COVID-19 Mexican Analysis

Final Presentation

- COVID-19 Mexican Lockdown and Vaccination Campaign Analysis

- https://public.tableau.com/profile/cesar.robles#!/vizhome/COVID-19_Mexican_Analysis/LockdownSemaphoreandVaccinationCampaigninMexico

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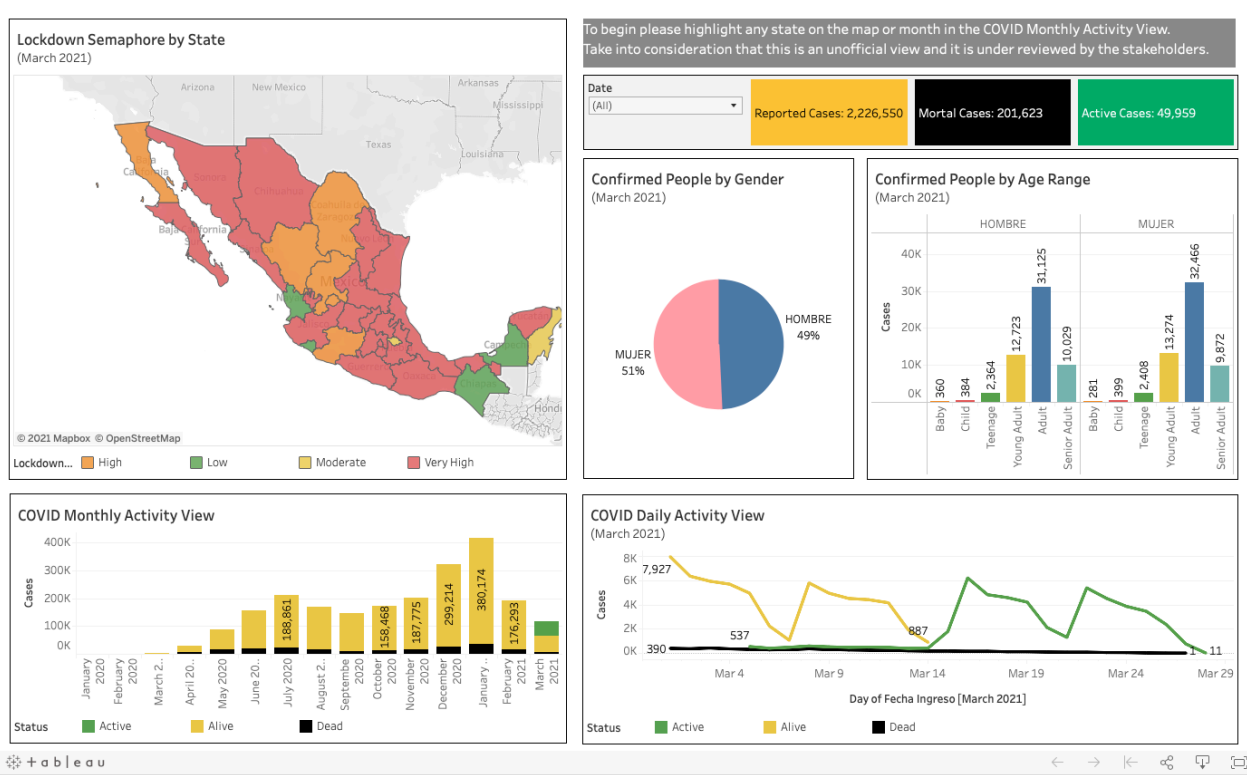
Reflection

- When the data exploratory analysis began, I was trying to reflect how the outbreak affect the Mexican population. I made lot of different views to reflect the bad status on the outbreak.
- Due to the data exploratory, the lockdown semaphore came true when analyzing the information, I found a way to determine the lockdown based on the active cases.
- On the first dashboard, I noticed and changed the idea by creating a vaccination plan using the positive-confirmed cases, and trying to support the discovery on the alive and active people.
- For the final dashboard, I decide to include a story telling and emphasize the critical point for a decision maker. I tried to show how the outbreaks is affecting during the current month, which are the current, active and mortal cases since the outbreak began, also challenge the original idea for a vaccination campaign using the mortal cases and finally creating a simple forecast to determine the number of positive cases for the next 3 months.

To sum up, the path was not as easy as I was thought, I have created lot of different views, changed and challenged my ideas, and finally proposed a new dashboard that may have more sense for the stakeholders. This analysis helped me to create a design thinking based on the stakeholders needs instead of the presenting lot of graphics with the downloaded information.

