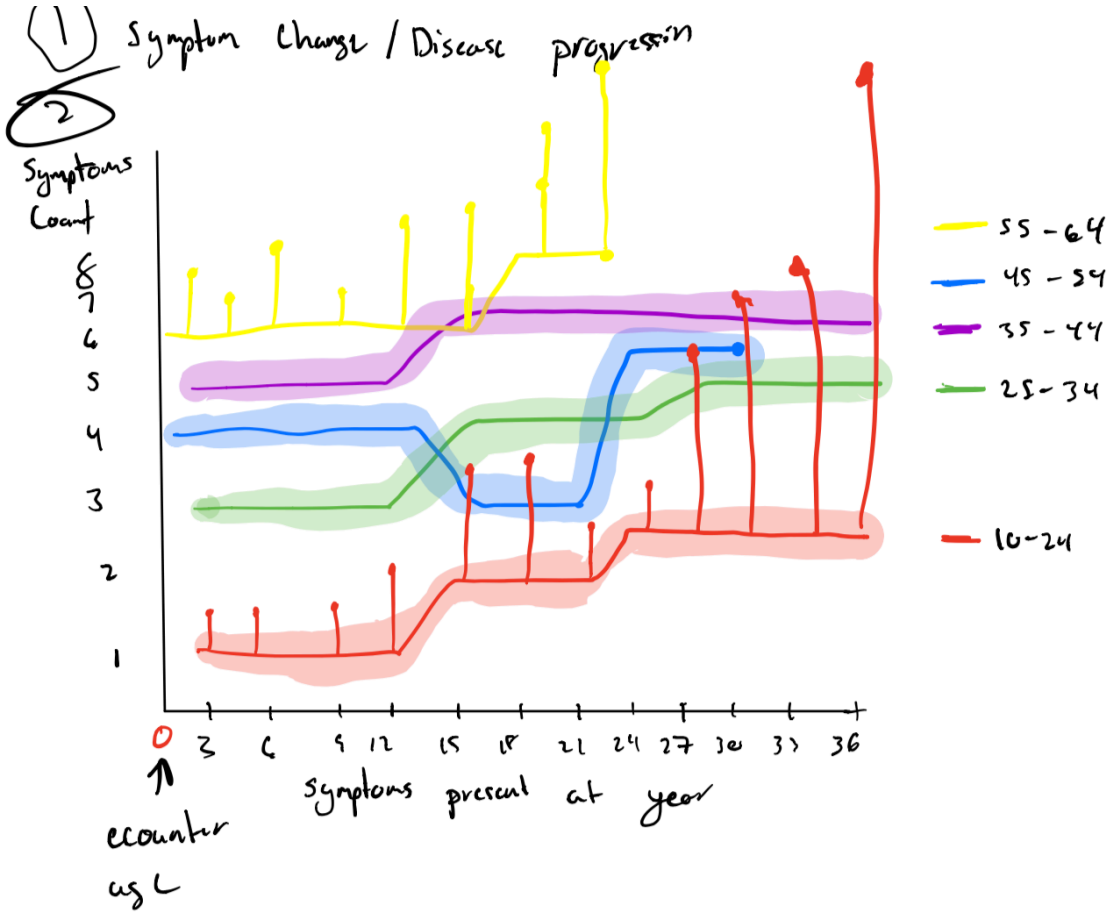
Ryan Williamson
CSE 5544
2/21/2019

Part 1

1. The task that the concept design was focused on was showing change across cohorts that were segmented by the age when the TBI occurred
2. The data that will be visualized the aforementioned task is symptom change and disease progression. This will be measured by calculating the average number of symptoms present at given time from the TBI. Furthermore, the average number of visits between the previous time and the current time will be calculated
3. 

The design's main goal is to show disease progression, and accompanying hospital visit rates, for different age groups. For example, a goal would be to determine if certain age groups see more rapid disease progression as evidenced by a steep slope on the number of symptoms over time. Furthermore, a distribution of symptoms will be overlaid with an opaque band around each age bucket's line. This will provide some context into the intra patient variability.

