Summary of Scenario

We have been asked by the company to answer their questions by perform statistical analysis on data regarding workplace injuries.

Research Questions

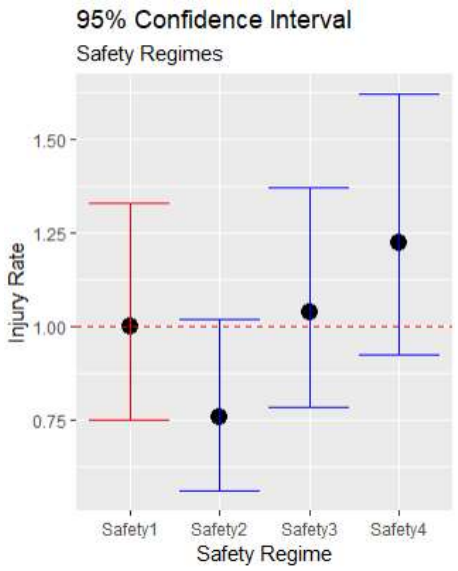
1. Recommend an existing safety regime, based on injury rate to implement as the international standard company-wide.
2. Find supporting evidence to suggest whether experience is more important than safety regime in reducing injury rate.

Methods

1. Data suggests that the use of generalised linear models are appropriate.
2. Fit data using Poisson Regression. Evaluating the model found it was inappropriate to fit the data.
3. Further investigation into other models was required. Fit the data using Quasi-Poisson and Negative Binomial Regression. Negative Binomial was found to be the best fit for the data.
4. Perform statistical analysis on Negative Binomial model and find relevant analysis that supports arguments for and against the Research Questions.

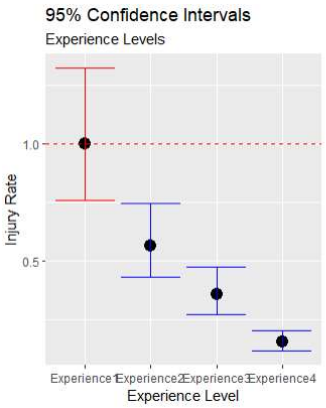
Recommendations

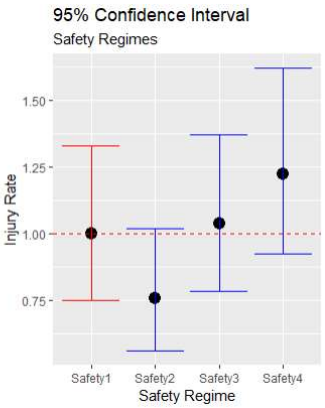
1. Safety Regime 2 should be implemented into the company as it is the Safety Regime with the largest reduction in injury rate.



The plot shows that the smaller the Injury Rate, the better the Safety Regime is at reducing Injury Rate. Hence, Safety2 is the best performing Regime.

2. Experience is more important than Safety Regime in reducing the Injury Rate as Experience is statistically significant where as Safety is not.





All blue Experiences are well below 1 and the intervals do not touch 1. This means that Experience is more important to influencing Injury Rate. All blue Safety are close to 1, and their intervals contain 1 in them. This means that Safety is less important to influencing Injury Rate.