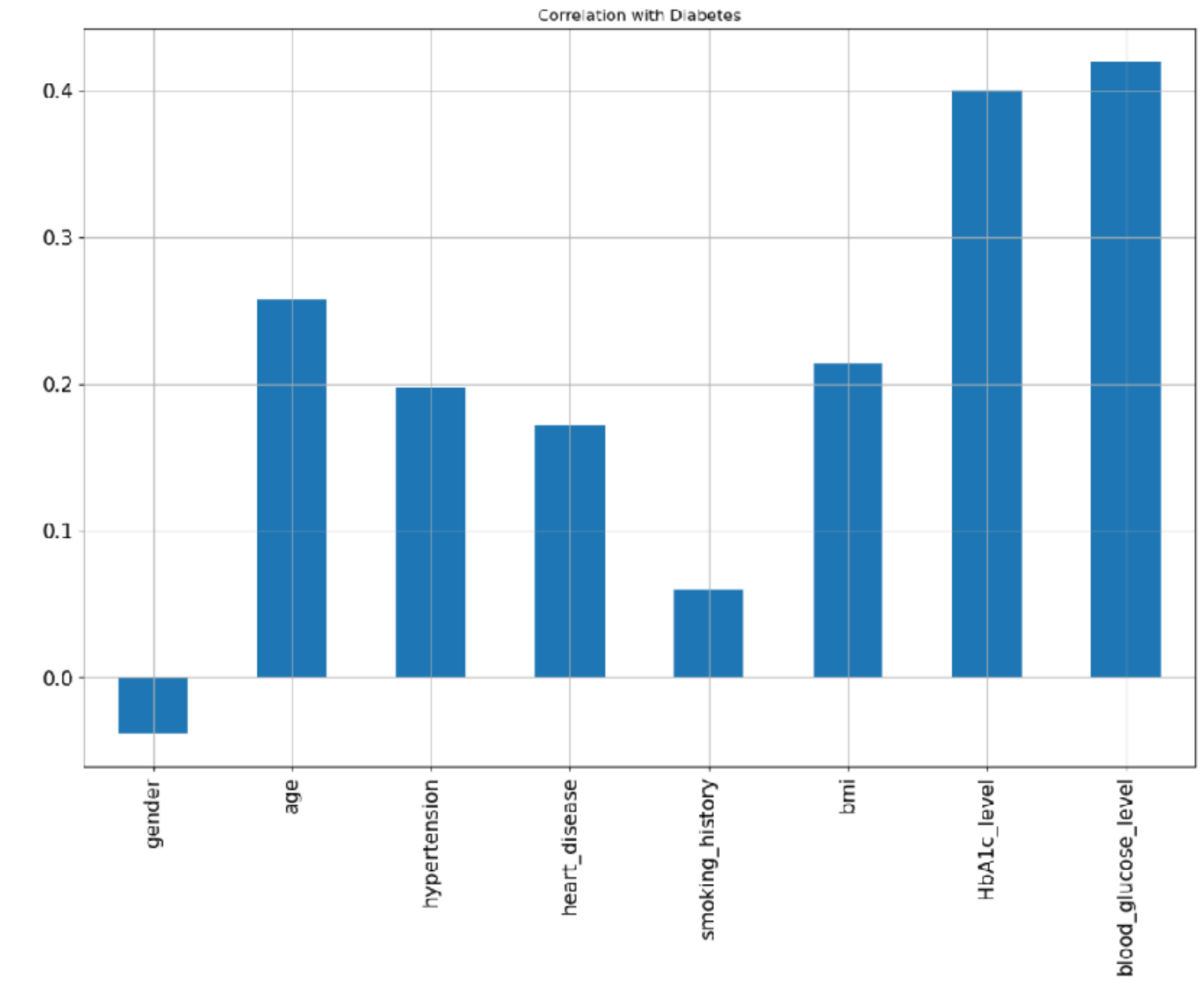
- **Total:** 38.4 million people have diabetes (11.6% of the US population)
- **Diagnosed:** 29.7 million people, including 29.4 million adults
- **Undiagnosed:** 8.7 million people (22.8% of adults are undiagnosed)

▪ Prediabetes

- **Total:** 97.6 million people aged 18 years or older have prediabetes (38.0% of the adult US population)
- **65 years or older:** 27.2 million people aged 65 years or older (48.8%) have prediabetes

Risk Factors for Diabetes-Related Complications

- Smoking
- Overweight and Obesity
- Physical Inactivity
- A1C
- High Blood Pressure
- High Cholesterol

