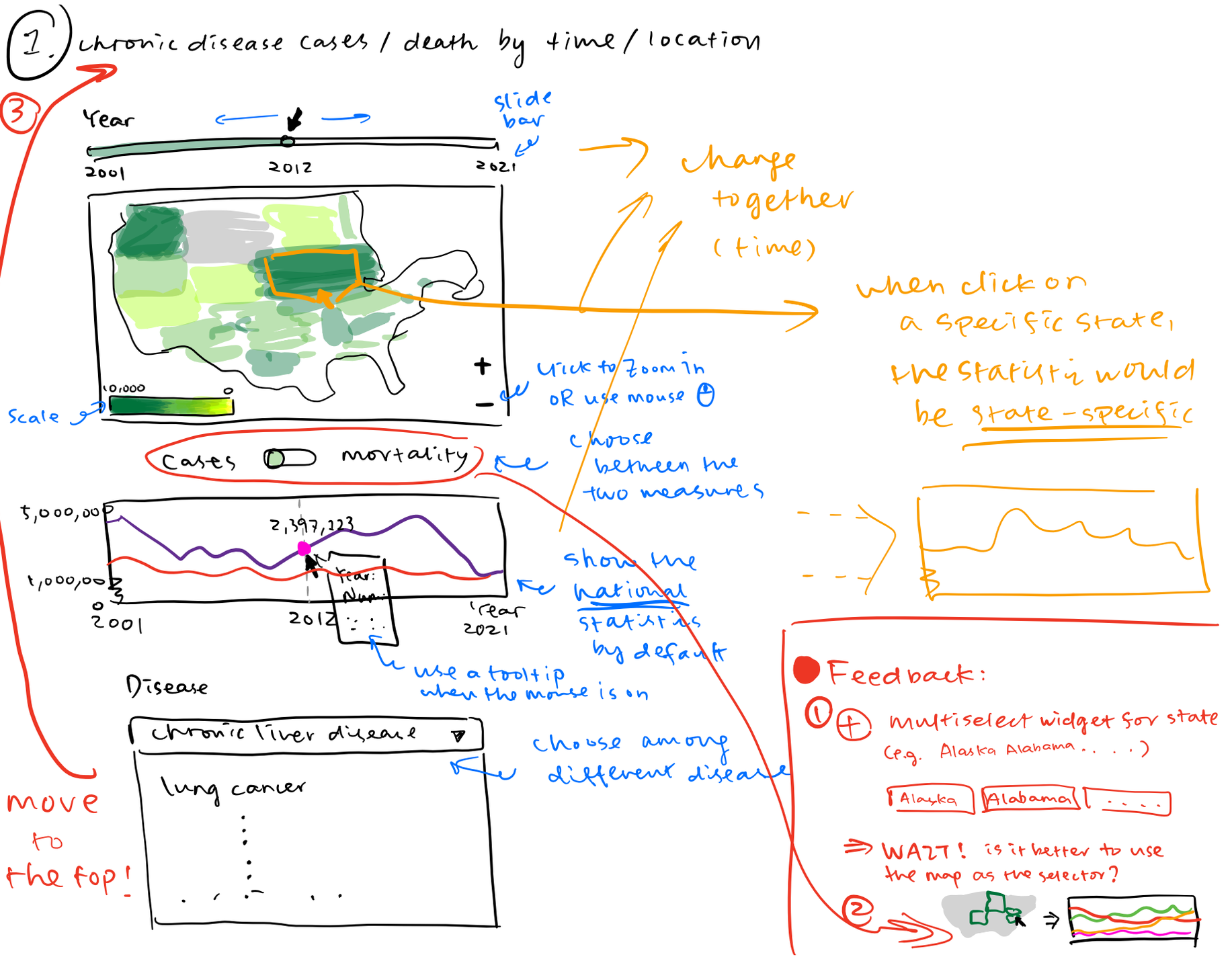
