Organ Donation and Transplantation

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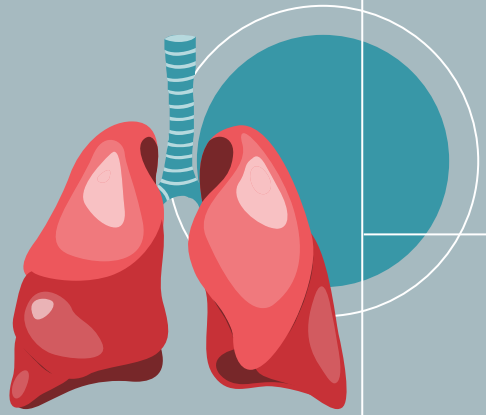
Keyana P., Lovepreet S.



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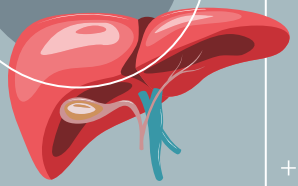

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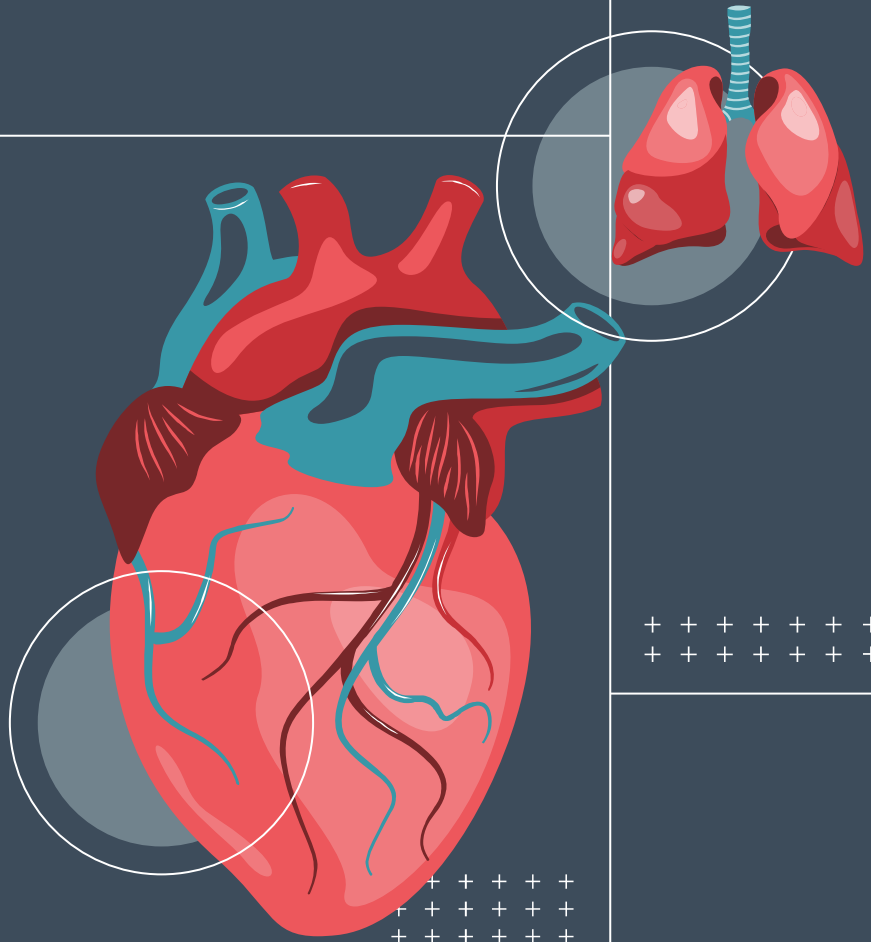
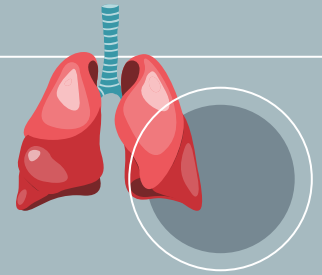
01