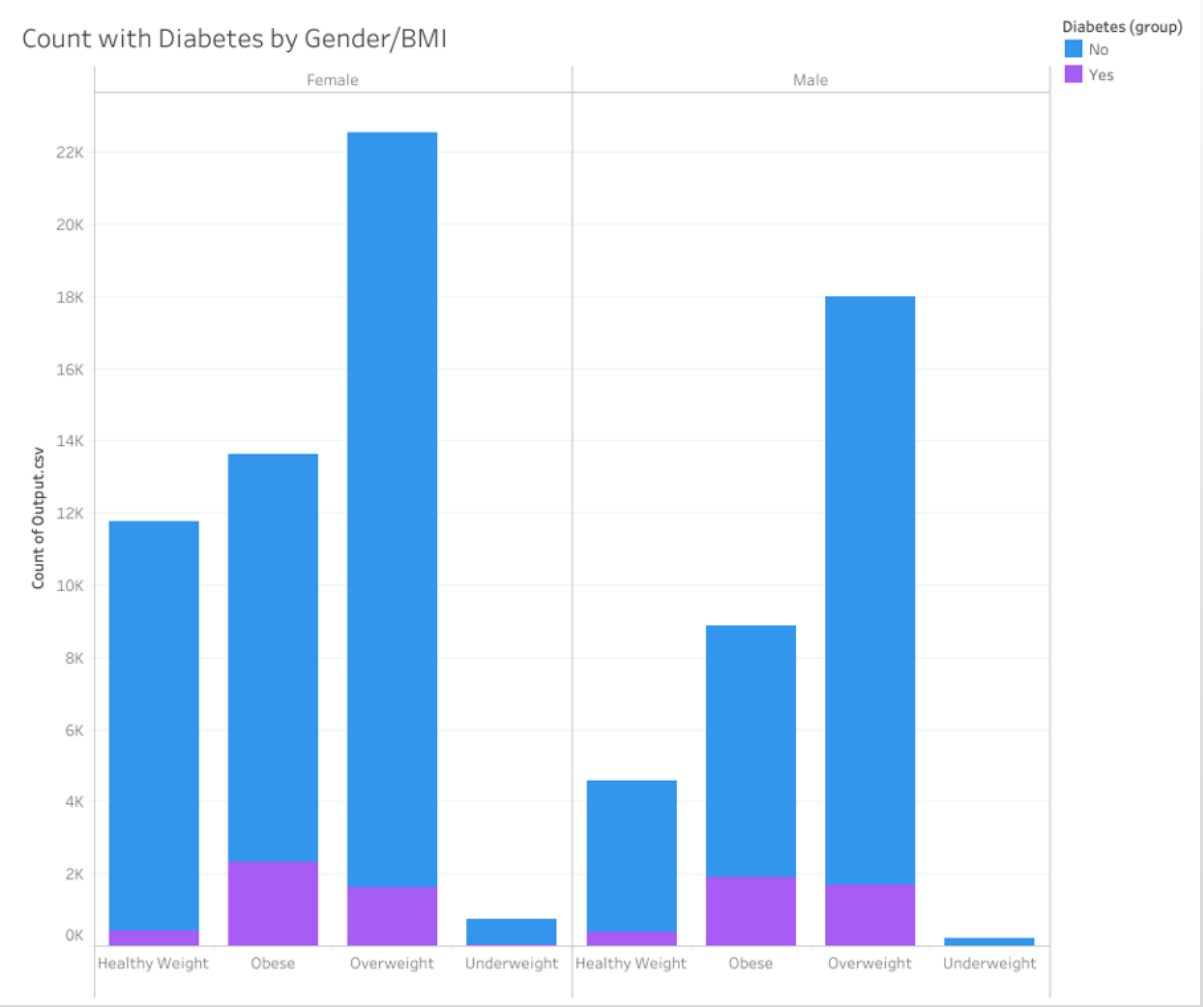


Correlation with Diabetes

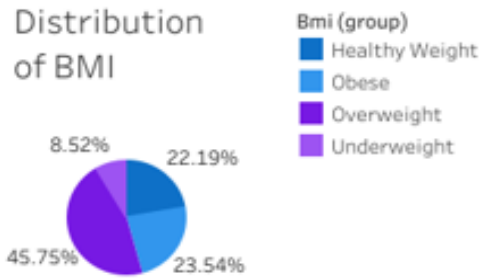
The Kaggle data examined gender, age, hypertension, heart disease, smoking history, BMI, HBA1C levels, and glucose levels.