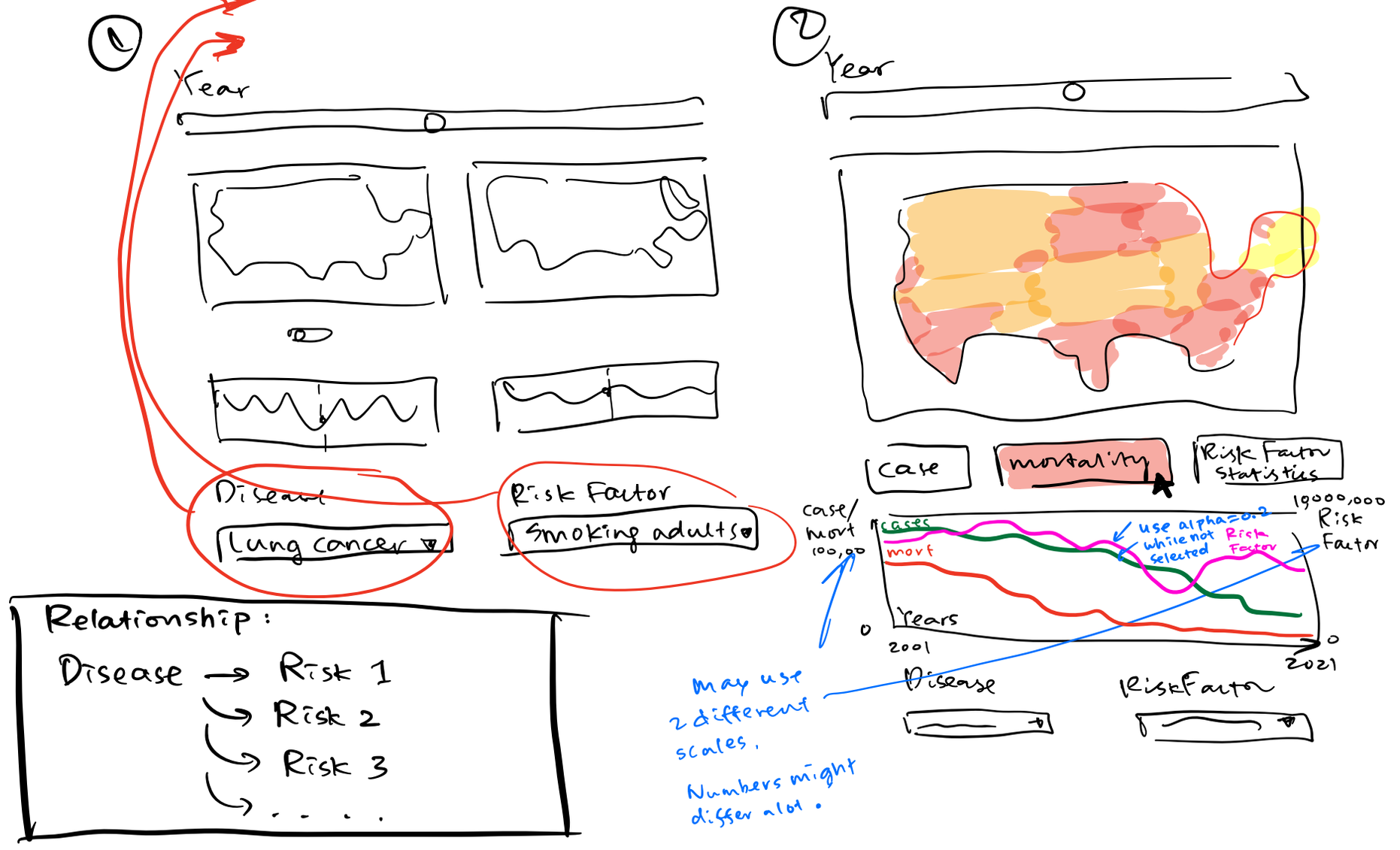
Initial Draft



