Learning Objectives:

1. Calculating Frequencies in R
2. Calculating Proportion’s in R
3. Visualization using Bar Graphs in R
4. Hypothesis Testing - Two Independent Categorical Groups in R (Chi-Square)

Lead Story

1. Introduction: Start with the mice problem
   1. Cheese has suddenly gone bad in mice community in SC house
   2. Exaggerate chaos?
2. Main story starts with DD approaching SC with John Snow story
   1. DD: "Hey Stat Cat, can I send you some data? I'm working on this reproduce this John Snow data and something's not feeling right.
   2. SC: "My dial-up is down. Why don't you do it the old-fashioned way and puppy-paw it over here?"
3. DD trips over SC new cat litter box, DD is amazed
   1. SC eagerly shows its off by demonstrating the automatic disposal (pulls lever, bottom just opens up, and everything falls down a shoot)
4. DD + SC hears something in the distance (mice)
5. Mice frantically runs to them, telling about the panic the rotten cheese is causing among their community, pleads for help
6. SC is too busy with the John Snow data, DD offers assistance
7. DD wanting to quantify the severity of the problem recalls the John Snow story, and ask mice to collect data on how much cheese has gone bad and where
8. Mice take ownership and starts collecting data, mouse hole to mouse hole in SC house
   1. Shows data collection: shoe-leather epidemiology using community participation
9. Mice return, DD starts analysis
   1. *LEARNING EVENT – Frequencies and Proportions*
10. DD shocked about the high rates, wonders if the same problem is going on in her house
    1. Meanwhile SC is in the background emptying his kitty litter throne
11. Asks consultant for help to create a graph of the data for visualizing the problem so that DD can show to the other mice
12. *LEARNING EVENT – Visualization (bar graphs), Epidemic Curve (?)*
13. DD goes to the mice at home to collect data, knows that the data is already collected by an automated quality control system DD implemented previously
14. DD needs to go back to her office to test statistical significance DD, confused by what is causing the problem, thinks something must be different in SC house
15. As DD is walking back over to SC, she sees SC kitty litter flowing out a shoot on the side of the wall and into a water supply leading to the house?
16. DD immediately approaches SC about the problem, SC doesn’t believe with out the statistical tests
17. *LEARNING EVENT – Chi square (comparing rates between houses)*
18. Data clearly shows that the rates are higher in SC house