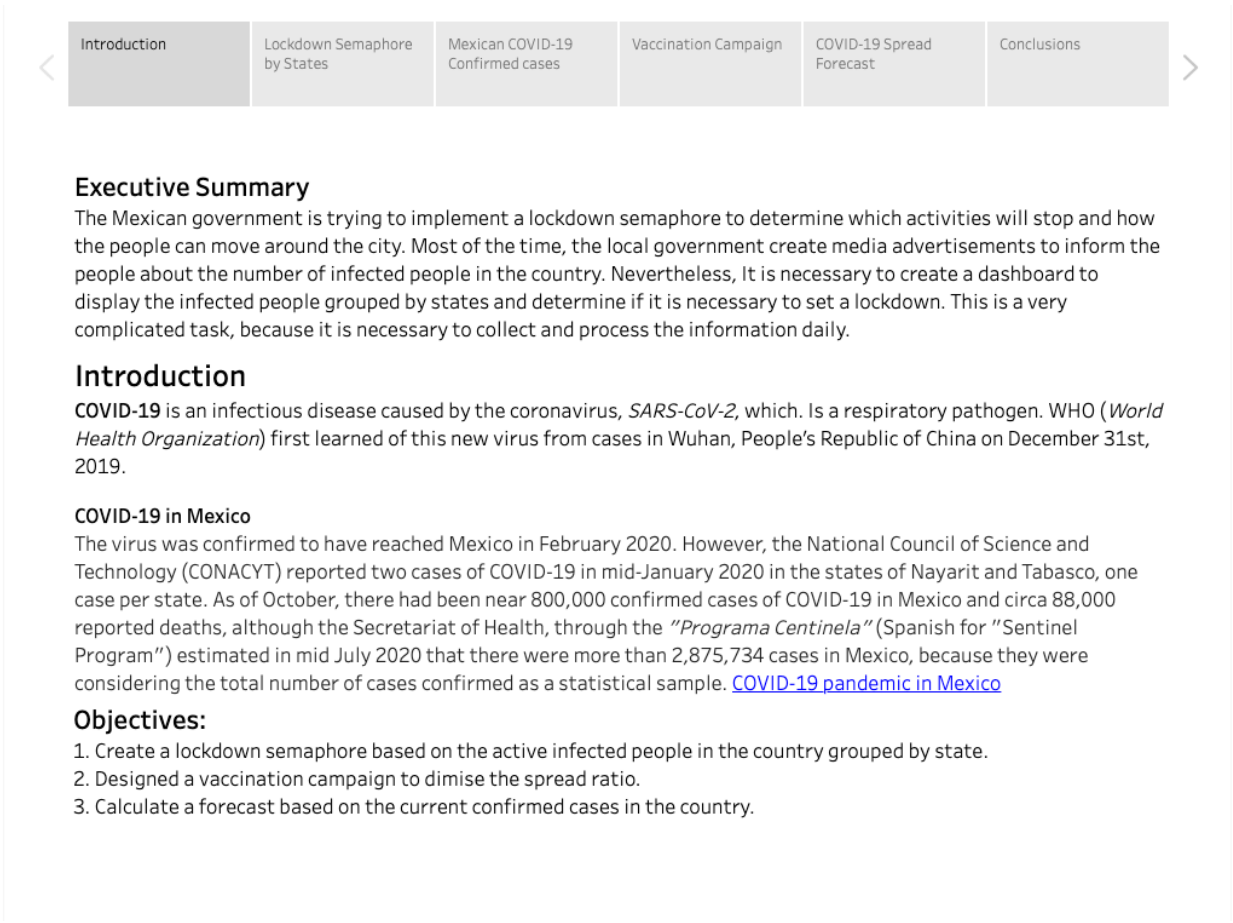
Changes narrative

The first view was based on a single-frame dashboard, this visualization analyses the last month active cases, the full-year outbreak spread numbers in a monthly basis, and also the most affected Mexican Population group.



Single-frame Dashboard

The second view was based into a multi-frame dashboard, this visualization changes the presentation including different sections such as an Introduction, the lockdown semaphore analysis, the propagation behavior during the last year, a vaccination campaign, a simple forecast and the conclusions.



Multi-frame dashboard

The third change on the dashboard was minimum, and this one consist in the selected information for the affected cases. At the beginning, it is used the active and alive information that represents the most affected group. Nevertheless, this information is not well-selected, because it represents the people who stay fighting the illness. The modification involves the usage of the mortal cases, because it informs which group of the Mexican population suffer more with the disease.

Thus, this new information allows to create a vaccination campaign truly based in the most affected group. In this particular case, the analysis changes considerably, because using the non-mortal cases the first vaccination wave must be for the adults. But, using the mortal cases the first vaccination wave are for the Senior Adults.

Original Proposal

Executive Summary

The Mexican government is trying to implement a lockdown semaphore to determine which activities will stop and how the people can move around the city. Most of the time, the local government create media advertisements to inform the people about the number of infected people in the country. Nevertheless, It is necessary to create a dashboard to display the infected people grouped by states and determine if it is necessary to set a lockdown. This is a very complicated task, because it is necessary to collect and process the information daily.

Business Case

The Undersecretary of Prevention and Health Promotion, Hugo Lopez-Gatell, design a lockdown protocol based on the number of infected people in the region classified by state. This protocol is used to determine which activities will stop and how the people can move in the state. Furthermore, Claudia Sheinbaum, the Head of Mexico-City Government is very interested into implement this protocol by sub-regions in the city.