Initial Draft

(2) Relationship with Risk factors.

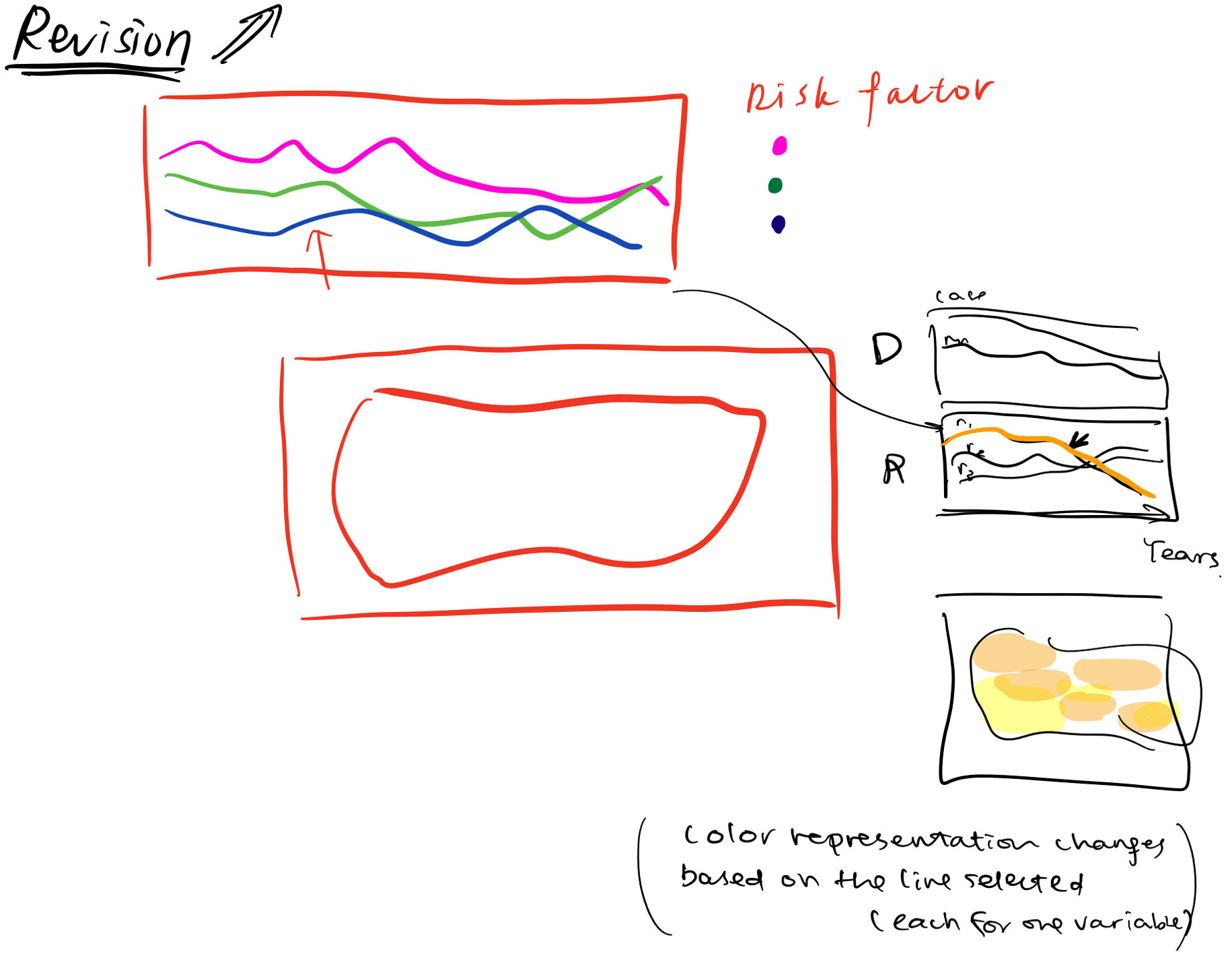
add a "suggested Risk factor" column to show the statistics in ① parallel OR ② overlap



