Week 4

Advay Vyas

4/29/25

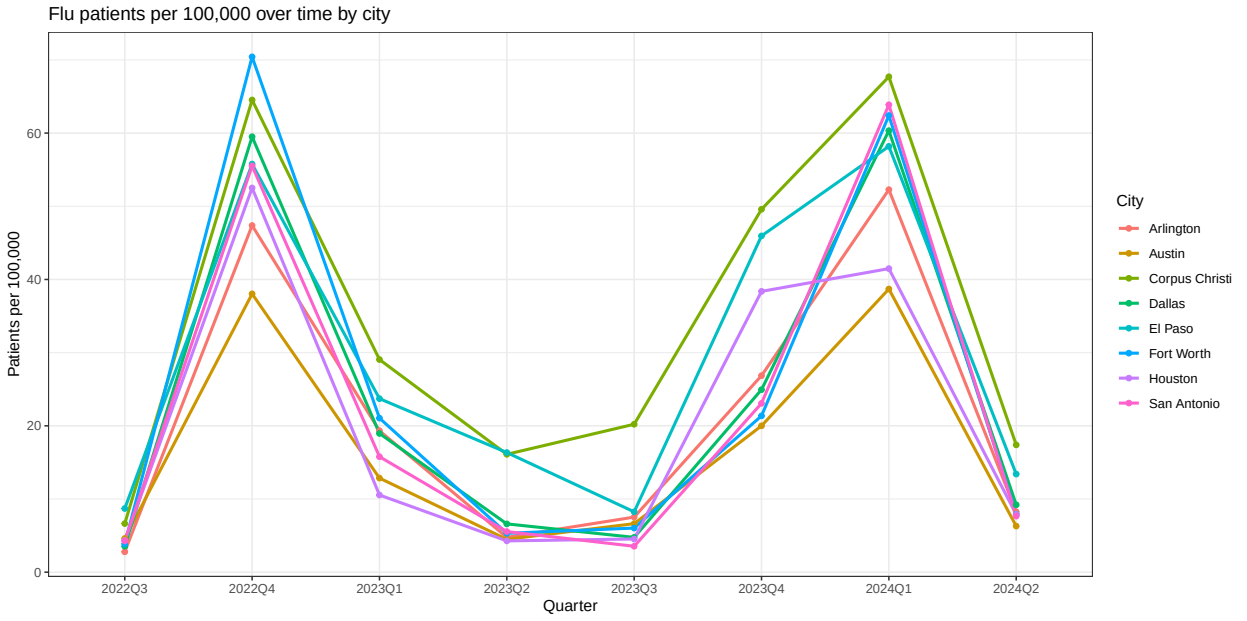
Contents

Introduction

This week, we are going to look into vaccination and quantify the correlation between vaccination and flu patients. We will also attempt to look at the new datasets for specifically flu patients and maybe make a correlation matrix to find any variables that match up well. Also, we want to look into why cities like Dallas have much higher flu patients per capita compared to ciites like Austin. We can also look at why cities like Houston and San Antonio have different numbers every cycle.

