The Public Health GIS Project is designed to expose you to a project that's similar to what you might see in a professional setting. The goal is for you to understand the workflow of a GIS project from start to finish. You will have full control over the topic but it must be public health related.

**The main goal of the project is for you to create maps of your own design using data you've collected/downloaded on your own.**

Your project must include these 5 elements.

1. **Output Maps** - Quality of the final output map(s) as well as how well they help address the initial question. These should be presentation quality and leverage the skills and techniques you have learned in this class.
   1. <https://arcg.is/PDiTG>
2. **Project statement** - Thesis/hypothesis/topic statement and examples (websites, journal articles, new stories, etc) of other work on this topic.
   1. In areas with a higher Social Vulnerability Index, there is a higher amount of mental distress.
      1. With increases in poverty, crowded housing, lack of vehicle access, language barriers, minority status, and disabilities comes and increase in mental distress.
3. **Datasets** - Thorough explanation and description of the datasets you used (metadata).
   1. This map provides model-based estimates of frequent mental distress prevalence among adults aged 18 years and older at county, place, census tract and ZCTA levels in the U.S., 2018. This web map is part of the Centers for Disease Control and Prevention (CDC) [PLACES Project](https://www.cdc.gov/places). It provides model-based estimates of frequent mental distress (mental health not good for >=14 days) prevalence among adults aged 18 years and older at county, place, census tract and ZCTA levels in the United States. The PLACES Project is an expansion of the original 500 Cities Project and a collaboration between the [CDC](https://www.cdc.gov/), the [Robert Wood Johnson Foundation](https://www.rwjf.org/), and the [CDC Foundation](https://www.cdcfoundation.org/).

PLACES: Local Data for Better Health --- This service provides Centers for Disease Control and Prevention (CDC) model-based estimates for 27 chronic disease related measures at county, place, census tract and ZCTA levels . The PLACES (**P**opulation **L**evel **A**nalysis and **C**ommunity **E**stimates) is an expansion of the original 500 Cities project and is a collaboration between the [CDC](https://www.cdc.gov/), the [Robert Wood Johnson Foundation (RWJF)](https://www.rwjf.org/), and the [CDC Foundation (CDCF)](https://www.cdcfoundation.org/). The original 500 Cities Project provided city- and census tract-level estimates for chronic disease risk factors (5), health outcomes (13), and clinical preventive services use (9) for the 500 largest US cities. The PLACES Project extends these estimates to all counties, places (incorporated and census designated places), census tracts and ZIP Code Tabulation Areas (ZCTA) across the United States. Data were provided by the Centers for Disease Control and Prevention (CDC), Division of Population Health, Epidemiology and Surveillance Branch. Data sources used to generate these measures include BRFSS data (2018 or 2017), Census Bureau 2010 census population data or annual population estimates for county vintage 2018 or 2017, and American Community Survey (ACS) 2014-2018 or 2013-2017 estimates.

The health outcomes include arthritis, current asthma, high blood pressure, cancer (excluding skin cancer), high cholesterol, chronic kidney disease, chronic obstructive pulmonary disease (COPD), coronary heart disease, diagnosed diabetes, mental health not good for >=14 days, physical health not good for >=14 days, all teeth lost and stroke.

The preventive services uses include lack of health insurance, visits to doctor for routine checkup, visits to dentist, taking medicine for high blood pressure control, cholesterol screening, mammography use for women, cervical cancer screening for women, colon cancer screening, and core preventive services use for older adults (men and women)

The unhealthy behaviors include binge drinking, current smoking, obesity, physical inactivity, and sleeping less than 7 hours.

* 1. 2018 Social Vulnerability Index (SVI). Created by the Centers for Disease Control and Prevention (CDC) / Agency for Toxic Substances and Disease Registry (ATSDR) / Geospatial Research, Analysis, and Services Program (GRASP).

**This feature layer visualizes the 2018 overall SVI for U.S. counties and tracts**

**Social Vulnerability Index (SVI) indicates the relative vulnerability of every U.S. county and tract**

**15 social factors grouped into four major themes**

**Index value calculated for each county for the 15 social factors, four major themes, and the overall rank**

**What is CDC Social Vulnerability Index?**

ATSDR’s Geospatial Research, Analysis & Services Program (GRASP) has created a tool to help emergency response planners and public health officials identify and map the communities that will most likely need support before, during, and after a hazardous event.

The Social Vulnerability Index (SVI) uses U.S. Census data to determine the social vulnerability of every county and tract. CDC SVI ranks each county and tract on 15 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them into four related themes:

* Socioeconomic
* Housing Composition and Disability
* Minority Status and Language
* Housing and Transportation

**Variables**

For a detailed description of variable uses, please refer to the [full SVI 2018 documentation](https://svi.cdc.gov/Documents/Data/2018_SVI_Data/SVI2018Documentation.pdf).