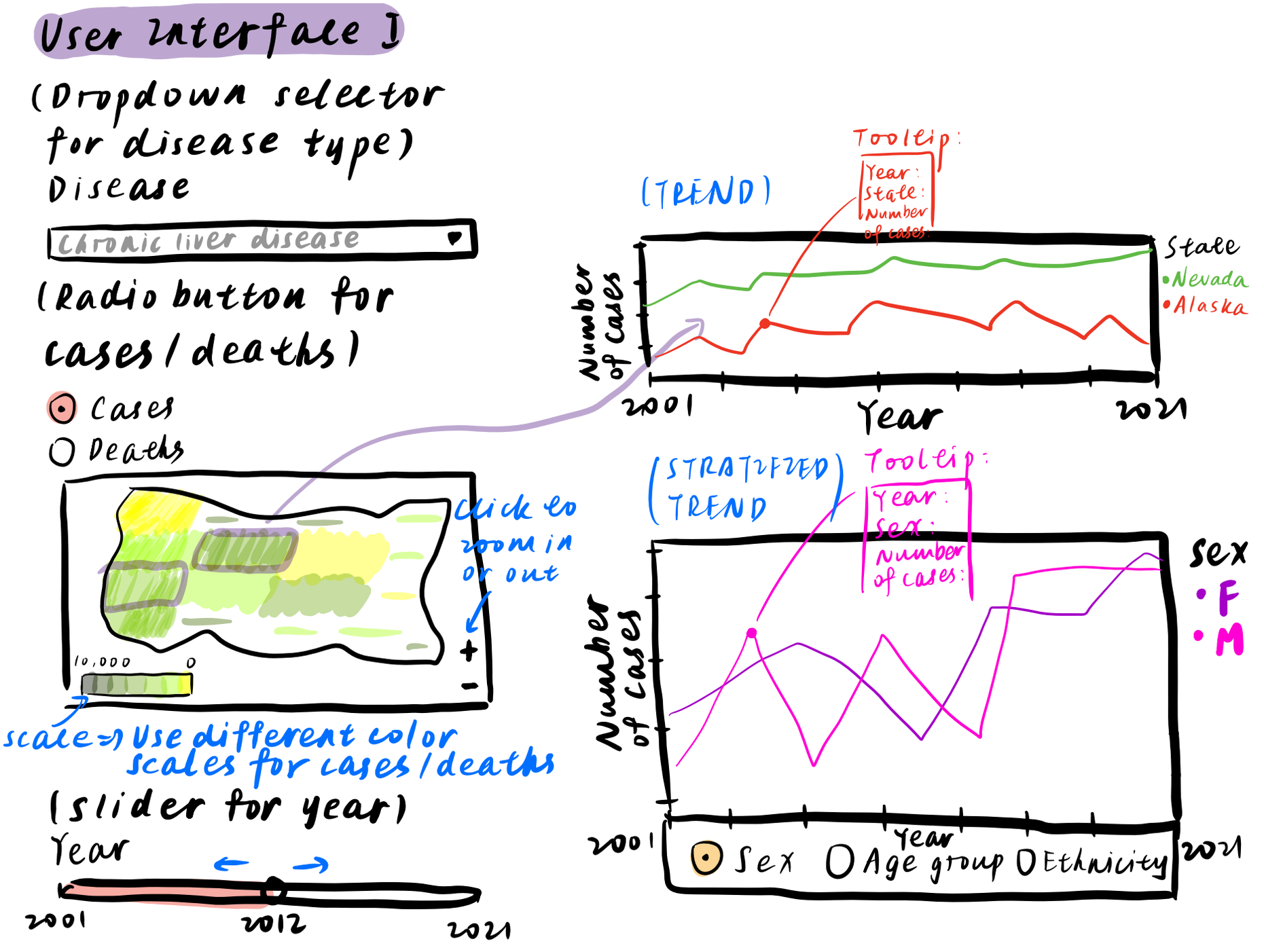
Relationship:

Disease → Risk 1
↳ Risk 2
↳ Risk 3
↳ . . . .