The result of the pandemic-lockdown semaphore will be displayed in many media such as TV, website, smart-phone and tablets application, website among others. The information will be presented to the General Health Council and the presidential cabinet, who will decide to show to the Mexican people though the mentioned media.

In order to perform this project the Mexican government publish everyday the information in special website to be consumed. Nevertheless, the information is not easy to read and understand. Moreover, everyday, it grows in 20 thousand registers. Today, the database contains almost 5 millions register with all the information enter from hospitals, clinics, and medical laboratories.

The database can download from COVID-19 Datos Abiertos and the dictionaries from Data dictionary. The database is presented in a raw format (CSV file), this one collects the information from Mexico. Thus, it includes all the positive and negative cases. On the other hand, there are other reported cases that are not related to the COVID-19, but are classified as false-positive or negative positive.

The pandemic-lockdown semaphore takes into consideration only the real-infected cases in the state and need to avoid the negative cases. Due to the volume information that continuously increases, it is needed to automate and get an easy way to display the information to the Mexican people.

The main idea is to create a simple dashboard that determine the number of infected people in the country and based on this number stop non-essential activities. Furthermore, this action should be applied to the 32 states in the country.

Summary

WHO:

- **Stakeholders** - Hugo Lopez-Gatell (Undersecretary of Prevention and Health Promotion), Claudia Sheinbaum (Head of Mexico-City Government)
- **Audience** - Mexican people, presidential cabinet, WHO representatives in Mexico.
- **Subject-Matter Experts** - General Health Council

WHAT:

- **Data Sources** - Mexican COVID-19 databases (COVID-19 Datos Abiertos) and the catalogues (Data dictionary).
- **Data Quality** - The database contains almost 5 millions registers with 40 columns. Also, it is required to download the catalogue and the dictionary to understand the database. It is necessary to eliminate blank fields, convert date columns to date stamp, check the date of death column, because this column has incorrect date stamp format and need to eliminate. Also the database contains all the possible covid cases (positive, false-positive, false-negative and negative).
- **Data Timeliness** - The database is updated everyday.

WHY:

- **Business Case/Other Goals** - Create and design a COVID-19 Dashboard to illustrate the real-cases since the outbreak starts. This dashboard will use and share with the Mexican people to inform the status and also determine the pandemic lockdown semaphore. This one is going to use to stop non-essential activities in the country.
- **Intended Outcome** - A pandemic lockdown analysis based on the number of infected people in the state.

HOW:

- **Format(s)** - Simple and large graphs with data easy to consume for the reader.
- **Presentation Vehicle** - The information will be display in TV, website, smart phones, tablets and slide decks. (Tableau Dashboard)

CHALLENGES:

- Download the last open access database in *.csv format, that is daily updated.
- Design a cleansing process to eliminate typos, clean blank fields, correct the date stamp in date columns and join the main table with the column catalogue.
- Eliminate the false-positive cases as well as non-infected cases.
- Design a dashboard to display the number of infected cases by state and the lockdown semaphore to minimize the contagion rates.

Persona

Persona 1: Hugo Lopez-Gatell

"The Mexican people are needed to be informed and known the number of infected people in their community. I want to create a dashboard to display all the information as well as a pandemic lockdown semaphore to eliminate the COVID-19 propagation."

Hugo needs to analyze all the information stored in an open access database to automatically compute the number of infected people in the country and design a lockdown semaphore.

Role: Undersecretary of Prevention and Health Promotion

Organization: Salvador Zubirán National Institute of Health Sciences and Nutrition

Goals:

- Creates rules of healthy and safety coexistence
- Modeling the current outbreak to set the lockdown
- Schedule the COVID-19 vaccination campaign for the Mexican people
- Determine which activities are necessary and continue open during the outbreak

Challenges and Needs:

- He is an epidemiologist expert in infectious diseases
- Determine the number of infected people in the country and set the rules for the vaccination campaign
- Create an online dashboard to show the lockdown semaphore as well as the essential activities by region
- Design a model to clean the current data collected from all the healthy sectors in the country

Persona 1: Hugo Lopez-Gatell

Persona 2: Claudia Sheinbaum

"It is necessary to minimize the infection rate and guarantee public healthy in the main city. The national vaccination campaign will help the people but it is require to continue the healthy measures."

Claudia Sheinbaum is very interested in create a different way to alert the community about the contagion rate in the community. Also, she is willing to support the secretary of health to inform society in a timely manner.

Role: Head of the Mexico-City Government

Organization: Mexico-City Government

Goals:

- Enforce the law and maintain order within Mexico City
- Enforce government health regulations
- Follow up on health programs during the outbreak
- Manage city resources to ensure basic and necessary services

Challenges and Needs:

- She is a Mexican scientist, politician and an active member of the National Research System
- She wants to implement the lockdown semaphore to minimize the current outbreak propagation
- She is interested into enforce the healthy measures created by the current undersecretary of prevention and health promotion

Persona 2: Claudia Sheinbaum