CS360 Data Visualization Revised Project Proposal

Title: Diabetes in the US

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Repo: https://github.com/EricLYao/CS360-Final-Project

Website: https://ericlyao.github.io/CS360-Final-Project/

Background and Motivation:

Both my parents are pre-diabetic and so I wanted to do some more in depth research on it. I have a couple friends that are also Type 1 Diabetic. I also recently interviewed for a company that does CGM (continuous glucose monitoring) and I really liked their project goals and the people that I talked to who worked there.

Project Objectives:

1. Show the age distribution of the proportion of diabetics
2. Indicate the progression of the proportion of diabetics throughout time
3. Display the proportion of diabetics in each state

Data:

All of my data in the form of CSV files can be obtained from here:
https://data.cdc.gov/browse?limitTo=datasets

Data Processing:

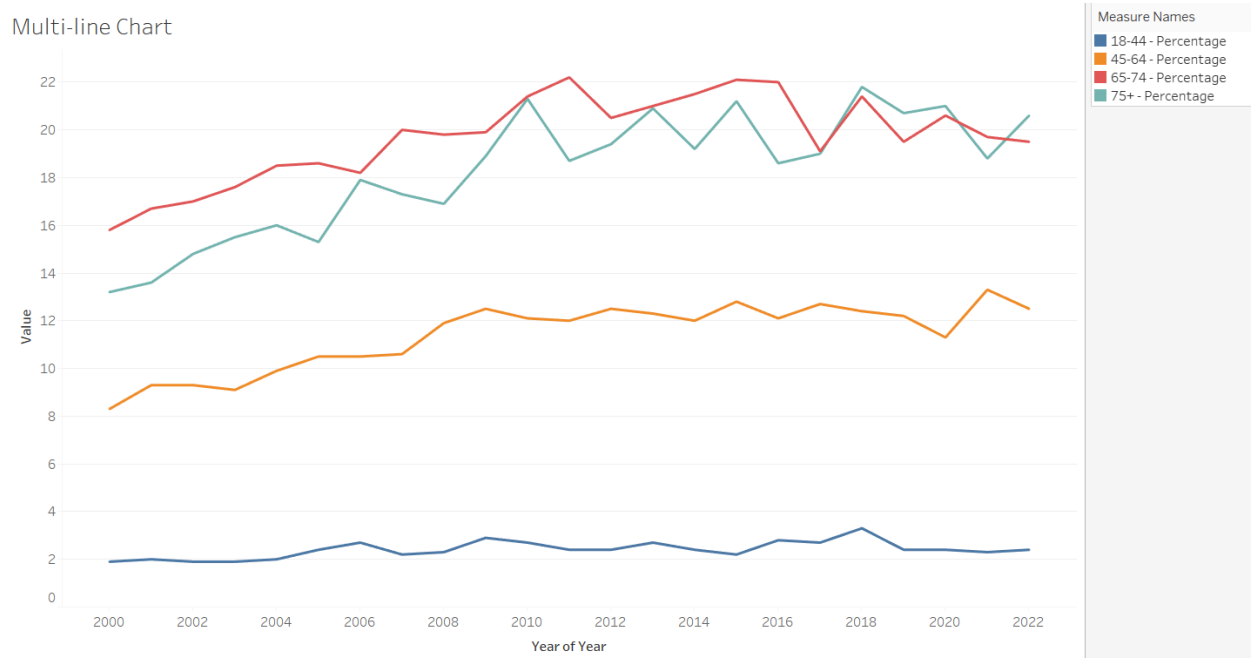
I will process it manually (mainly through google sheets or tableau). I want to get the age ranges, totals, geographical locations, and their corresponding values.

Visualization Design:

- Objective 1: comprehensive multi-line chart
  - X axis = years, Y axis = percent, each line = different age group
  - Must-Have Features:
    - Hovers to see specific data points
  - Optional Features:
    - Option to display each age group's specific line
- Objective 2 and 3: Geographical Map
  - Display of each state and their proportion of total diabetics
  - Must-Have Features:
    - Hovers to see specific data points
    - Slider to see the map at different points in time
  - Optional Features:
    - Click to display a separate line chart for that specific state