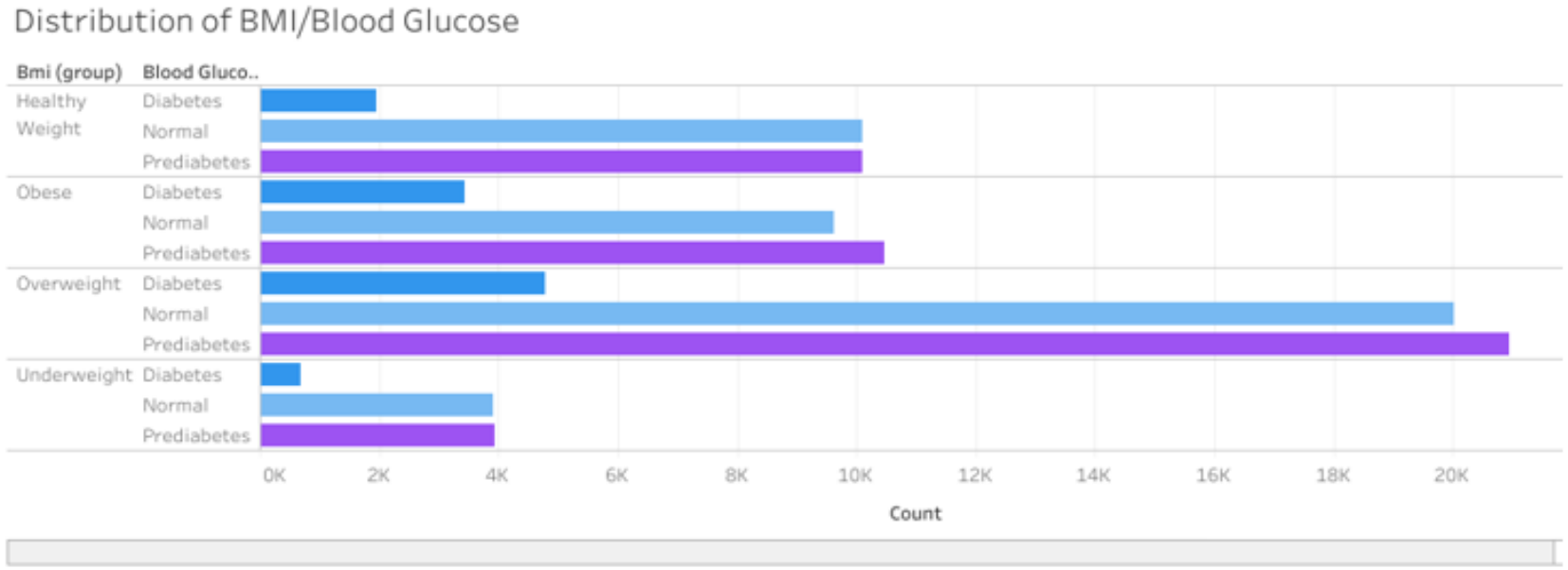
Analysis of Diabetics and Weight Levels

- Women have higher levels of obese and overweight patients.
- This analysis drove us to look at details in both men and women and also combined group.