**Rankings**

We ranked counties and tracts for the entire United States against one another. This feature layer can be used for mapping and analysis of relative vulnerability of counties in multiple states, or across the U.S. as a whole. Rankings are based on percentiles. Percentile ranking values range from 0 to 1, with higher values indicating greater vulnerability. For each county and tract, we generated its percentile rank among all counties and tracts for 1) the fifteen individual variables, 2) the four themes, and 3) its overall position.

**Overall Rankings:**

We totaled the sums for each theme, ordered the counties, and then calculated overall percentile rankings. Please note: taking the sum of the sums for each theme is the same as summing individual variable rankings.

The overall tract summary ranking variable is RPL\_THEMES.

**Theme rankings:**

For each of the four themes, we summed the percentiles for the variables comprising each theme. We ordered the summed percentiles for each theme to determine theme-specific percentile rankings. The four summary theme ranking variables are:

1.Socioeconomic theme - RPL\_THEME1

2.Housing Composition and Disability - RPL\_THEME2

3.Minority Status & Language - RPL\_THEME3

4.Housing & Transportation - RPL\_THEME4

#### Summary

ATSDR’s Geospatial Research, Analysis & Services Program (GRASP) has created a tool to help emergency response planners and public health officials identify and map the communities that will most likely need support before, during, and after a hazardous event. The Social Vulnerability Index (SVI) uses U.S. Census data to determine the social vulnerability of every county and tract. CDC SVI ranks each county and tract on 15 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them into four related themes: Socioeconomic Housing Composition and Disability Minority Status and Language Housing and Transportation

#### Description

This feature layer visualizes the 2018 overall SVI for U.S. counties and tracts

Social Vulnerability Index (SVI) indicates the relative vulnerability of every U.S. county and tract

15 social factors grouped into four major themes

Index value calculated for each county for the 15 social factors, four major themes, and the overall rank

* 1. Both were Feature Layer by data\_cdc

1. **Methods** - Explain the method(s) you used to create the map(s). Describe the type of thematic map, how the data was processed, classification schemes, color/symbol choices, etc. Every decision you make has to have a reason and you must be able to explain and defend your reasoning.
   1. Type of thematic map: Web mapping application
      1. For easy access to more detailed information by county
   2. Data was found in ArcGis Living Atlas
   3. Classification schemes:
      1. SVI - Clorolpleth
         1. To see the underlying issues at hand
      2. Mental Distress - graduated symbols
         1. To understand the size of the distress in the area
   4. Color/symbol choice reasoning:
      1. SVI - on the counties for clear understanding
         1. Purple with 5 different color saturations to see the differences in the states percentile ranking of the SVI
      2. Mental Distress - pins on the counties to still see the color underneath and show the size of the pin in relation to the amount of mental distress
         1. Blueish silver to contrast with the purple and make it stand out still
2. **Discussion** - Discuss issues, limitations, and possible follow-up work.
   1. Not only do people suffer from difficulties of (SVI) factors but these come with mental stress which can deteriorate their health at a faster rate.
   2. Limitations: ????
   3. Follow-up work???

**What's Due:**

* Output Maps (#1 above)
* 1-2 page written summary outlining #2 - #5 above.
* I expect each element to be well thought out, thoroughly explained, and something you would be comfortable submitting in the workplace

**My Expectations**

* **Not expecting a full thesis or anything like that**
* I want you to try and answer a question or show something new
* Create new maps showing different data
* Explore relationships between different datasets
* Do some analysis
* Collect new data

Data to use

<https://nihcm.org/publications/the-impact-of-the-pandemic-on-the-mental-health-of-children-youth?utm_source=NIHCM+Foundation&utm_campaign=a90d437f97-052421_Children_MentalHealth_Infographic&utm_medium=email&utm_term=0_6f88de9846-a90d437f97-167823560>

https://www.census.gov/data/experimental-data-products/community-resilience-estimates.html?utm\_campaign=&utm\_content=&utm\_medium=email&utm\_source=govdelivery

<https://www.unitedwayatlanta.org/child-well-being-map/>

<https://www.icpsr.umich.edu/web/pages/>

Week 5 lecture questions slides 20-24

Week 7 last slide

* <https://factfinder.cencus.gov/>
* <http://www.countyhealthrankings.org/>
* <https://wonder.cdc.gov/>
* <https://svi.cdc.gov/>
* <https://data.cdc.gov/>
* BRFSS (The Behavioral Risk Factor Surveillance System)
  + https://www.cdc.gov/brfss/index.html