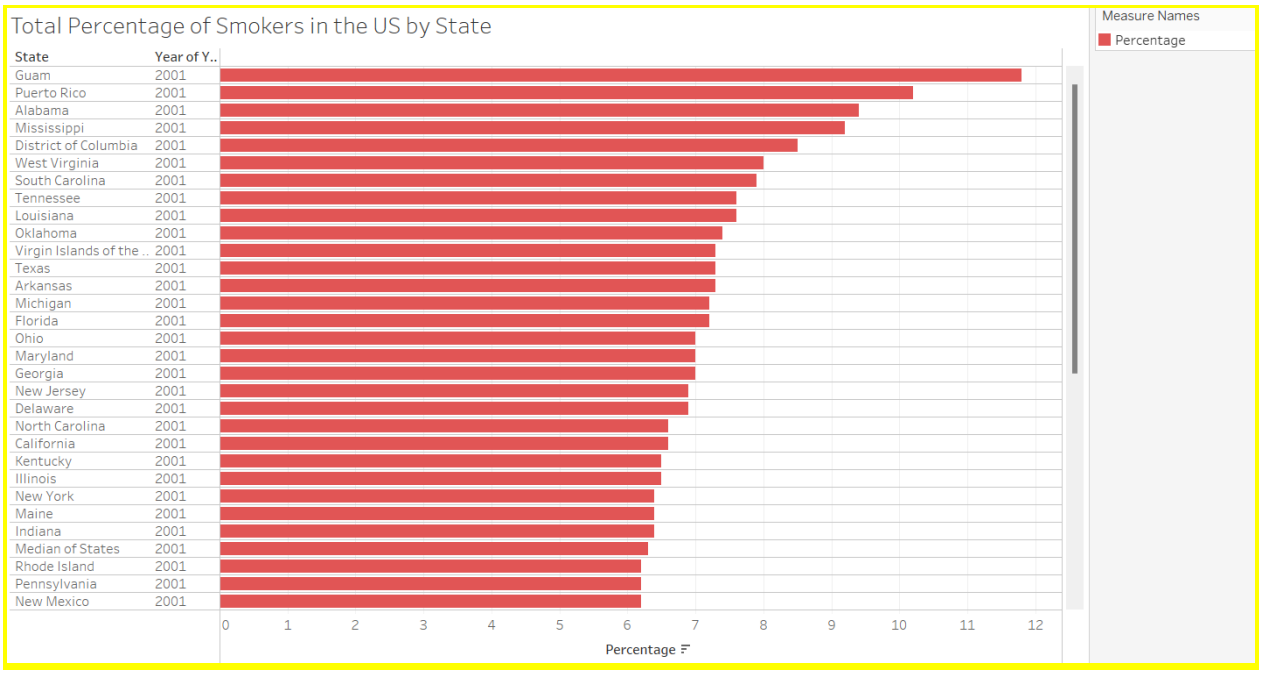
- Objective 2 and 3: Cleveland Dot Plot
    - X axis - percent, y axis - top 10 states, lines - male vs female
    - Must-Have Features:
        - Ability to choose which year to display
    - Optional Features:
        - Connect the slider for the cleveland dot plot with the slider for the geographical map to create a linked view
- Objective 3: Line chart
    - X axis = years, Y axis = percent
    - Must-Have Features:
        - Hover to see specific data points
        - Dropdown menu to select state
    - Optional Features:
        - Have the map click automatically choose a state from the dropdown menu

Multi-Line Chart:

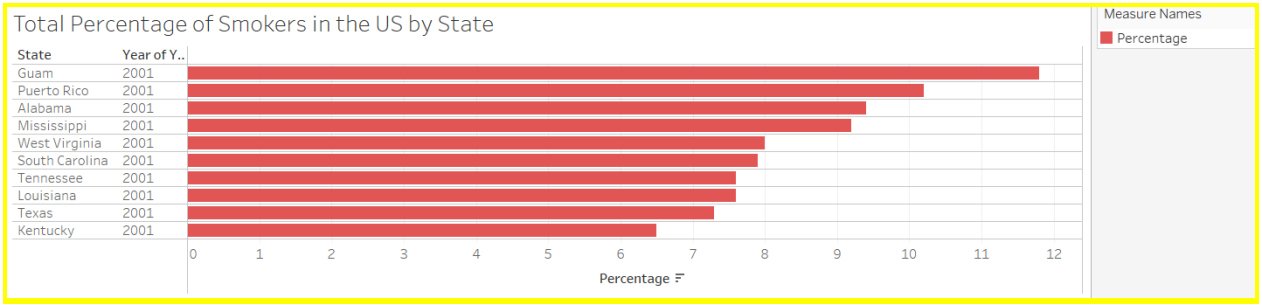


Cleveland Dot Plot:

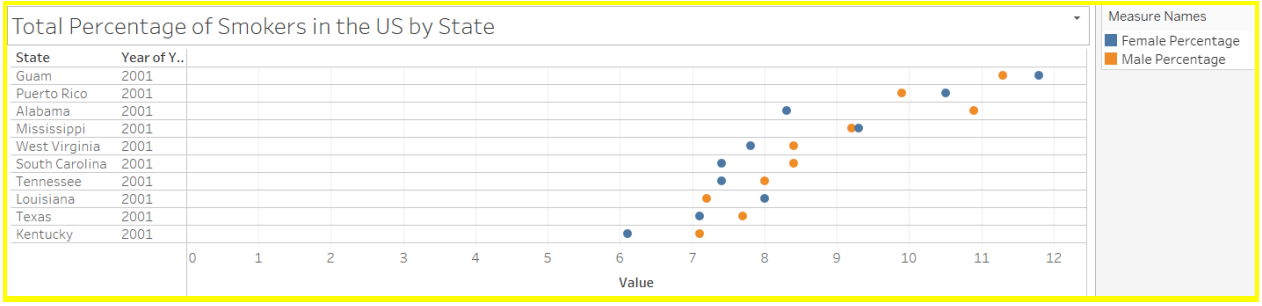
Started with a Bar chart:



Realized this is too much and should only consider top N number of states:

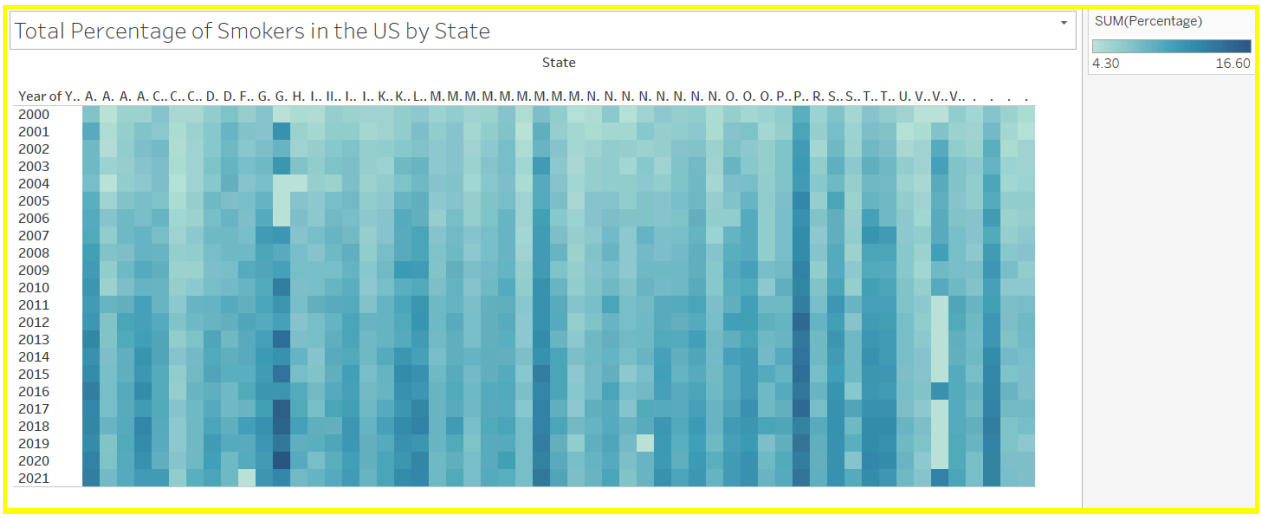


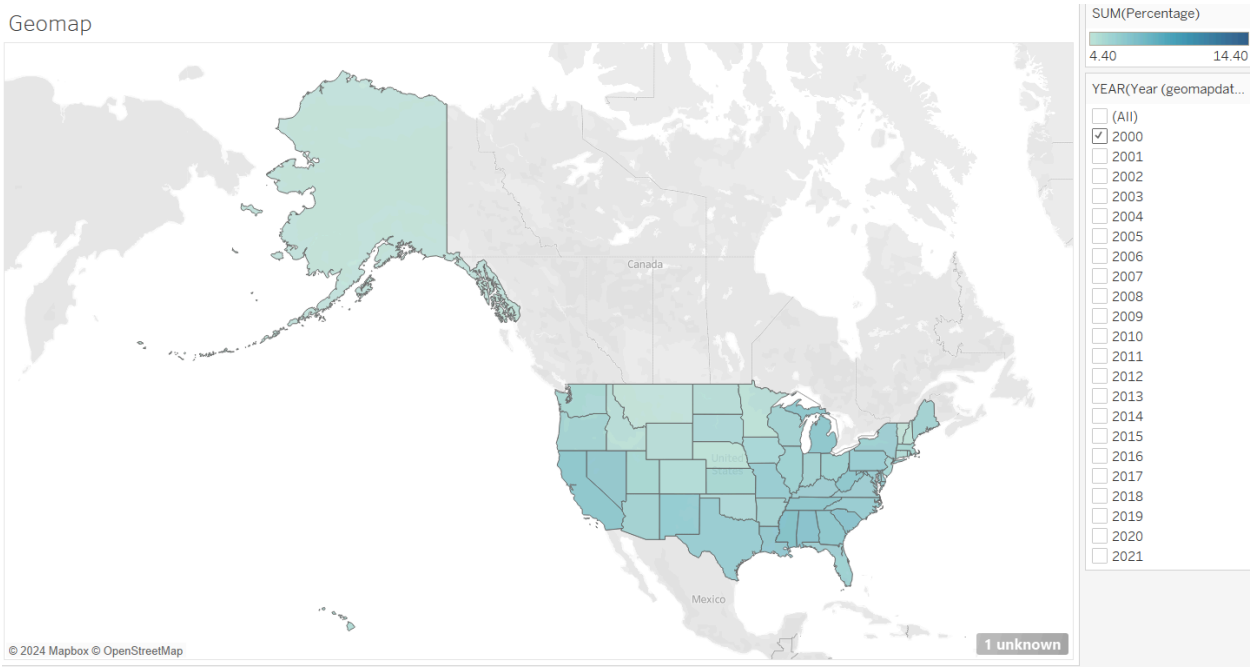
I switched it to a cleveland dot plot to showcase the distribution of men and women (thinking about also putting the total % as another dot but not sure)

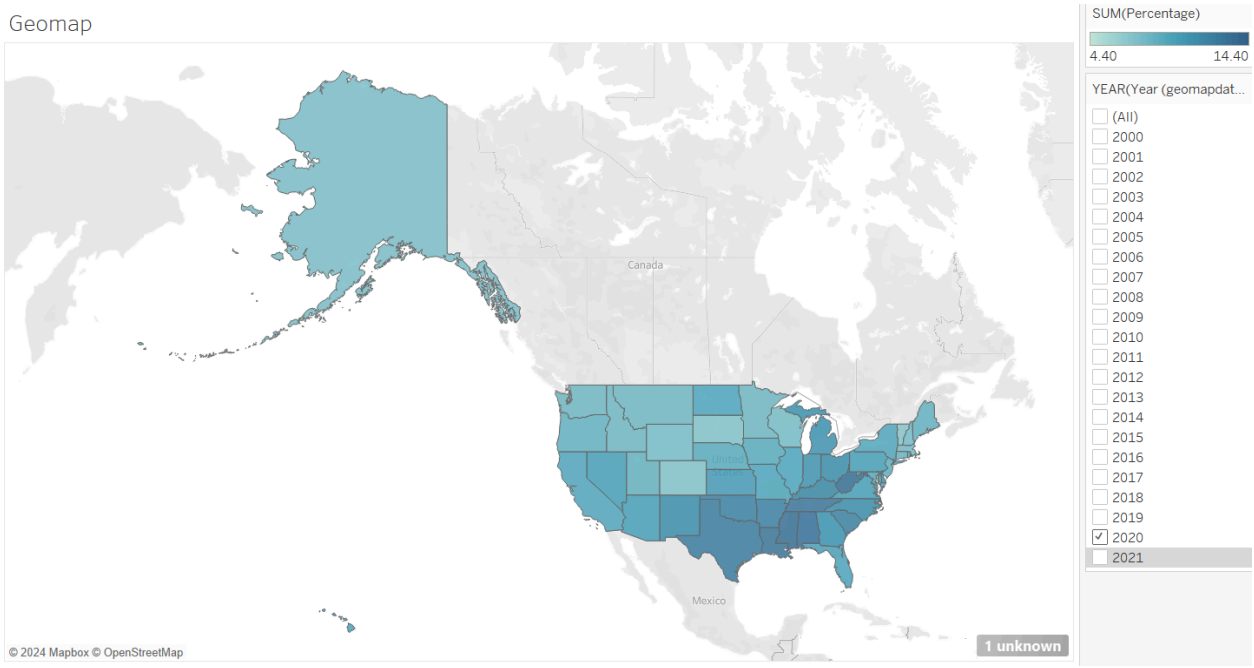


Geographical map:

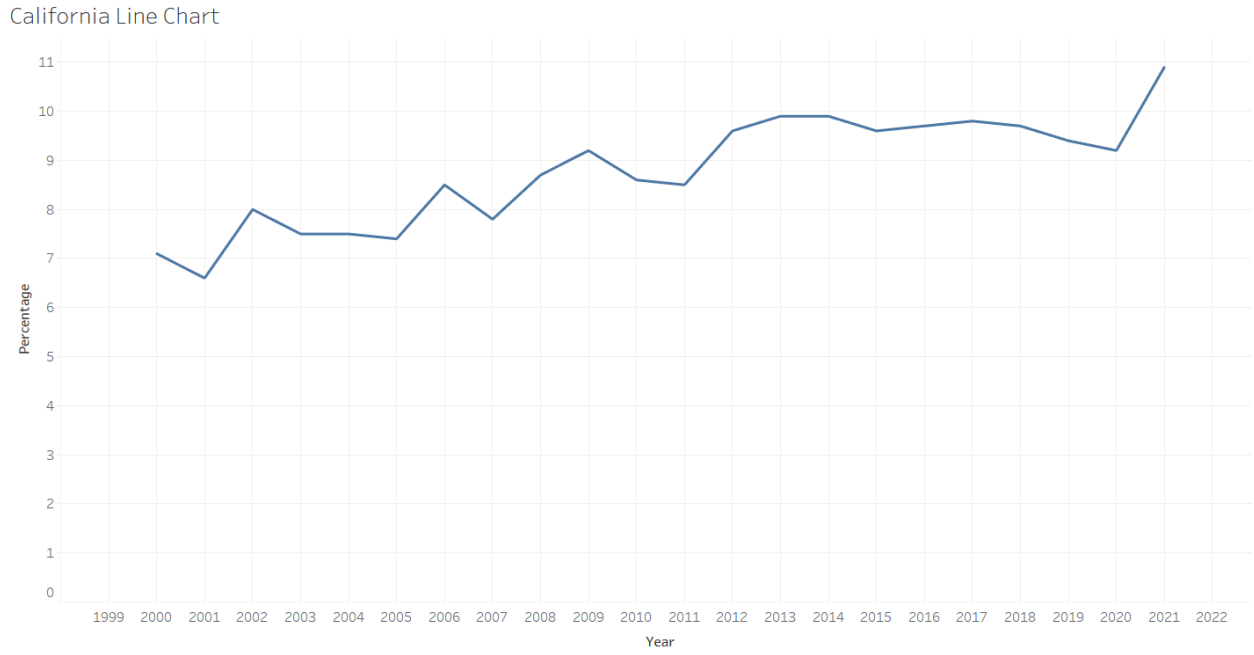
Thought about doing a heatmap first but this is very poor at showing the distribution over time, might as well make small multiples for each state. Also the location is not taken into account very well.