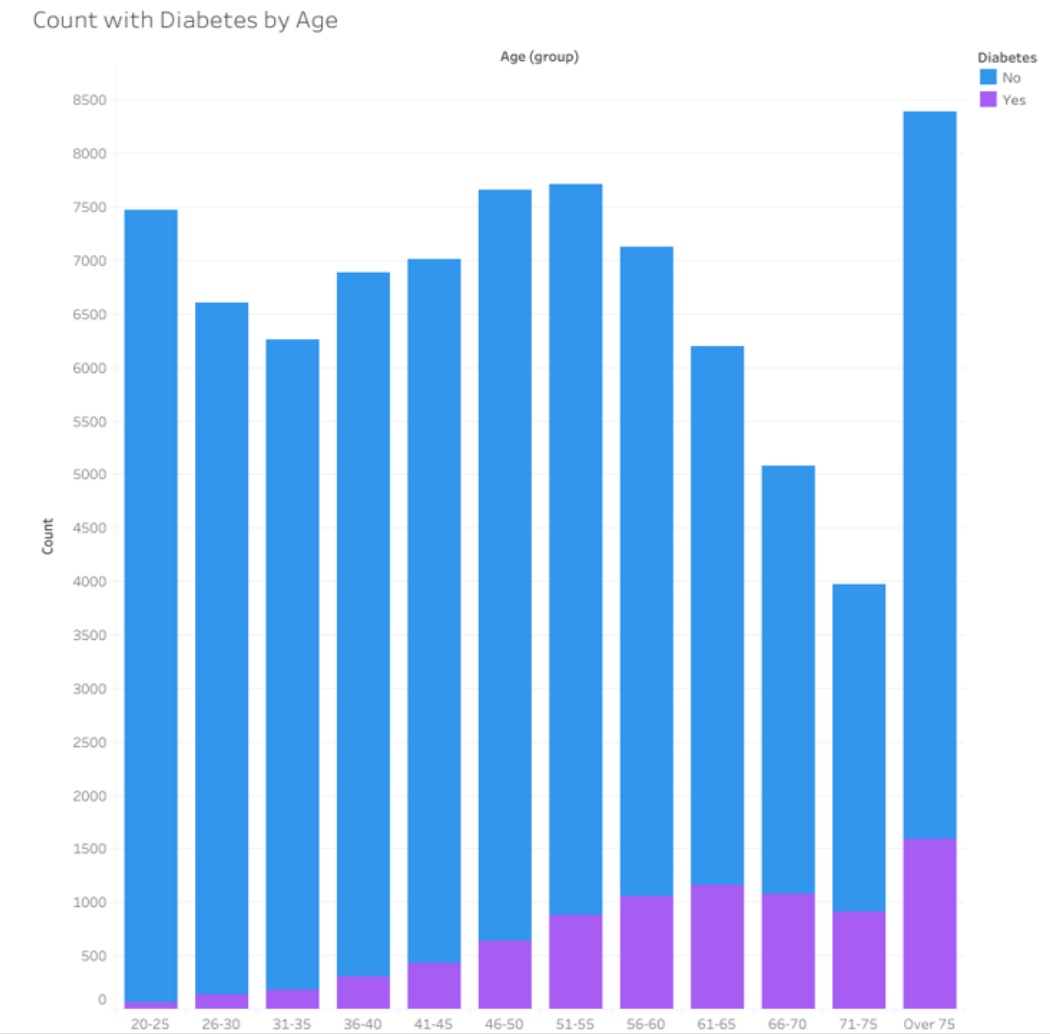
Distribution of Key Measurements



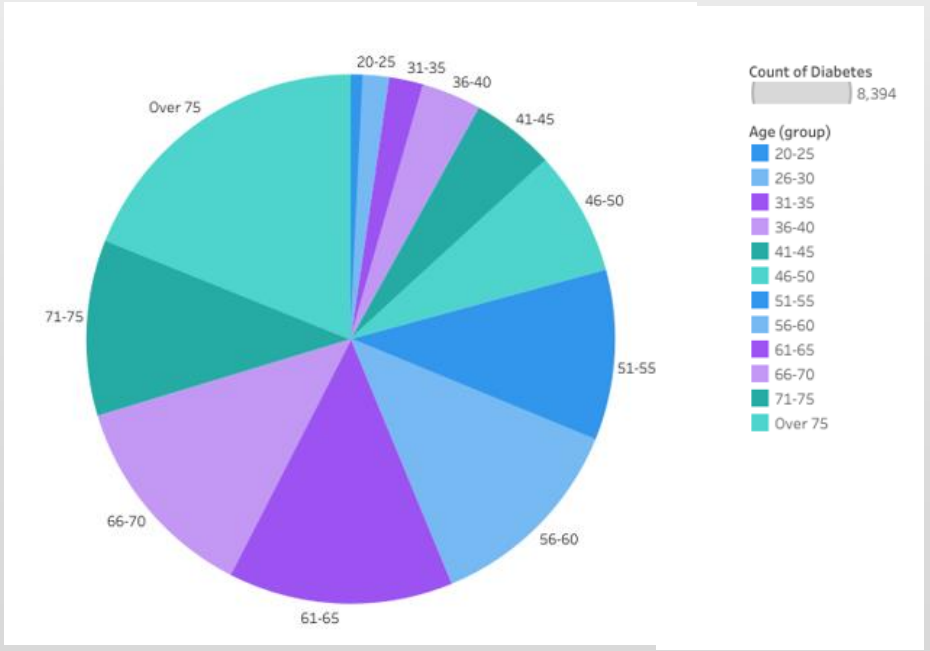


- Distribution of BMI
  - 23.5% are Obese
  - 45.75% are overweight
- Distribution of BMI/Blood Glucose
  - Overweight group has largest group with 4.7k (10% of group)
  - Obese group has 3.5k people(15% of group)
  - Obese group has higher percentage of people that are Diabetic

