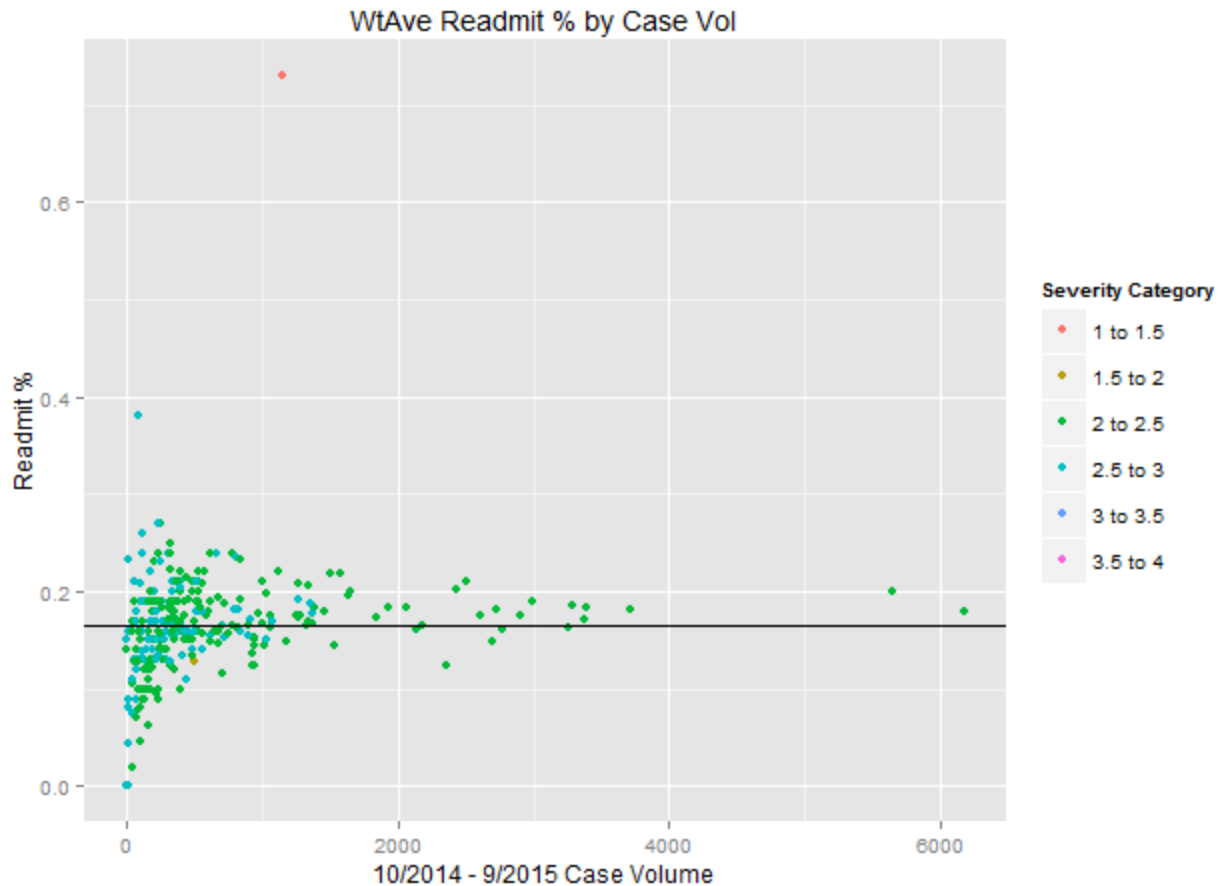


Fun With Exploratory Analysis

Work continues on the Member Variation Analyzer (MVA). Below is some more exploratory analysis I've done to get a feel for the COPD readmit data with which I am working. I want to see how COPD readmits for our active Members stack up by case volume and severity level. The graph below attempts to capture all three of these dimensions along with the average readmit percentage of 16.5% as represented by the horizontal line on the scatter plot below. As I proceed on the MVA, I will break out the top 10 members above the line by case volume to identify the biggest opportunities for performance improvement.



Below is the R code I used to produce this graph.

```
library(ggplot2)

copd <- read.csv("copd_30dayreadmit.csv")

byMember <- summarize(group_by(copd, membername), TotalEnc = sum(TotalCOPDEncounters),
  WtAveReadmitPercentage = weighted.mean(ReadmitPercentage, TotalCOPDEncounters),
  WtAveSeverity = weighted.mean(AvgSeverity, TotalCOPDEncounters))

byMember$SeverityCategory <- cut(byMember$WtAveSeverity, breaks = seq(1,4,by = .5),
  labels = c("1 to 1.5", "1.5 to 2", "2 to 2.5", "2.5 to 3", "3 to 3.5", "3.5 to 4"),
  include.lowest = TRUE)

byMember <- byMember[complete.cases(byMember$WtAveReadmitPercentage), ]

wtmu <- mean(byMember$WtAveReadmitPercentage)

x <- byMember$TotalEnc
y <- byMember$WtAveReadmitPercentage
z <- byMember$SeverityCategory
```

```
# plot copd readmit % by case volume and severity category
gwt <- ggplot(byMember, aes(x, y))
gwt <- gwt + geom_point(aes(color = z))
gwt <- gwt + geom_hline(yintercept = wtmu)
gwt <- gwt + scale_colour_discrete("Severity Category", limits = levels(z))
gwt <- gwt + ylab("Readmit %")
gwt <- gwt + xlab("10/2014 - 9/2015 Case Volume")
gwt <- gwt + ggtitle("WtAve Readmit % by Case Vol")
gwt
```