Accident Ratio Studies

There is a great deal of data about accidents and the severity of their consequences and this has led researchers to look for a statistical link between different levels of severity and the number of times they occur. These are often presented as triangles because the shape seems to reflect the statistical link that for each increase in the classification of severity, there are much fewer accidents.

RIDDOR	LABOUR FORCE SURVEY	HEINRICH
∧ FATAL　　/ 1 \ MAJOR　　/ 60 \ 3 DAY +　/ 400 \	∧ FATAL　　/ 1 \ MAJOR　　/ 200 \ 3 DAY +　/ 1600 \	∧ FATAL　　/ 1 \ MAJOR　　/ 29 \ 3 DAY +　/ 300 \

You should note that the top number in the triangle is always 1. That means the figures for the various classifications have been adjusted by dividing by the number of fatalities so that RIDDOR can say for every fatality there are 60 major injuries and 400 injuries that result in more than 3 days off work. (that little snippet has been worth points in past exams)

What do the triangles show ?

- For every fatality there are multiple major injuries and a larger multiple of less serious injuries. Some triangles show minor injuries and no injury accidents (near misses) and these are again multiples of the category immediately above them.
- That near miss and minor accidents can predict more serious accidents and therefor should be investigated.
- All these events are failures of control and so by investigating them we can learn from them and prevent more serious accidents as a result.

Limitations of Accident Ratio Studies

Limitations on Severity

Not every accident has really got the potential to be a fatality or a major accident, for example cutting a finger with a stanley knife may result in a few days off work (I hope so in the catering industry) but it is never going to lead to a fatality so many minor accidents are not really predictors of a more serious potential accident.

Statistical Significance

You need data representative of a large group (e.g. national HSE statistics) for the triangles to work, in an office of ten people you are not going to get the required averaging out of statistics in each classification to make any comparison meaningful.

Differing Definitions

Different organisations have different defenitions of lost time accidents, major accidents, minor accidents so we have to be careful when comparing statistical representations.