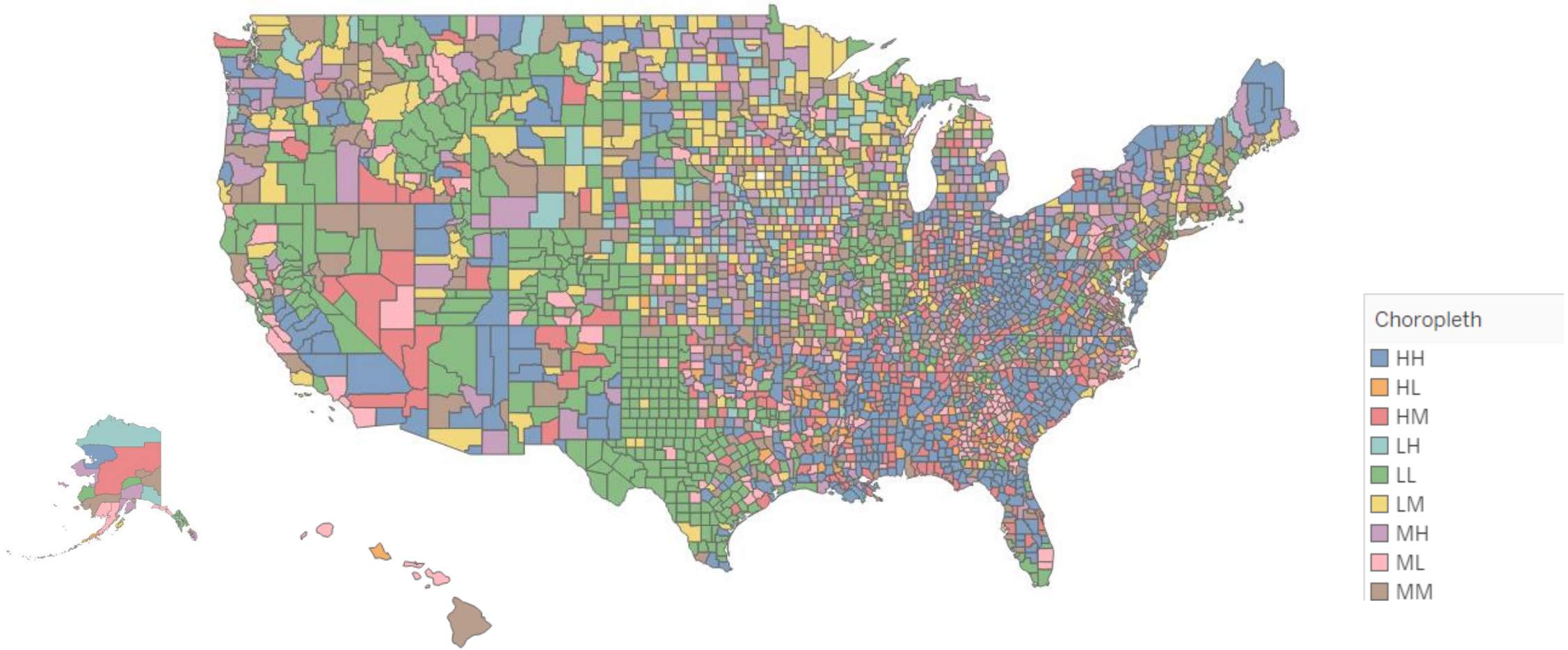
Analysis Age Distribution of patients with Diabetes



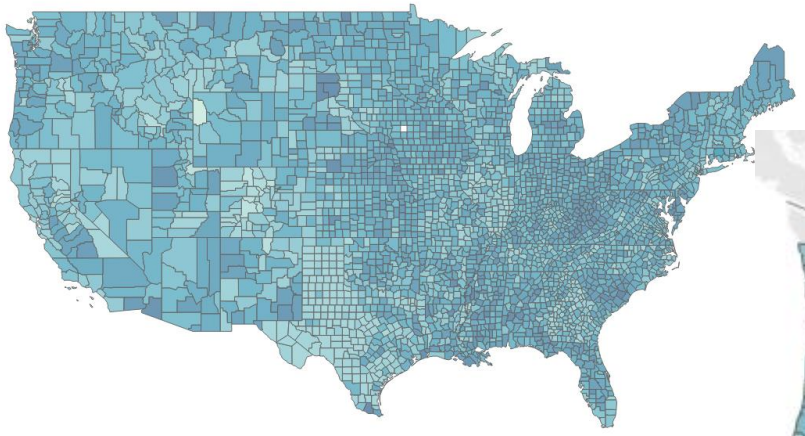
- Diabetes increases with age. Key age point based on data begins at age 50.
- 79.2% of Diabetic group comes from ages 51 and older
- Over 75 years is largest group with 18.9% of total group.



