Changes over Time

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Overflow from lab 5 – use for lab 6?

Note: It's very interesting that in 2010, Americans 65 and over are 13% of the population, but are a much larger proportion of the 2010 data in brfss. A good opportunity to discuss sampling methods, over/under sampling, etc.?

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The data in brfss span 15 years; we have data for 2000, 2005, 2010, and 2015.

14. Make a stacked bar graph showing age7 (age in 10-year increments) vs. year (survey year). What do you learn about the U.S. population over the last 15 years?

15. Use tally and barchart to make a graph of the general health level against the survey year, and write a conclusion. What do you learn about general health levels in the U.S. over the time span 2000 to 2015? Provide a plausible explanation for any pattern you see.

Whenever we notice an association between two variables, we should ask if there are "lurking" variables that might help to explain the association. Age and sex are possible lurking variables in this situation.

16. Use the code provided below to make a graph of general health vs. survey year, broken down (paneled) by age group.

```
myColors = brewer.pal(5, "PuBuGn")
myKey = list(text=list(levels(brfss$genhealth)), columns=4,
    rectangles=list(col=myColors))
healthVsYearAndAge <- tally(~genhealth|year+age7, data=brfss,
    format="percent", useNA="no")
healthVsYearAndAge %>% aperm(c(2,3,1)) %>% barchart(col=myColors, key=myKey)
```

Describe what you see in this final graph. How does it compare with your observations in the previous question? How does this make sense?

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Need to introduce mosaicplot at some point.

12. As an alternative to the stacked bar graph, we can draw a mosaicplot. A basic 2-variable example shows the relationship between income and health for the brfss participants:

```
healthVsIncome <- tally(~income+genhealth, data=brfss,useNA="no")
healthVsIncome %>% mosaicplot(color=brewer.pal(5,"RdPu"))
```

What do we see in this plot? What is the meaning of the varying bar widths? Etc.