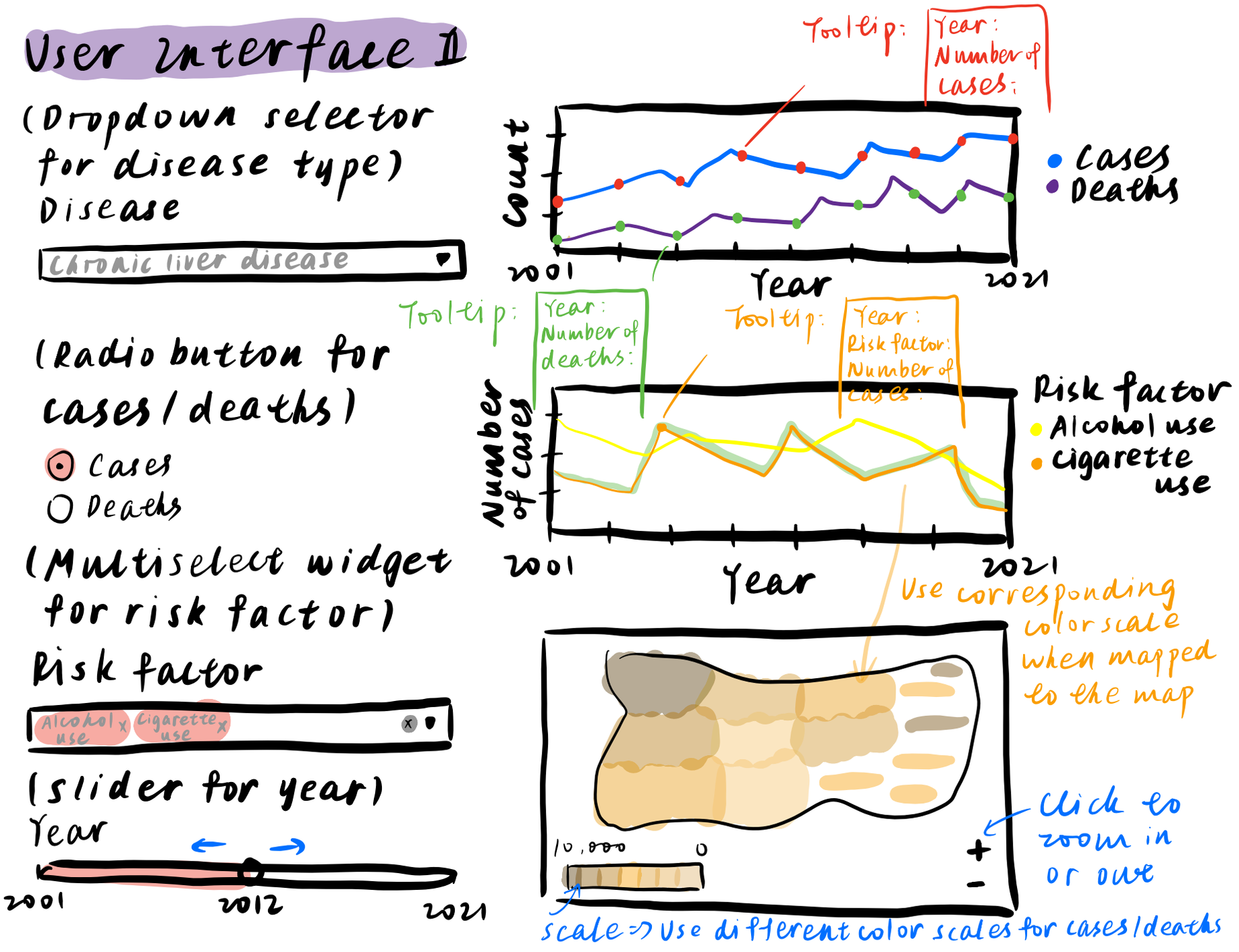
Initial Draft



Converged Solution



Converged Solution



Disease

Cases

Mortality

Map

Years

Trend

Stratified Trend

Sex

Age Group

Ethnicity

Disease

Cases

Mortality

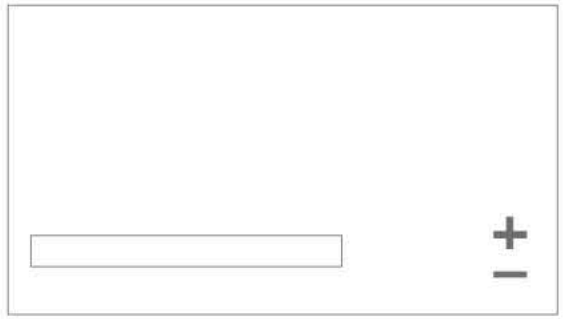
Risk Factor

Years

Trend

Risk Factor Trend

Map



Potential Visualization Challenges

1. Our goal is to provide a feature that enables users to compare statistics across multiple states. However, the challenge we face is that each state has a set of statistics related to risk factors which already constitutes multiple lines in the plot. To ensure clarity and avoid confusion in the line plot, we have decided to separate these two functionalities. By doing so, we can ensure that the representation of data is clear and unambiguous.

2. We aspire to use the U.S. map as a selector to enable users to retrieve information about a specific region by simply clicking on it. While this design presents exciting possibilities, we are still working on figuring out the best way to implement it.

3. Our objective is to offer users the ability to view statistics related to various risk factors simultaneously. However, we recognize that the difference in numbers across these factors can be substantial, potentially resulting in an ineffective representation if they are displayed on the same scale. In such a scenario, the y-axis may become compressed and make it difficult for users to interpret the data accurately. As a solution, we are exploring the use of a dual-axis or normalization technique to allow for the proper representation of data across different scales, enabling users to compare and analyze statistics effectively.

Implementation and Interaction Design

We are developing two distinct functionalities that will be presented on two separate web pages:

(a) The first feature will showcase the trend of disease statistics, including cases and mortality. Additionally, users will have access to a plot with stratification based on sex, age group, and ethnicity.