Our Dataset



data.HRSA.gov

Our Dataset

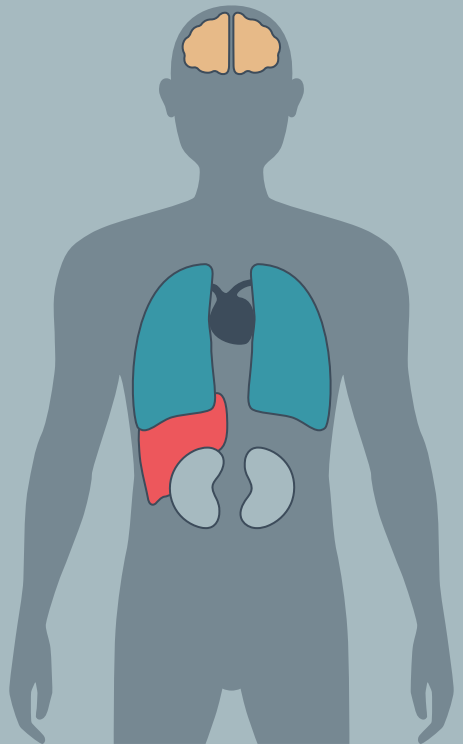


Data obtained from the Health Resources & Services Administration (U.S.) Organ Donation and Transplantation program.

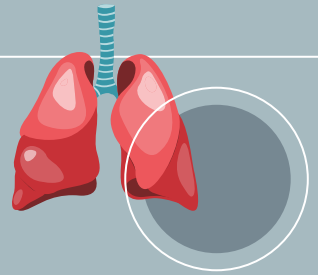
Includes data on Donors (living and deceased) and Recipients on the following organs:

Heart	Kidney
Kidney-Pancreas	Liver
Lung	Pancreas.

Data Ranges from January 01, 2017 to December 31, 2022.