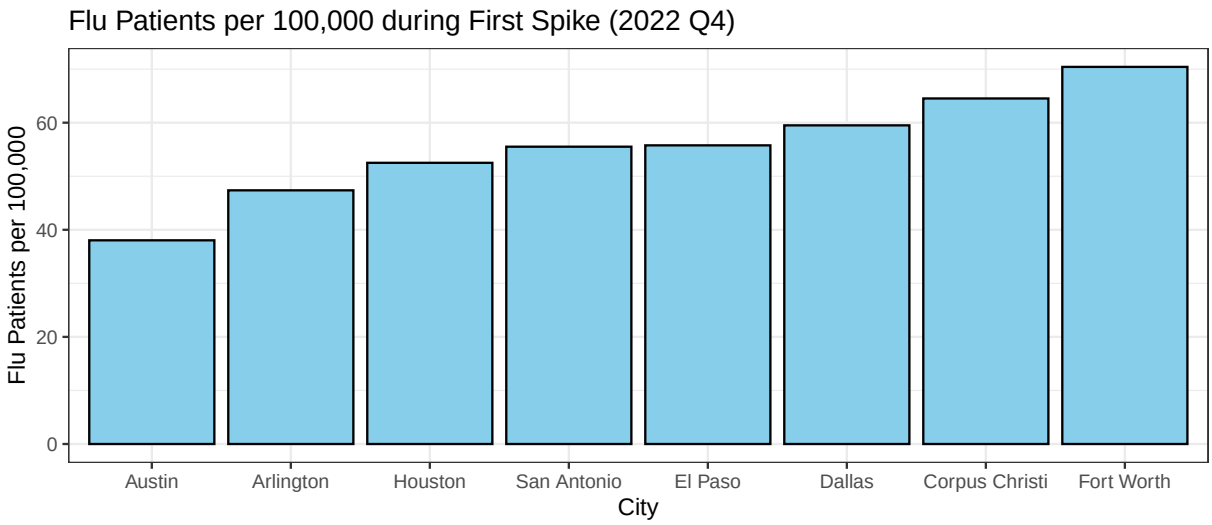
Correlation with flu peaks

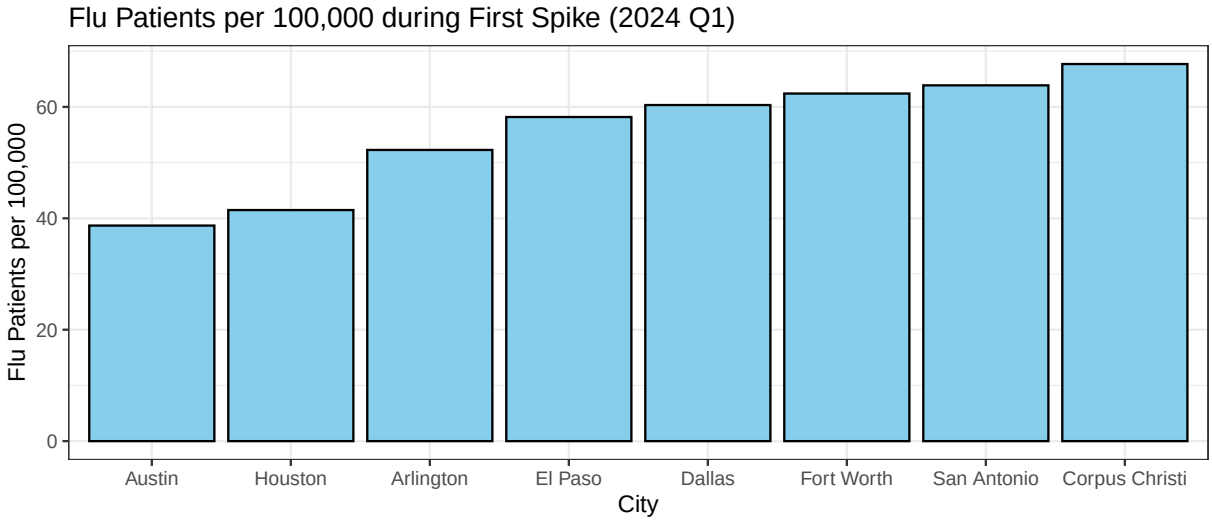
Isolating the peaks



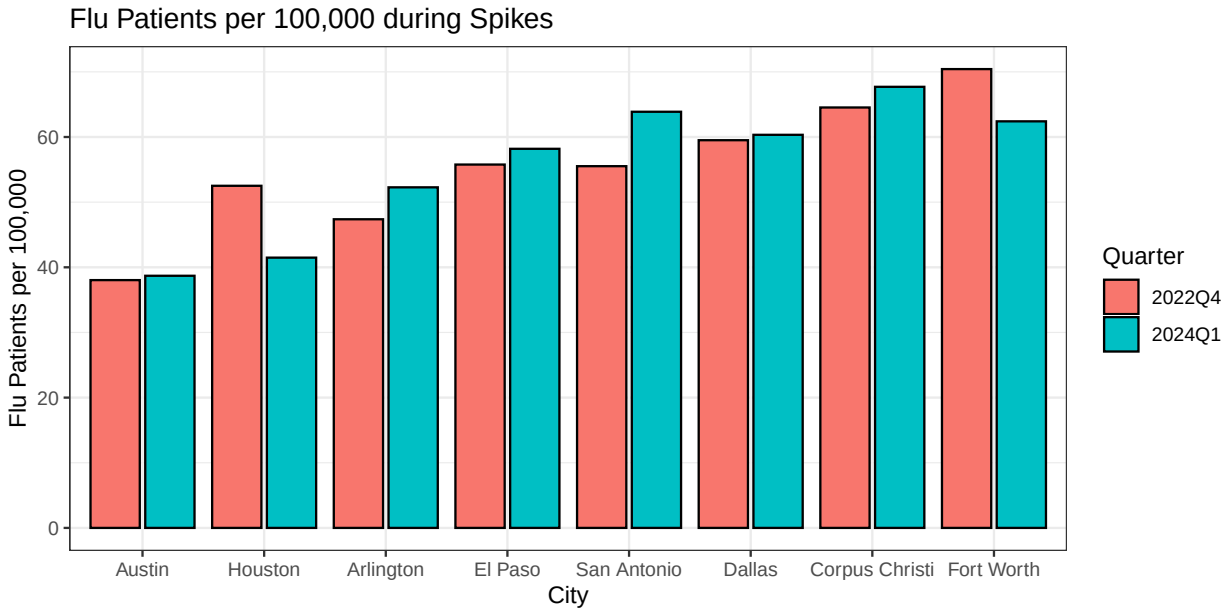