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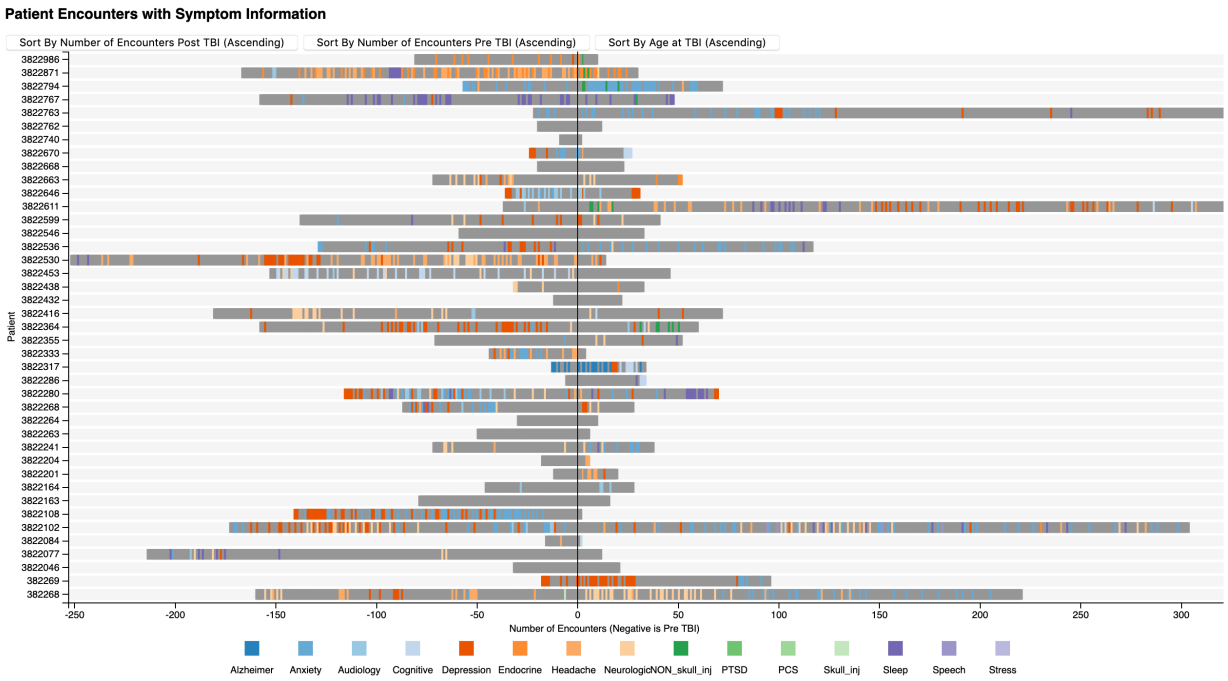
4.

In my opinion, the design is visually appealing. It uses a complementary color palette and avoids clutter through interactivity. Compared to the other designs, it has significantly less clutter as it uses a different model for the cohort. Most designs elected to use patient id as the distinguishing factor between major features whereas my approach uses the age ranges. This reduces the number of items that need to be displayed from 41 to 7. This allows for all of the necessary information to be displayed on a 24 inch monitor. Furthermore, using the age bucket allows to easily identify disease progression, and temporal changes accordingly, as it is at its core a line graph. Disease progression is displayed by showing how the number of symptoms present in a given time bucket changes over time for each age cohort. The "overview + detail" technique is present in the ideas for interactivity. The design is intended to start with just a display of the individual lines. When one clicks on a line a context menu would op up and you could choose to either display the spikes representing the number of hospital visits for a typical person in the time range or display the bands showing the distribution of symptom quantity on top of the lines.

Part 2



A more detailed version is available by loading index.html as is the source code.

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Critical Evaluation

- **Pros**
  - High information density which allows all of the patients to be shown on a 24 inch monitor
  - The design is visually pleasing - it uses a nice combination of colors (D3's 20 color palette) to display the different symptoms at each encounter and when overlaid on top of a light gray background the colors "pop" making is easy to compare between patients
  - The design allows for analysis of disease progression between patients as you can see which patients most frequently visited the hospital and what symptoms caused the visit for all 41 patients simultaneously.
- **Cons**
  - In its current implementation the design does not show temporal attributes, thus making it difficult to decipher how the frequency of the encounters. I. E. right now you can easily see which patients visited the hospital the most, but you do not know if 250/350 visits happened within the first month.
  - The design does not use the "overview+detail" method. Currently it just provides a high level overview with no detailed view
  - The design is cluttered in spots. Specifically, when there were a lot of encounters with different symptoms it becomes difficult to see the individual encounters.