Attribute-Based Analysis of Fatal and Nonfatal Incidents Among Electrical Contractors

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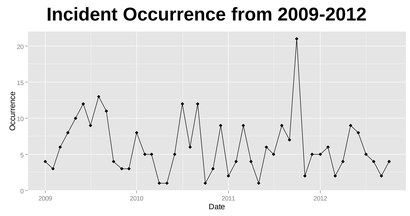
Introduction

According to the Bureau of Labor Statistics, the electrician occupation poised to see above average growth over the next ten years. With this in mind, it is paramount to consider the potentially hazardous situations these workers may encounter.

The following figures describe an analysis of 276 incidents (100 fatal and 176 non fatal) among electrical contractors between 2009-2012. These data were compiled by the Occupational Safety and Health Administration.

The figure below presents an overview of the timeframe we consider. The y-axis denotes the number of total incidents occurring within a given month. According to the plot, it appears incidents tend to occur more often in the middle/end of a year.



Further Research

Applications of this analysis and further research topics include:

- Inquiry into what precautions contractors take in order to ensure a safe work place.
- Examination of any legal standards pertaining to electrical workplace safety
- Analysis of these precautions and their effects on incident rates

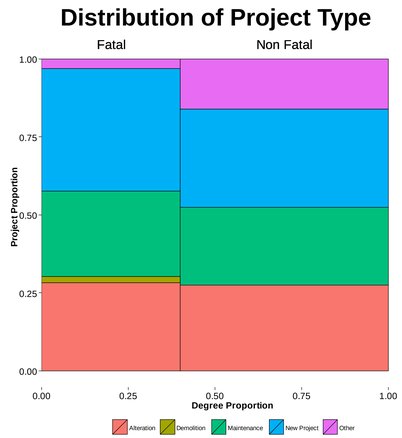
Software Used

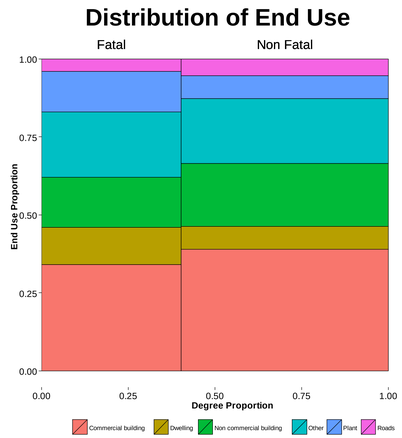
RStudio, sqldf, ggplot2, Microsoft Office Suite

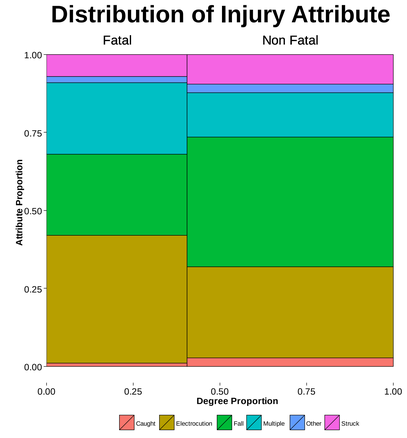
What comparisons can be made about incidents?

From left to right, the following figures describe the proportion of project types, end uses, and incurred injuries associated with both fatal and non fatal worker incidents.

Proportions (areas) of similar size indicate independence, while variations indicate some sort of bias toward a particular degree/attribute combination.





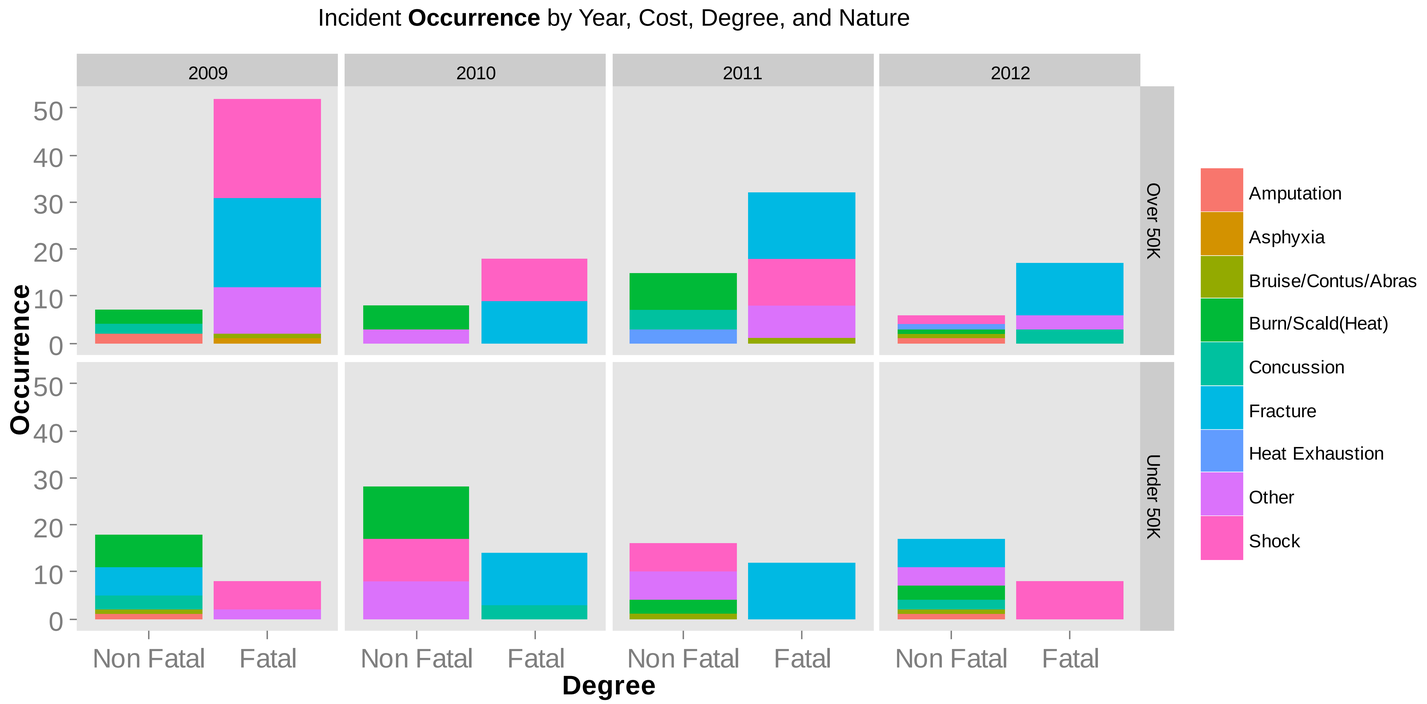


What physical injuries are involved?

The collection of plots to the right display information on the following fields concerning incidents:

- Cost of the project being done (above or below $50,000)
- Year of the incident
- Severity of the incident
- Type of injury sustained

In general, physical injuries such as electric shock and bone fractures tend to dominate fatal incidents. This is not always the case however, as evidenced for example in 2010-2011 for lower cost projects.



Source: https://www.osha.gov/oshstats/index.html