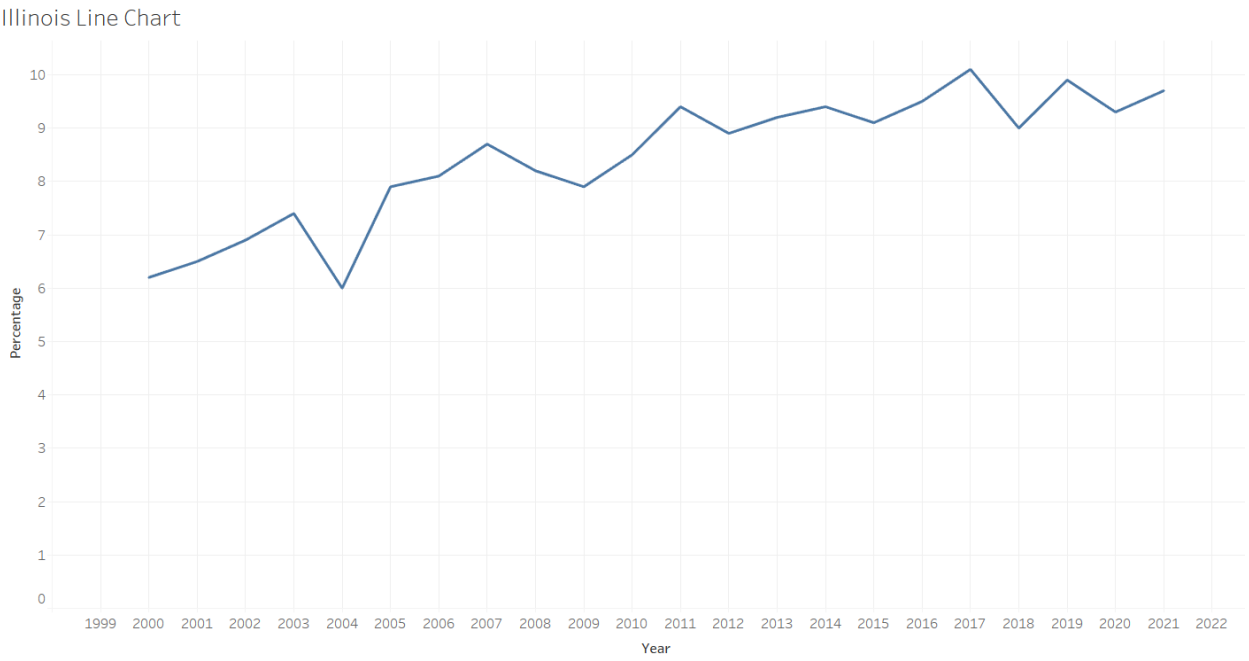





Geomap
SUM(Percentage)
4.40
14.40
YEAR(Year (geomapdat...
(All)
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Canada
Mexico
© 2024 Mapbox © OpenStreetMap
1 unknown

Line Charts:


California Line Chart
Percentage
0
1
2
3
4
5
6
7
8
9
10
11
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Year



Project Schedule:

Date	Task
3/29	Project Proposal Submission
4/1	Finish data processing and get draft of website layout/look
4/5	Revised proposal, Related work, and Website Finish choosing website and requirements for assignment Figure out how to use html and css to do what I want it to
4/7	Work on line charts for any given state (no hovers, no connection to geomap yet)
4/9 - 4/10	Work on the Multi-Line chart (no hovers)
4/11	Work on the Geomap Have basic graph done for any given year Try to figure out how to make a slider to propagate info for the year to display on the SVG

4/12	Try to figure out Cleveland Dot plot Alpha Release
4/14	Add features for line charts (both types) Figure out cleveland dot plot if I haven't already
4/17	Add features for geomap (hovers, slider, maybe click-through?)
4/21	Add features for cleveland dot plot (hovers, dropdown for year)
4/22	Try to figure out linked view and other optional features if I am feeling it
4/24	Beta Release
4/26	Last touch-ups, finish anything or revise anything that hasn't been done
5/6	Project Presentation
5/12	Project Report Draft
5/15	Final Submission

Related Work (The 4th Related work is inaccessible through google scholar but just from the title I have found other information on the "diabetes belt" on the internet)**:**

Mokdad, A. H., Ford, E. S., Bowman, B. A., Nelson, D. E., Engelgau, M. M., Vinicor, F., & Marks, J. S. (2000). Diabetes trends in the US: 1990-1998. *Diabetes care,* 23(9), 1278-1283.

Gale, E. A., & Gillespie, K. M. (2001). Diabetes and gender. *Diabetologia,* 44, 3-15.

Deshpande, A. D., Harris-Hayes, M., & Schootman, M. (2008). Epidemiology of diabetes and diabetes-related complications. *Physical therapy,* 88(11), 1254-1264.

Barker, L. E., Kirtland, K. A., Gregg, E. W., Geiss, L. S., & Thompson, T. J. (2011). Geographic distribution of diagnosed diabetes in the US: a diabetes belt. *American journal of preventive medicine,* 40(4), 434-439.

Harris, M. I. (1998). Diabetes in America: epidemiology and scope of the problem. *Diabetes care,* 21(Supplement_3), C11-C14.