

WHAT IS THE RISK OF DYING IN A ROAD ACCIDENT IN SWANSEA?

EXPLORATORY DATA ANALYSIS

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DATA & METHODS

This exploratory data analysis (EDA) allows for the development of a geographical risk model derived from a combination of datasets (road casualties and census) sourced by UK authorities during the period of 2005 to 2014*. Severity type 1 accidents (fatal) in the Swansea LSOAs were investigated.

The risk map was produced after aggregating counts of accident types 1 across a region and normalising them for the amount of road network and population found in the region. The calculation of the basic risk rate and adjusted rate (AR) for accident type 1 consisted of:

$$\text{Basic Rate} = \frac{\text{Total Accidents}}{\text{Total Km of road}}$$

$$\text{AR} = \sum \frac{\text{Total Sev. Type 1 Accidents}}{\text{Total Accidents} * \text{Basic Rates}}$$

The risk rates were distributed as quintiles ranging from very low to very high risk. A severity type 1 road accident is defined as an accident in which at least one person is killed¹.

RESULTS

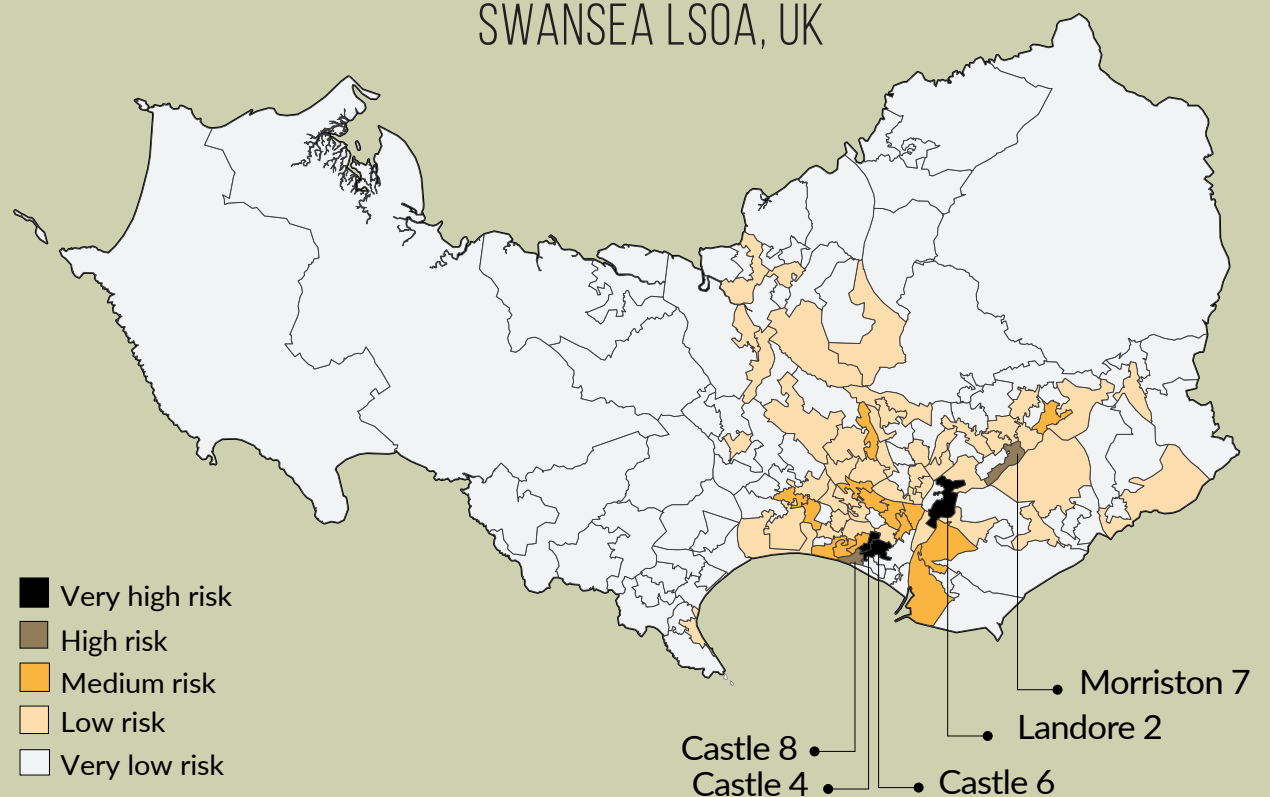
The data showed that during the period of 2005 to 2014* there were 124 road casualties that resulted in at least one death within the 148 Swansea LSOAs. The low risk combined with very low risk rate covered 87.16% of the LSOAs. While the medium risk rate covered 9.46% of areas, the high and very high risk rate combined totalled 3.38%.

REFERENCES

1 Reported Road Casualties in Great Britain: notes, definitions, symbols and conventions, <https://goo.gl/11TsnW>. 2 Police recorded road casualties in Wales, 2014, Statistics for Wales, <https://goo.gl/cGJjFE>. 3 Local Area Summary Statistics, Statistics for Wales, <https://goo.gl/kaB1uT>

* The combined dataset does not contain data for the year 2007.

ROAD RISK MAP ACCIDENT SEVERITY TYPE 1 (DEATH) SWANSEA LSOA, UK

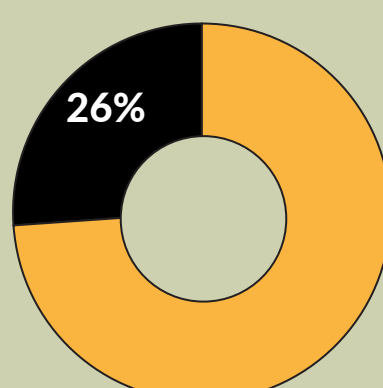


CONCLUSION

The risk map shows that the risk of road death in the Swansea area is relatively low at 3.38% (very high risk and high risk combined). These findings complement published literature that suggest that recorded road casualties have been decreasing over the last decade in Wales^{2,3}. Nonetheless, there are still specific Lower Super Output Areas (LSOA) in the precincts of Landore, Castle and Morriston that present a higher risk of road casualties resulting in death. These findings can, therefore, assist government and law enforcement to recognise patterns of high risk localities by focusing on prevention measures. Other statistical aspects of the accident severity type 1 (fatal) data can also be visualised on the figures below.

OTHER STATISTICAL INSIGHTS OF ACCIDENT SEVERITY TYPE 1

Deaths of 18 years of age and under



Deaths by gender



Deaths per day of the week