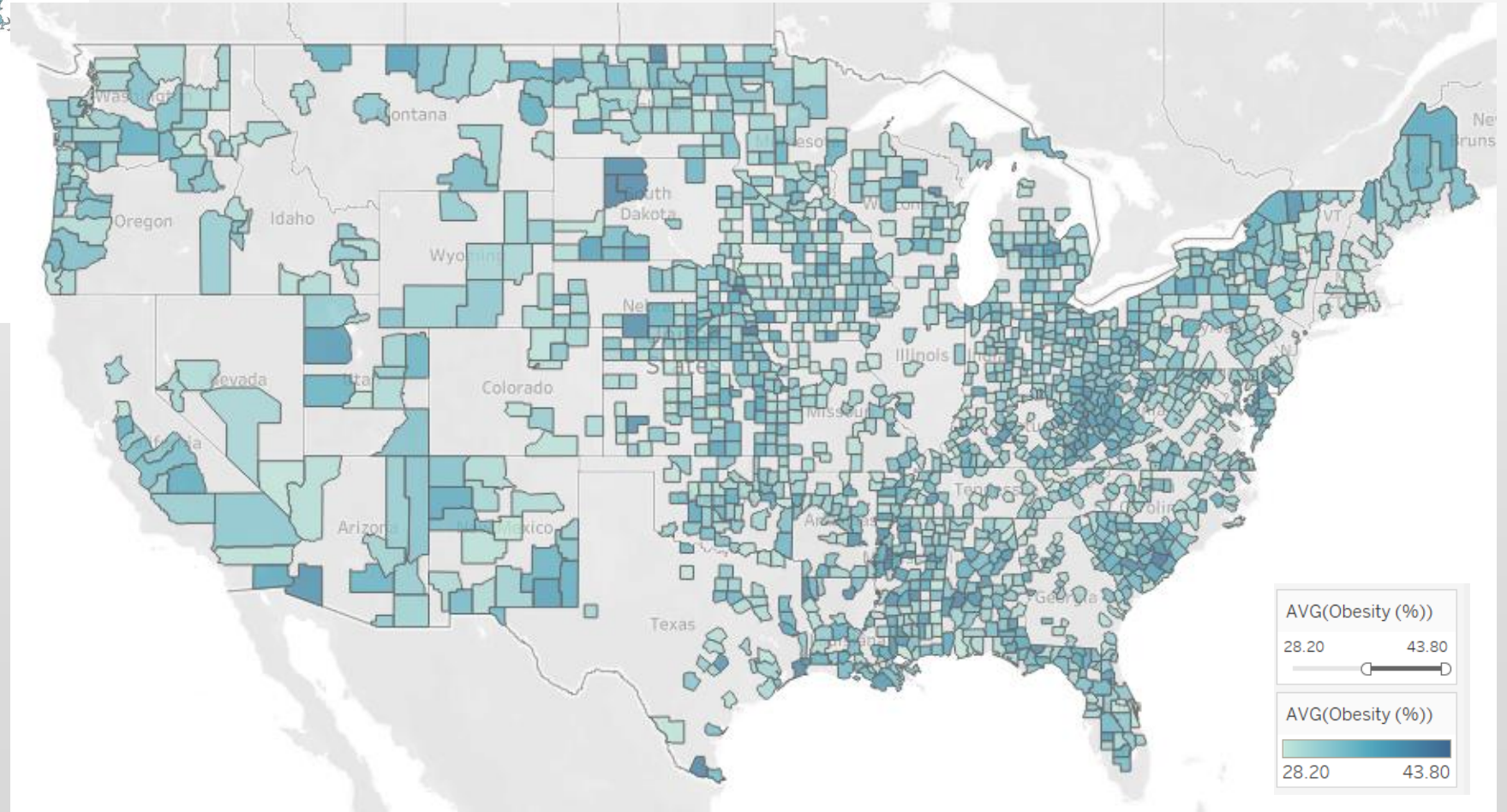
Bivariate Choropleth for Diagnosed Diabetes and Obesity (2018)



