NOTE: Figures 1 and 2 were derived from publications, so we will not be commenting on these figures.

National Overview of ARDIs

Figure 3:

This bar graph shows the total sum of mortalities in each fatality category. This is a static interaction, with the intent to be used as a reference plot against figure 4. We decided to keep it separate because the plot is sufficient to derive conclusions on its own, as well as act as a supplement to figure 4. On its own, Figure three gives a general overview of the most common types of deaths, with the prevalence of that fatality category being represented both by the position, in which it is compared against other categories, and by the height of the bar (whose height serves as the mark). To add depth to which are the most popular, one can see specifically how prevalent that category of fatality is in the United States overall by the scale of the y-axis. We chose to make the plot scrollable, as the categories past the top ten taper off dramatically, and are largely irrelevant in terms of overall sums of mortalities. If we had lessened the scale of the plot to fit all of them on the website, the text would have been too small to digest easily. We chose to keep the less prevalent mortalities in the plot to add as supplemental information to what the possible categories for mortality are.

One Channel we decided to include was color of grouping for whether a fatality was considered acute or chronic. This helps the user understand which types of mortalities were more prevalent in the US, as well as what mortalities are classified in these groups.

Figure 4

This figure works independently and in conjunction with figure 3. Much like figure three this barplot is meant to break down the most common causes of death. Instead of nationally as seen in figure three, this barchart ranks the most common causes of death by state. Because of that, the position of the bars (marks) and the height of the bars, as well as the y-scale change when the drop down menu is used to select a state. The order of the mars and the height still indicate the most prevalent cases of death with the leftmost being the most prevalent. In addition the color cha\nnel is still used to indicate acute vs chronic categories of each condition. These channels allow the user to investigate both the categorical (acute vs chronic) prevalence of alcohol mortality as well as the specific alcohol mortality rates for each subcategory on a state by state basis.

The channels used in this plot were the same as figure e to allow for relative comparison between the two plots. Users can see which states have varying leading causes of death, and how the y-scale changes on a state-by-state basis.

Case Study: Age

Figure 5:

This choropleth map allows users to see regiospecific trends in mortalities of age groups in the United States. Region is represented by the position of the state on the graph, and the mortality rate is represented by the color. For this map, we decided to use a per 1000 residents calculation in order to emphasize relative abundance rather than gross mortality, which can be skewed by varying population size. As we are trying to assess the narrative of most 'at risk' populations, we want to assess where mortality rates are higher. In a state such as California, the gross mortality count may be high, but because the population is also high, the mortality rate is lower, as represented by the lighter hue on the map. Places that we want to emphasize as more 'at risk' are when the alcohol mortality is more prevalent in the population. Thus, this choropleth map allows the user to track the 'rate' of mortality. In effect, the user can interpret what places have a disproportionate fatality to population ratio, that may indicate inappropriate or unsafe use of alcohol. The scale for each population changes, as deaths among certain population groups were lower than others to the point in which variation of mortality rates was hard to distinguish if all age groups were kept on a standard scale. However, the legend on the side of the graph allows the user to interpret what the fatality rate is based on the age group selection that is highlighted via radio buttons below.

Figure 6:

This plot is a heatmap breaking down the mortalities by age and state. In this plot, the age is demoted by position in the y axis, with oldest at the bottom and youngest at the top. The state is also positional, with the states in alphabetical order. We chose to order alphabetically to allow for searching ease, as this is a static plot. Thus there are two keys for each value. Key1: State, Key2: Age Group, and the value is the number of deaths. The number of deaths that fall into each category is demoted by color intensity. We kept the number of deaths as a raw value rather than a per capita value (as we used in the geospatial data) because we wanted to highlight that the number of deaths increase among more populous states. While this does not communicate the rate, we felt it was also important to highlight gross mortality, as these states with higher populations are greater contributors to alcohol mortality, and could be good targets for statewide campaigns.

Case Study: Sex

Figure 7:

This plot shows the proportion of alcohol mortalities by state and sex. This plot was created using D3 and facilitates user interaction via a dropdown state selector. When a state is chosen, the area of the donut plot changes to represent the ratio of female to male mortalities. There is a text that displays which sex is which color, as well as the number of fatalities that belong to each group. The goal of this figure is to highlight the *proportion* of fatalities by sex, with the *number* of fatalities being supplemental. This is because while the number of deaths

changes based on state, the proportion hardly changes at all. Use of a donut map highlights this.

Figure 8:

This choropleth map highlights the per 1,000 people mortalities by sex and state. The state is represented by position on the map, and the number of deaths is represented by saturation on the map. Higher saturation indicates more mortalities. Finally color denotes the sex of the group being tallied. There are two maps of the US, one for women and one for men. The intention is to highlight the similarity in mortality rate among the sexes. While the legend scale for the female and male plots are different, the relative saturation of each state is similar between the two faceted plots, further emphasizing that there is not a region of the US where sex based mortalities are higher, and that sex is not a discerning factor region specifically.

Conclusion

Figure 9:

This map shows the amount of alcohol related deaths by category and state. The state is denoted by the position on the map and the number of fatalities per 1,000 people is denoted by color. The category is represented by radio buttons on the bottom, where a user can select the category they want to investigate and the relative color will change based on the number of deaths in that category. The purpose of this is to emphasize regional trends for alcohol mortality causes.

Figure 10

This heat map highlights the cause of death by state and category. Unlike the geospatial map, all states and categories are represented in one static figure, with state and category being represented by position on the x and y-axis respectively. The state is also positional, with the states in alphabetical order. We chose to order alphabetically to allow for searching ease, as this is a static plot.The mortality rate per 1,000 people is represented by saturation of each box, with the saturation increasing with mortality rate. The goal is to emphasize causes of death that are more popular, while accounting for variability between states. This plot serves as an overarching conclusion to the investigative plots above for the causes of death in each state and by state, highlighted potential categorical and regional areas of concern for alcohol abuse.