

Presenting Findings to Stakeholders

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Data Limitations and Quality:

The two sources of data for this project were influenza deaths by geography, time, age, and gender provided by the CDC, and population data by geography provided by the US Census Bureau. Below is a breakdown of the data limitations:

Influenza deaths by geography, time, age, and gender: this dataset is 82% suppressed in its raw form. This means that for 82% of entries, there were less than 10 deaths for the given geography/time/age/gender records and the death count was suppressed to preserve the identity of those individuals. Therefore, only 18% of the true data is available. I replaced all suppressed data with a count of 4 deaths, a conservative adjustment to the mean of 4.5 for 1-9 deaths. I would have much more confidence in this analysis if we had 100% of the data available, but deleting the suppressed data (alternatively) would have resulted in inflated death trends as the only included data would have been for 10+ deaths- which occurred only 18% of the time.

Furthermore, this data is on a state level so we cannot assess trends by county. For massive states like CA and TX, a one-size-fits-all approach is not as appropriate as it might be for a state with a relatively uniform geography like North Dakota.

Finally, this data only lists one cause of death, complicating the results for vulnerable populations with comorbidities.

Population data by geography: This dataset is subject to human error and time lags as it is collected through survey and administrative data. The census is subject to infrequent collection, it is collected once every 10 years. Finally, several county names in Puerto Rico have special characters that become question marks in the Census Bureau dataset.

It is important to note that both datasets only show data from 2009-2017, this is especially concerning for the population data set as vulnerable population trends would heavily impact our staffing plan. Changes to a state's vulnerable density in the last 4+ years would be important to a staffing plan for 2021 and later.

Monitoring Staffing Changes' Impact via KPIs

I would want to keep a close eye on death rates, both overall *and* for vulnerable populations, by state but especially for states in my storyboard's upper 2 tiers of severity. This includes CA, TX, FL, NY, PA, and IL. This vigilance extends to tracking deaths by month so we are aware if there are any unexpected fluctuations to the time interval we refer to as "flu season."

I would also want to ideally obtain access to vaccination rates for individuals of all ages and geographies, and in the future monitor vaccination rates by state, vulnerability status, and age. I would test for a correlation between a state's vaccination rate and death rate. I would hope to see a gradual decrease in the death rate in states with (ideally) successful staff planning and vaccination advertising efforts.

Finally, I would want to monitor staffing against my ongoing tier-grouping of states by vulnerable population and be continuously monitoring the success of our future staffing algorithm discussed in the presentation, modulating based on need/change. I would also want survey data from the hospital workers to catch any dissatisfaction or surprise trends not immediately visible in the staffing data. Lastly, I would want ongoing efforts to verify and prove that all staff are vaccinated. This must apply especially to staff working with vulnerable patients.

All of these metrics and KPIs could merge in the form of a cohesive, weekly metrics check-in for the team to review.