Obesity Map by County Results



County	State	Avg. Obesity (%)
Ziebach County	South Dakota	41.5000
Yuma County	Arizona	39.6000
Young County	Texas	28.3000
York County	South Carolina	31.3000
York County	Nebraska	39.7000
York County	Maine	29.1000
Yellow Medicine County	Minnesota	30.8000
Yates County	New York	30.7000
Yankton County	South Dakota	31.5000
Yamhill County	Oregon	32.6000



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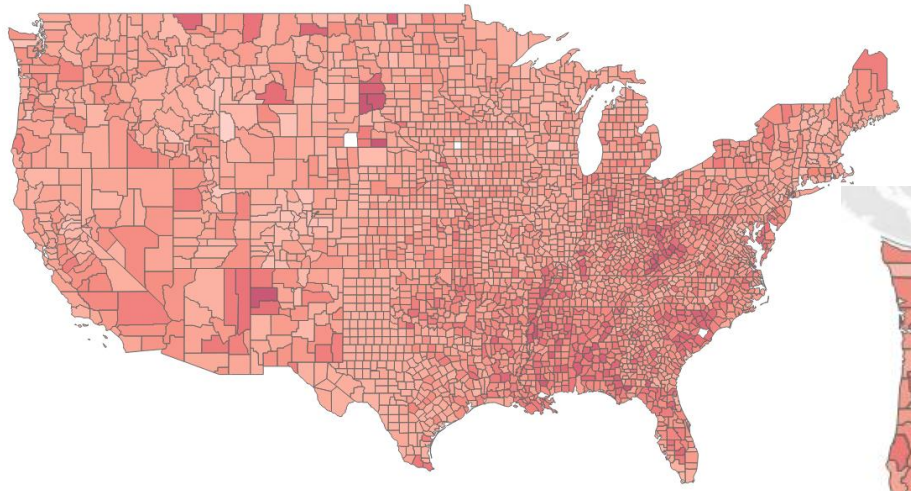
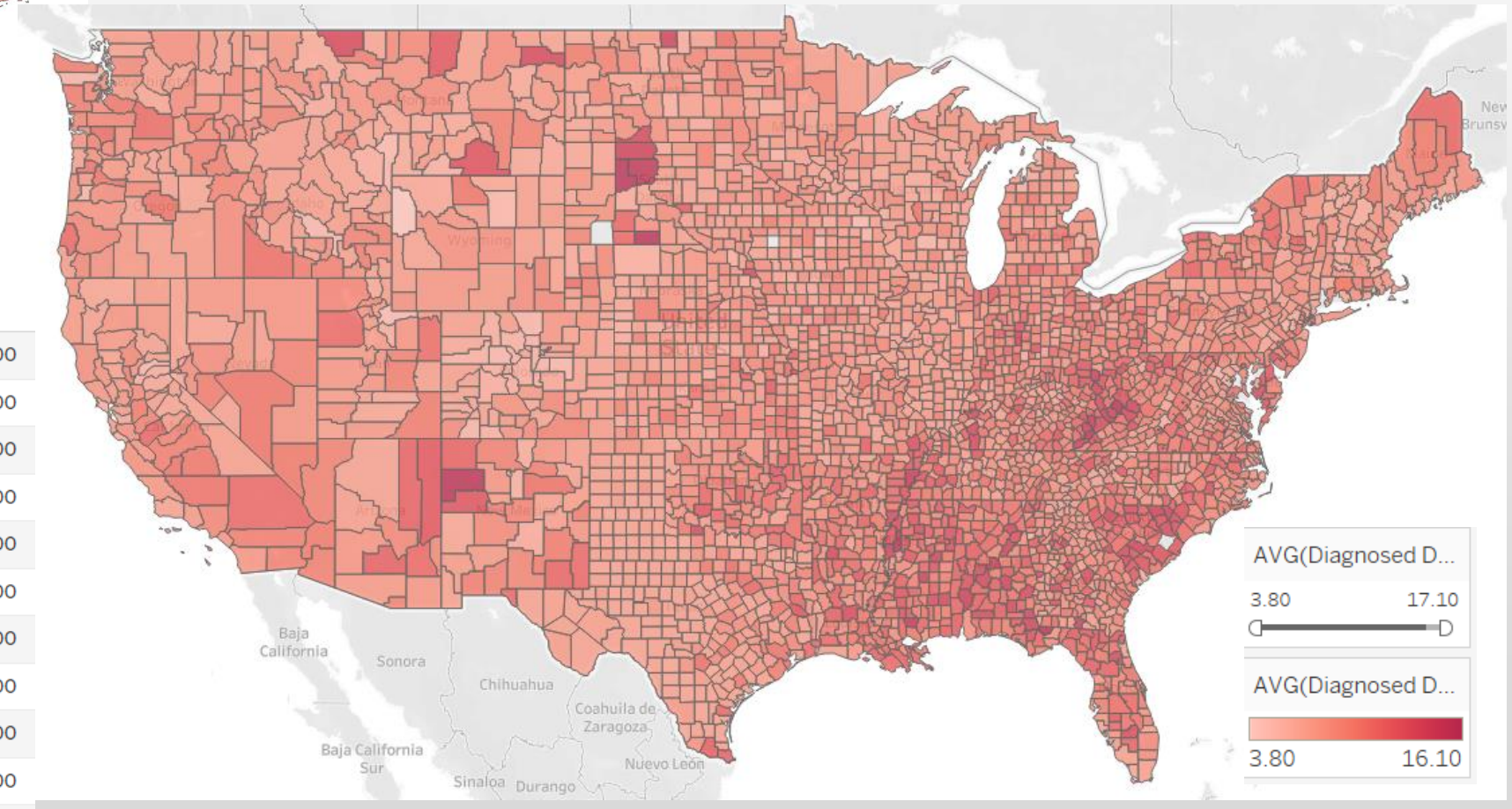