The peaks are 2022Q4 and 2024Q1, let's isolate those 2 and create a table of correlation between the two, separated by each peak since I only have reliable 2022 data.

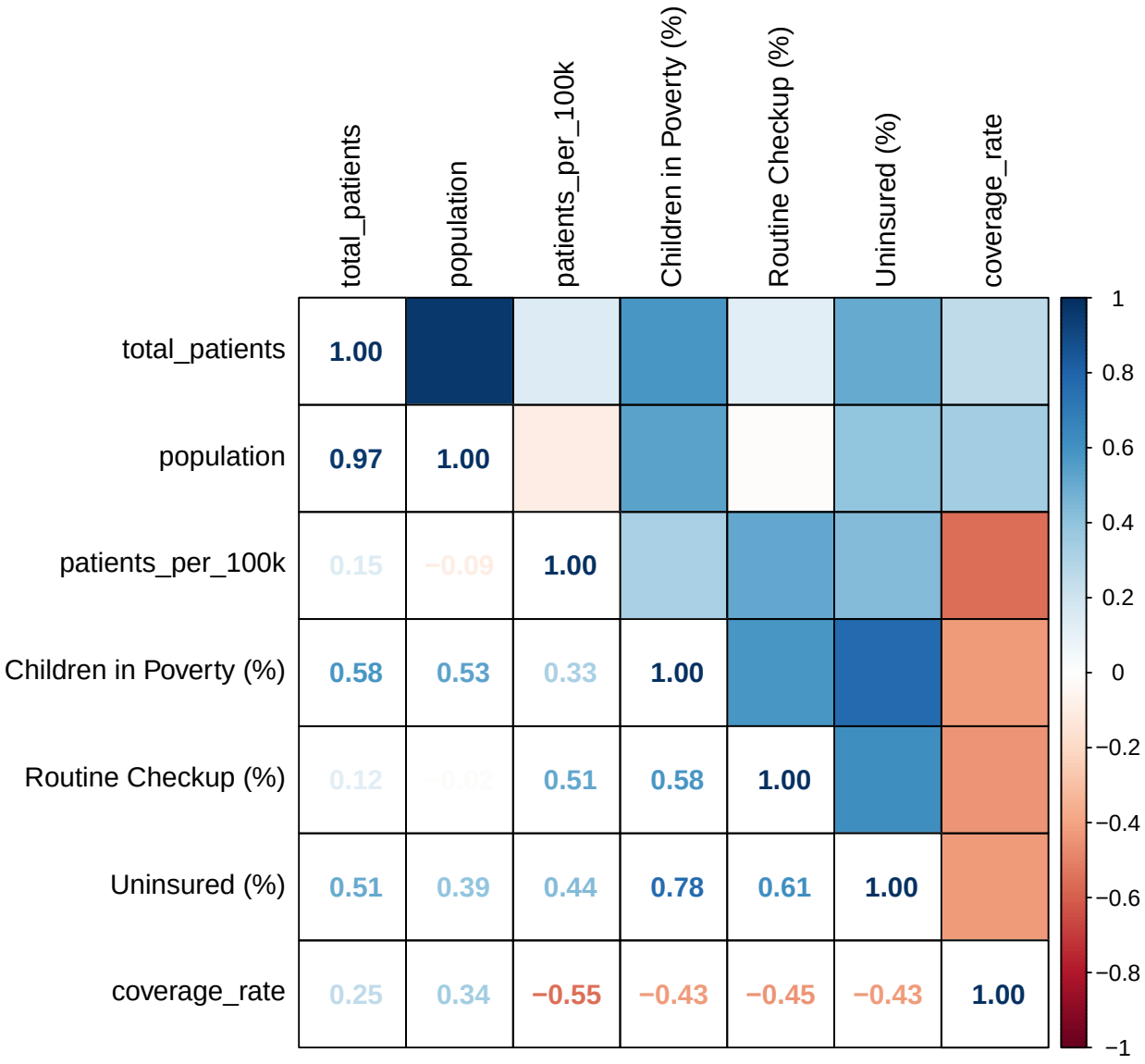
Let's get some bar graph representations of our data so we can interpret it a little better.



