# Antidepressant Use During COVID-19

## The purpose of this project is to determine changes in antidepressant usage in the United States from before COVID started in March 2020 to after the start of the pandemic.

### Retrieve data from Medicaid

In [5]:
```
import pandas as pd
import numpy as np
```

In [6]:
```
data2019 = pd.read_csv('https://download.medicaid.gov/data/state-drug-utilization-data2019.csv')
data2020 = pd.read_csv('https://download.medicaid.gov/data/state-drug-utilization-data2020.csv')
data2021 = pd.read_csv('https://download.medicaid.gov/data/state-drug-utilization-data2021.csv')
```

### Cleaning data

Clean column names, remove NAs, sort values, ensure medication names are in proper case as several were all upper case

In [7]:
```
#Data for 2019

df2019 = pd.DataFrame(data2019)
names = df2019.columns.str.title().str.replace('_',' ')
df2019.set_axis(names, axis=1, inplace=True)
df2019 = df2019.dropna().sort_values(by = ['State','Year','Quarter','Product Name'])
df2019['Product Name'] = df2019['Product Name'].str.title()

#Data for 2020
df2020 = pd.DataFrame(data2020)
names = df2020.columns.str.title().str.replace('_',' ')
df2020.set_axis(names, axis=1, inplace=True)
df2020 = df2020.dropna().sort_values(by = ['State','Year','Quarter','Product Name'])
df2020['Product Name'] = df2020['Product Name'].str.title()

#Data for 2021
df2021 = pd.DataFrame(data2021)
names = df2021.columns.str.title().str.replace('_',' ')
df2021.set_axis(names, axis=1, inplace=True)
df2021 = df2021.dropna().sort_values(by = ['State','Year','Quarter','Product Name'])
df2021['Product Name'] = df2021['Product Name'].str.title()
```

### Extract only data with antidepressants

In [8]:
```
ad2019 = df2019[df2019['Product Name'].str.title().isin([x.title() for x in {"Sertraline","Fluoxetine","Paroxetine","Citalopram","Escitalopram","Fluvoxamine","Vortioxetine","Vila
ad2020 = df2020[df2020['Product Name'].str.title().isin([x.title() for x in {"Sertraline","Fluoxetine","Paroxetine","Citalopram","Escitalopram","Fluvoxamine","Vortioxetine","Vila
ad2021 = df2021[df2021['Product Name'].str.title().isin([x.title() for x in {"Sertraline","Fluoxetine","Paroxetine","Citalopram","Escitalopram","Fluvoxamine","Vortioxetine","Vila
```

### Combine all data into one table

In [9]:
```
table = pd.concat([ad2019, ad2020, ad2021], ignore_index=True)
antidepressants = table.sort_values(['State','Year','Quarter','Product Name'])
antidepressants
```

Out[9]:

| | Utilization Type | State | Ndc | Labeler Code | Product Code | Package Size | Year | Quarter | Suppression Used | Product Name | Units Reimbursed | Number Of Prescriptions | Total Amount Reimbursed | Medicaid Amount Reimbursed | Non Medicaid Amount Reimbursed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | FFSU | AK | 378623101 | 378 | 6231 | 1.0 | 2019 | 1 | False | Citalopram | 946.0 | 21.0 | 260.31 | 256.43 | 3.88 |
| **1** | FFSU | AK | 378623201 | 378 | 6232 | 1.0 | 2019 | 1 | False | Citalopram | 3608.0 | 79.0 | 1065.05 | 1065.05 | 0.00 |
| **2** | FFSU | AK | 378623205 | 378 | 6232 | 5.0 | 2019 | 1 | False | Citalopram | 1497.0 | 49.0 | 739.58 | 739.58 | 0.00 |
| **3** | FFSU | AK | 378623301 | 378 | 6233 | 1.0 | 2019 | 1 | False | Citalopram | 2497.0 | 67.0 | 737.93 | 733.88 | 4.05 |
| **4** | FFSU | AK | 378623305 | 378 | 6233 | 5.0 | 2019 | 1 | False | Citalopram | 1267.0 | 40.0 | 636.14 | 636.14 | 0.00 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **142156** | MCOU | XX | 71093013005 | 71093 | 130 | 5.0 | 2021 | 4 | False | Sertraline | 56371.0 | 1552.0 | 5182.32 | 5171.91 | 10.41 |
| **142157** | FFSU | XX | 71093013105 | 71093 | 131 | 5.0 | 2021 | 4 | False | Sertraline | 9583.0 | 139.0 | 1830.31 | 1800.37 | 29.94 |
| **142158** | MCOU | XX | 71093013105 | 71093 | 131 | 5.0 | 2021 | 4 | False | Sertraline | 31157.0 | 761.0 | 2477.21 | 2477.21 | 0.00 |
| **142159** | FFSU | XX | 71093014311 | 71093 | 143 | 11.0 | 2021 | 4 | False | Sertraline | 104357.7 | 996.0 | 60193.38 | 54888.30 | 5305.08 |
| **142160** | MCOU | XX | 71093014311 | 71093 | 143 | 11.0 | 2021 | 4 | False | Sertraline | 138464.7 | 1651.0 | 84890.39 | 77870.11 | 7020.28 |

142161 rows × 15 columns

### Extract data to CSV file to be used in visualization program

In [8]:
```
antidepressants.to_csv(r'D:\Data\Antidepressants Revised\Antidepressant Revised.csv')
```

In [ ]:
```
```