Recognizing Medicare Opioid Prescriber Patterns to Provide Initial Indicator of Potential Abuse

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Abstract

This attempts to recognize potential indicators of initial opioid abuse in the Medicare community. The hypothesis is that the data for AcmeMedicareScripts will allow trending to come forward on items such as top prescribers per state, top drugs that are being prescribed, etc. Viewing this data in Tableau will enable the client to establish a visual representation of if there's potential abuse in one area vs. another, be able to predict if there is a higher concentration of pain patients in one state vs. another, etc. I created 4 workbooks in Tableau to which this will be apparent.

Design

The project's data originates from an opioid dataset on Kaggle, which was curated from 3 sites on cms.gov such as this. The data is 3 csv files from 2019 which contain data such as the drug name being prescribed, state of the prescriber, overdoses in the state, etc. which are included in the "Data" section of this document within reason.

Data

The dataset of the csv (prescriber-info.csv) created from the files ended up having a shape of (25001, 256). This file contained columns:
- 'npi', 'npi gender', 'state', 'specialty', with 250+ drug names

The dataset of the csv (opioids.csv) created from the files ended up having a shape of (100, 2). This file contained columns:
- 'drug name', 'generic name'

The dataset of the csv (overdoses.csv) created from the files ended up having a shape of (50, 4). This file contained columns:
- 'state', 'population', 'deaths', 'state abbreviation'

Algorithms

Feature Engineering

1. Transformed all drug names into their respective rows instead of columns
2. Joined states between csv files for a better outlook of overdoses
3. Cleaned all fields of leading / trailing spaces, uppercased all drugs
4. Combined 'drug name' with 'generic name' as it wasn't important for the difference

Models

None for this business project

Tools

Excel for initial EDA and cleaning along with exploratory pivot table and chart, Tableau Prep Builder to transform hundreds of columns to rows as Excel couldn't handle that volume, Tableau for visualization and presentation.
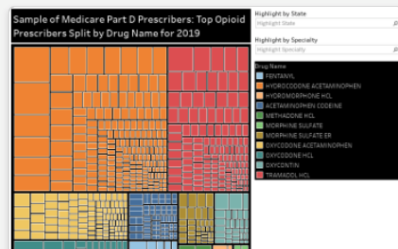
Communication

These slides and visualizations were presented, and this was uploaded to github. The Tableau visualizations were uploaded to Tableau public under my profile for viewing.
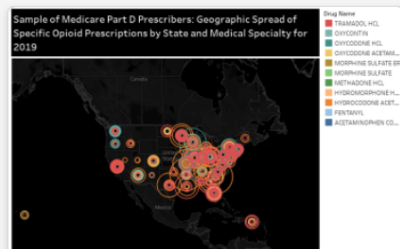

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Sample of Medicare Part D Prescribers: Top Opioid...

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Sample of Medicare Part D Prescribers: Geographic Spread ...
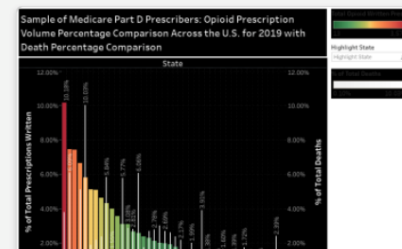
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Sample of Medicare Part D Prescribers: Opioid Prescription...

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Sample of Medicare Part D Prescribers: Opioid Prescription...

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