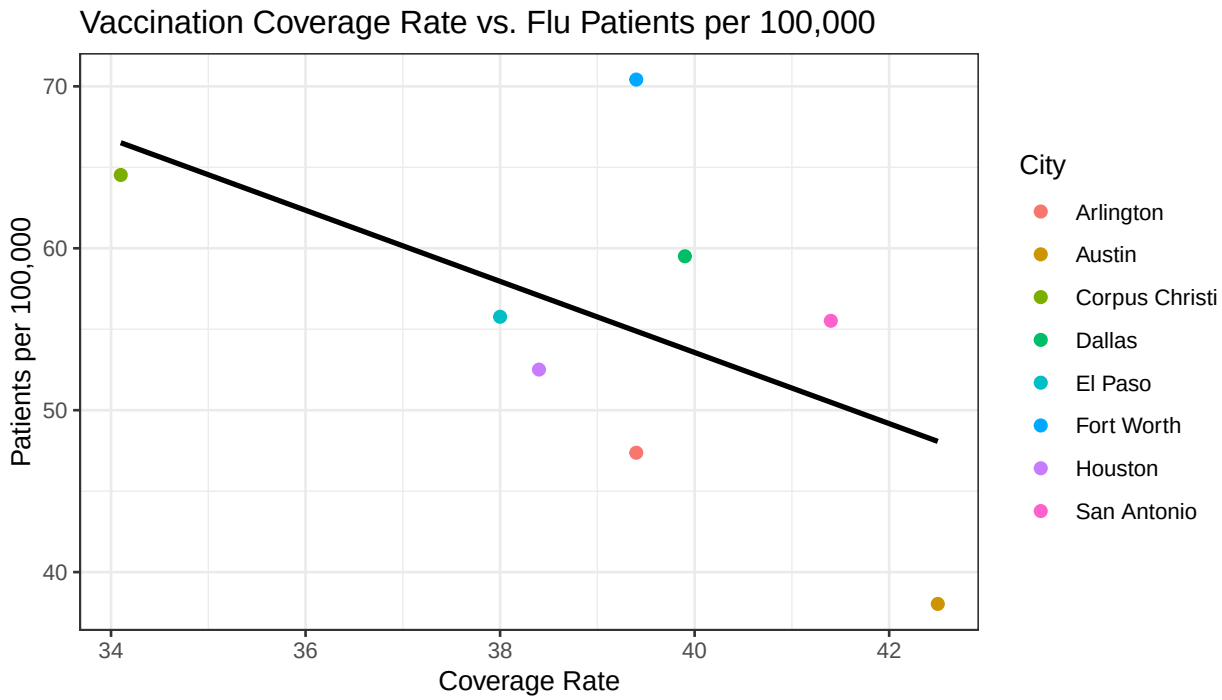


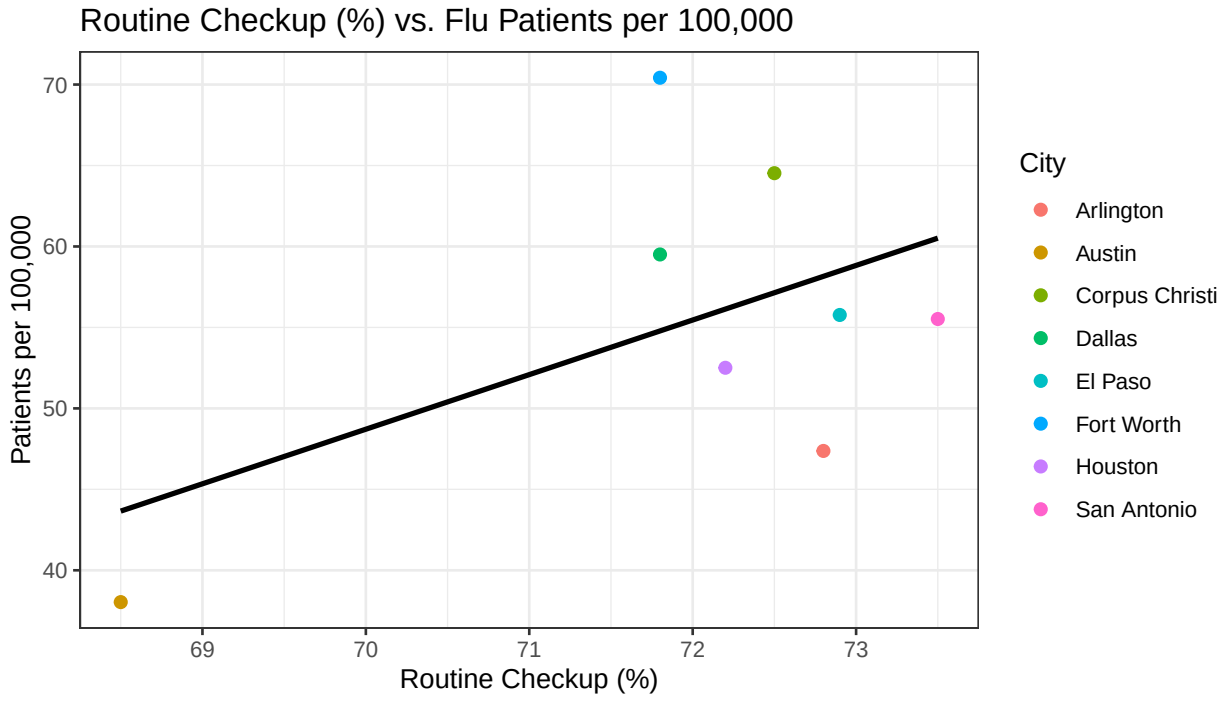
Now, let's plot the points and color by city to see changes from spike to spike.