County	State	Avg. Diagnosed Diabete...
Ziebach County	South Dakota	15.9000
Zavala County	Texas	6.7000
Zapata County	Texas	6.8000
Yuma County	Colorado	6.8000
Yuma County	Arizona	9.5000
Yukon-Koyukuk Census Area	Alaska	9.9000
Yuba County	California	8.0000
Young County	Texas	8.3000
York County	Virginia	9.3000
York County	South Carolina	9.7000

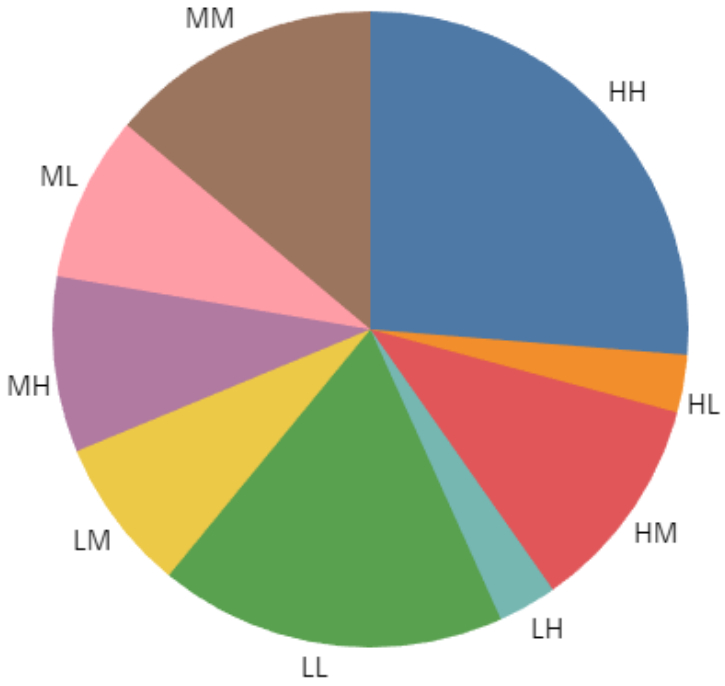


Choropleth

- HH
- HL
- HM
- LH
- LL
- LM
- MH
- ML
- MM

Summary

Count:	9
SUM(Diagnosed Diabetes (%))	
Sum:	27,379
Average:	3,042
Minimum:	802
Maximum:	7,195
Median:	2,447
Standard deviation:	2,021
SUM(Obesity (%))	
Sum:	86,467
Average:	9,607
Minimum:	1,822
Maximum:	22,148
Median:	8,347
Standard deviation:	6,092



Choropleth for Diagnosed Diabetes

This analysis is based on Obesity and Diabetic results

HH represents the largest percentage with 7.2% Diabetic and 22.2% Obese

LL represents the second largest grouping with 4.8% Diabetic and 14.2% Obese

Preventing Diabetes-Related Complications

- Usual Source for Diabetes Care
- Physical Activity
- Weight Management
- Statin Treatment
- A1C, Blood Pressure, Cholesterol, and Smoking (ABCs)

Questions