HRSA
Health Resources & Services Administration

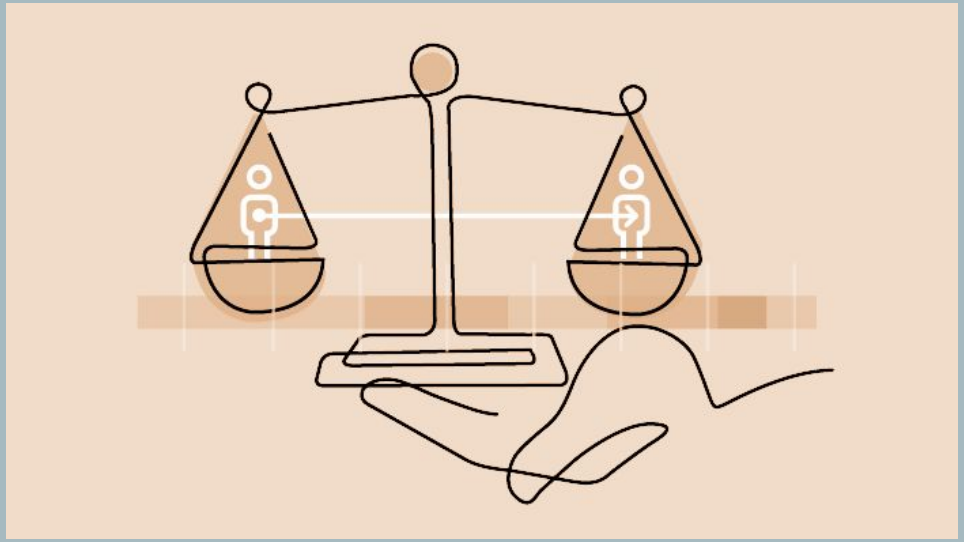


Audience and purpose of dashboard

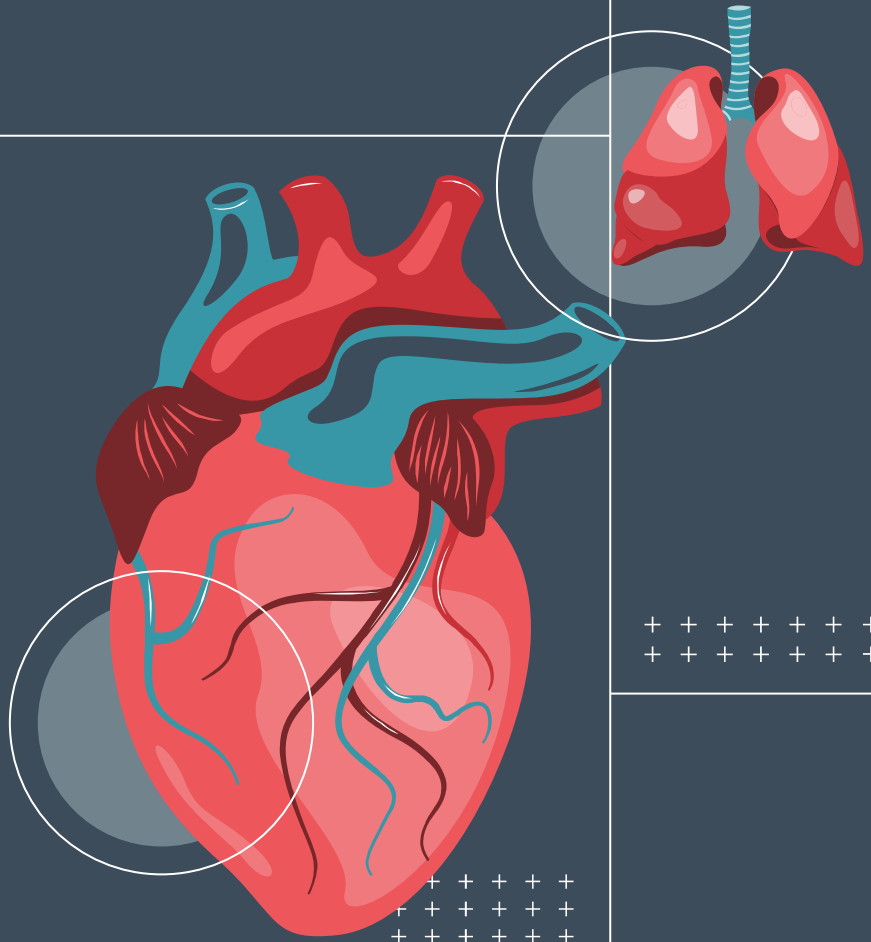
Medical/healthcare professionals

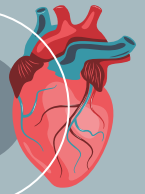
Visualize publicly available information on the organ donation and transplantation system.

Identify areas where organ transplantation equity can be improved

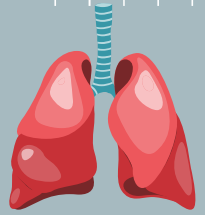


02
ETL and Languages



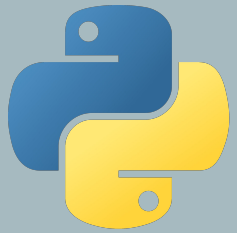


ETL Breakdown & Languages



Python was used to extract .csv files, to clean unnecessary columns and fill in planks.
Pandas was used to create dataframes.
Postgres was used to create the database in which our data was stored.
Flask was used to jsonify the data and create the API endpoints.
Javascript was used to load, manipulate, and process data using the following libraries:

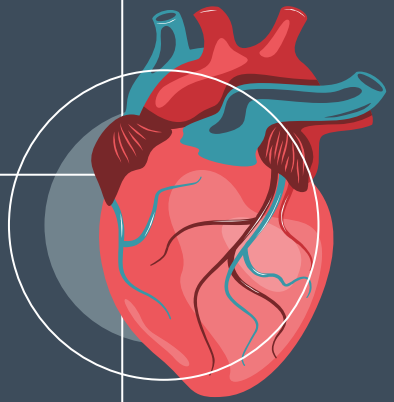
- d3
- jquery
- leaflet

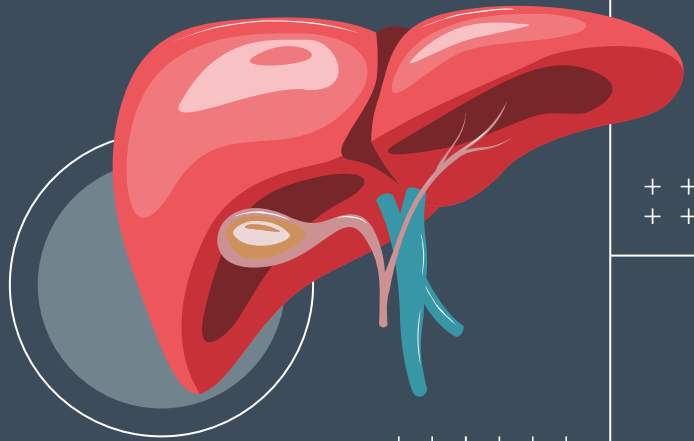


03

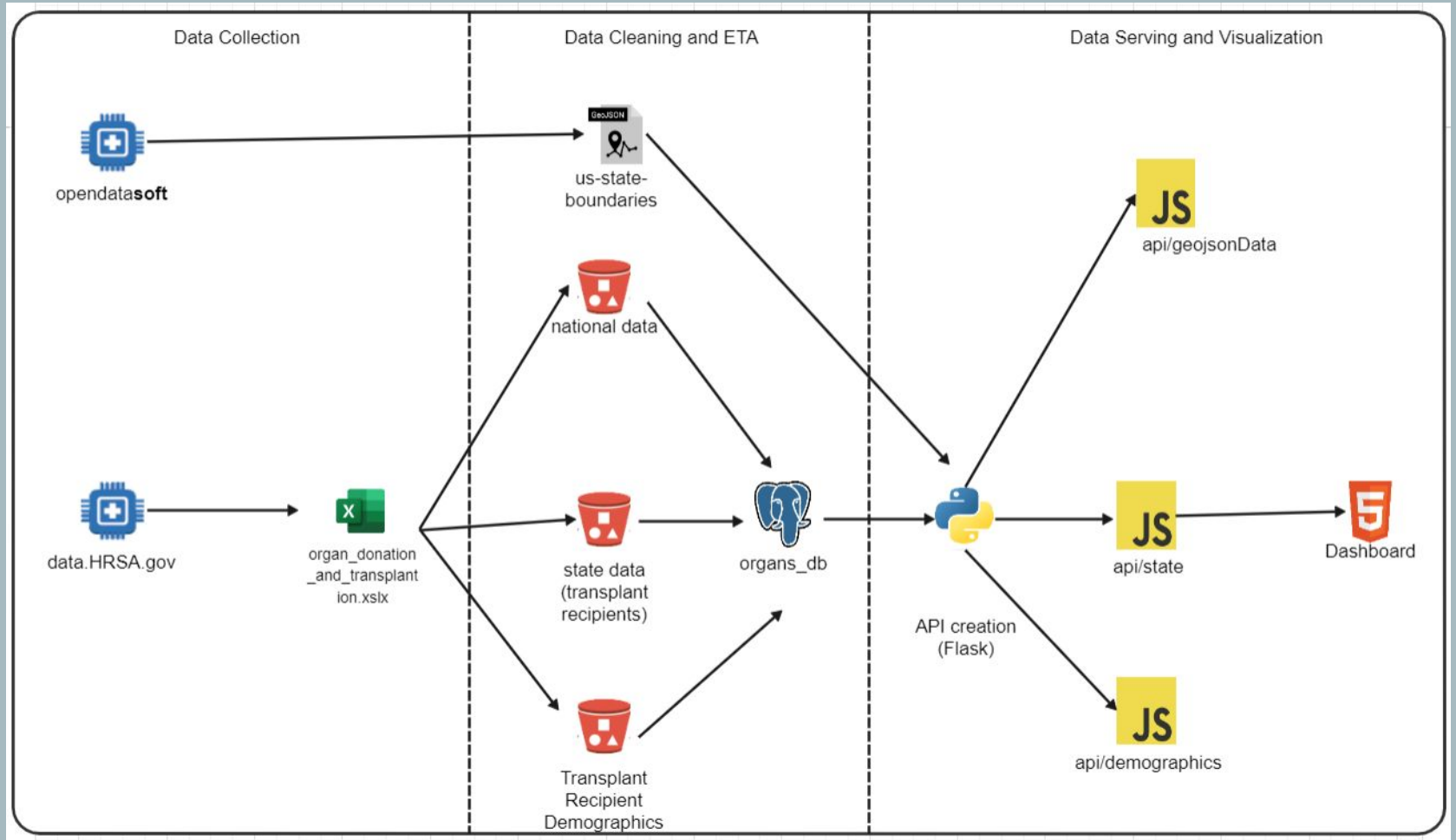
Table Schema

National overview of organ donors and recipients





Project model



National

```
CREATE TABLE national(
    year INTEGER PRIMARY KEY,
    organ VARCHAR PRIMARY KEY,
    number_of_deceased_organ_donors_recovered INTEGER,
    number_of_living_organ_donors_recovered INTEGER
    number_of_deceased_donor_organ_transplant_recipients INTEGER
    number_of_living_donor_organ_transplant_recipients INTEGER
);
```

State

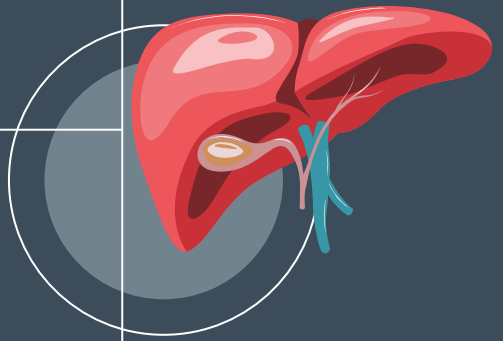
```
CREATE TABLE state(
    type VARCHAR,
    year INTEGER PRIMARY KEY,