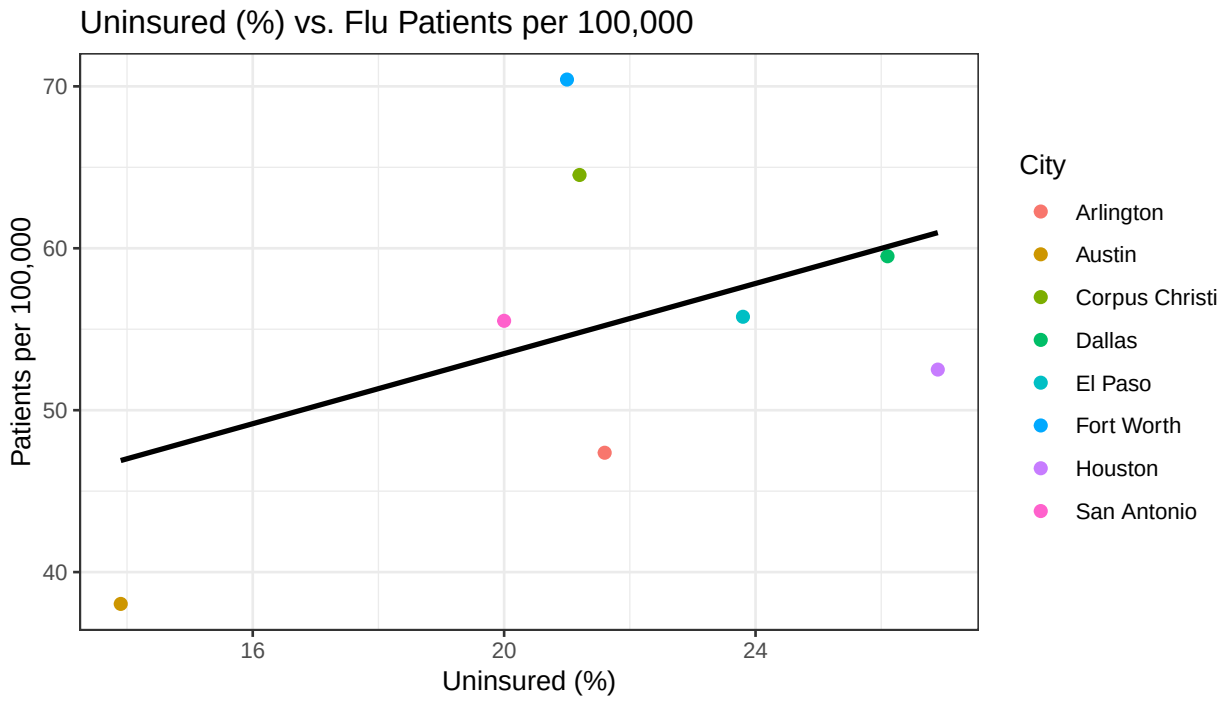

Flu Patients per 100,000 during Spikes
Flu Patients per 100,000
0
20
40
60
Austin
Houston
Arlington
El Paso
San Antonio
Dallas
Corpus Christi
Fort Worth
City
Quarter
2022Q4
2024Q1



Note that for the coverage rate graph, the trend would be even stronger if Fort Worth and Arlington didn't share the same coverage rate by virtue of being in the same county - this first graph shows a very strong trend.


Vaccination Coverage Rate vs. Flu Patients per 100,000
Patients per 100,000
70
60
50
40
34
36
38
40
42
Coverage Rate
City
Arlington
Austin
Corpus Christi
Dallas
El Paso
Fort Worth
Houston
San Antonio


Routine Checkup (%) vs. Flu Patients per 100,000
Patients per 100,000
70
60
50
40
69
70
71
72
73
Routine Checkup (%)
City
Arlington
Austin
Corpus Christi
Dallas
El Paso
Fort Worth
Houston
San Antonio


Uninsured (%) vs. Flu Patients per 100,000
Patients per 100,000
70
60
50
40
16
20
24
Uninsured (%)
City
Arlington
Austin
Corpus Christi
Dallas
El Paso
Fort Worth
Houston
San Antonio

Vaccination coverage correlation

Correlation

New flu patient dataset

Correlation matrix

Analysis

City comparisons

Dallas vs. Austin

Vaccination coverage

Demographics

Politics and other qualitative aspects

Cycle by cycle analysis

Important changes in major Texas cities (2022-2024)

Key statistics by city

Conclusion