(b) The second feature will enable users to view the trend of disease statistics alongside a set of potential risk factors relevant to the disease. This will provide users with an informative overview of the relationship between the disease and its associated risk factors.

(continued on the next page)

The layout of the two web pages is primarily similar, with only minor differences.

Page A includes the following components:

On the left -
(i) A dropdown selector to choose the desired disease type
(ii) A selector to switch between viewing cases or mortality statistics
(iii) A map of the U.S. that displays different regions with the selected statistics represented in color, plus an interactive tooltip.
(iv) A time slider bar that allows users to filter the data for a specific year, which is then displayed on the map.

On the right -
(i) A line plot that displays the trend of the selected statistic over time.
(ii) A second line plot that shows the trend of the selected statistic over time, stratified by one of three variables that the user may select using a selector.

Users will also be able to closely examine the data for a specific region by clicking on the corresponding location on the map. Additionally, while the trend plots display national statistics by default, they will automatically update to show the data for the selected region in the event of a user click.

Page B has a unique multi-selector of risk factors, allowing users to choose a subset from all suggested potentially relevant risk factors for the selected disease based on their individual interests. Unlike Page A, there is no stratified trend plot. Instead, there will be a trend plot that displays the data of currently tracked risk factors. This view provides users with the convenience to compare the trends and discover any relationship that might be hidden. Moreover, users can change the information represented in the map by selecting a specific risk factor they are interested in. This feature enables users to modify the information conveyed by colors on the map and thus provides a more holistic view on geospatial differences.