    state_name VARCHAR PRIMARY KEY,
    state_code VARCHAR,
    organ VARCHAR PRIMARY KEY,
    counts INTEGER
);
```

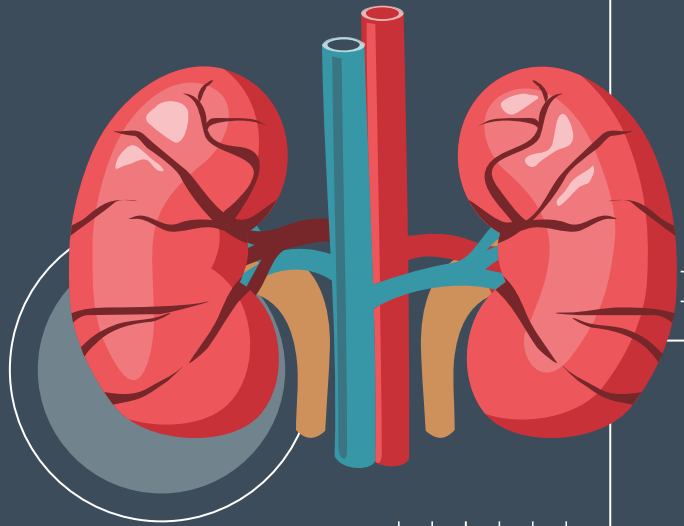
Demographics

```
CREATE TABLE demographics(
    transplant_year INTEGER PRIMARY KEY,
    donor_type VARCHAR PRIMARY KEY,
    organ_transplantd VARCHAR PRIMARY KEY,
    total INTEGER,
    male INTEGER,
    female INTEGER,
    no_age_reported INTEGER,
    pediatric INTEGER,
    age_18_30 INTEGER,
    age_31_40 INTEGER,
    age_41_50 INTEGER,
    age_51_60 INTEGER,
    age_61_plus INTEGER,
    white INTEGER,
    black INTEGER,
    hispanic INTEGER,
    asian INTEGER,
    american_indian INTEGER,
    native_hawaiian INTEGER,
    multiracial INTEGER
);
```

04
Live Demo

State map view of organ recipients



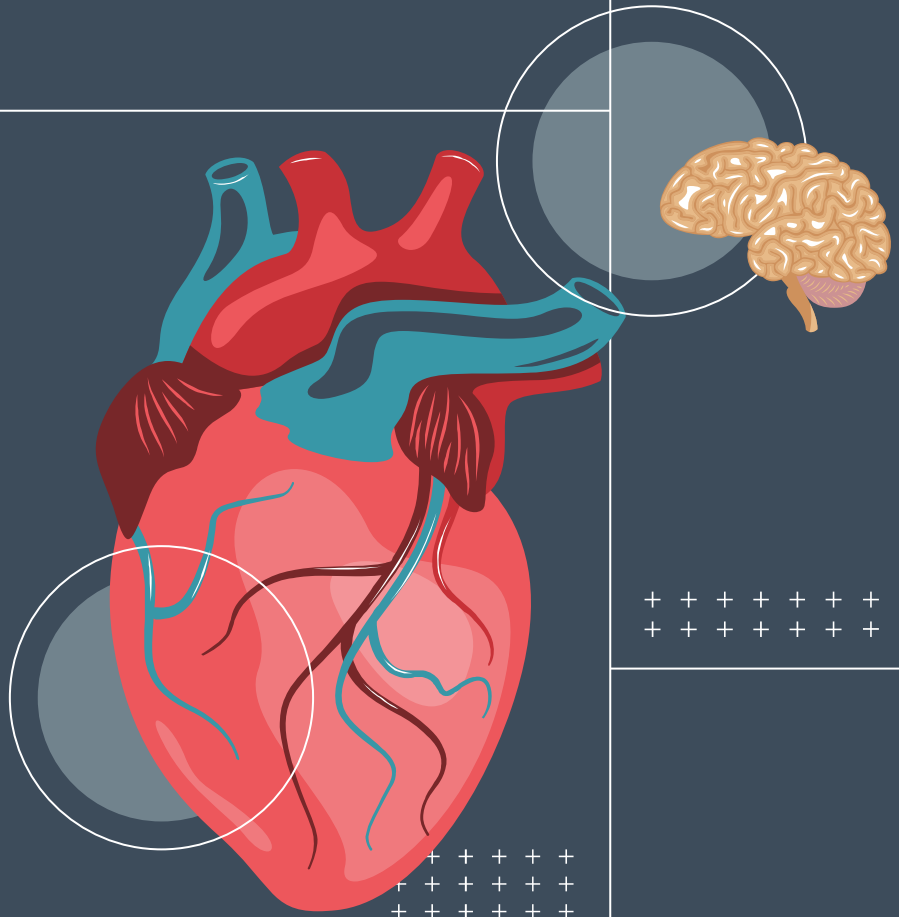


HTML/ CSS

05

Considerations and Limitations

Limitations that we encountered



Considerations and Limitations

Consideration #1: Data is provided at the individual level:

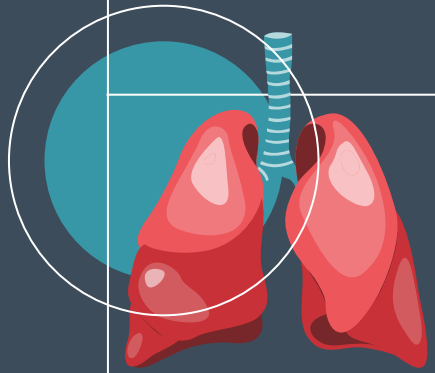
- At the national and state level, the counts represent individual only.
- At the demographic level, count represent individuals not transplantation instances.
- Our visualization do not include transplantation rate.

Consideration #2: kidney-pancreas data is unavailable for any type of donors, or recipients who received live organs

Limitation #1: Dataset is large and extensive, presenting it as counts and percentages may not reflect and capture that full complexity of the data

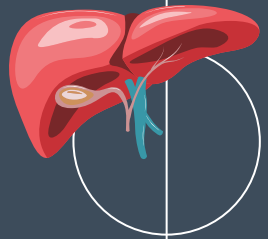
Limitation #2: Health Resources & Services Administration (HRSA) suppressed some data to maintain privacy of individuals:

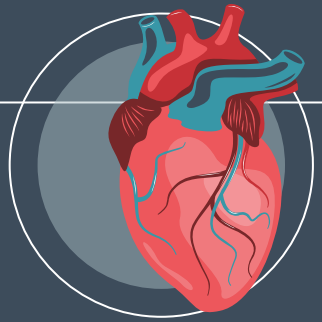
- HRSA lists all counts less than 16 as “suppressed”. This is to avoid possible back calculation of the category



06

Conclusion





References