

# A retrospective analysis of alcohol-related emergency calls to the ambulance service in Galicia

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This work will be focused on the introduction of statistical methods for data processing and modeling in society, specifically, on alcohol consumption and abuse in Galicia. Dataset is available from a retrospective cohort study based on the telephone calls to the Galicia-061 Public Health Emergency Foundation after alcohol consumption from 1 January 2007 to 4 February 2018. Bayesian hierarchical models and nonparametric level set estimation techniques will be applied.

The main objective is modeling spatial and spatio-temporal patterns of emergency calls to the department ethyl poisoning in this region. By fixing administrative areas, for example, municipalities, spatial and spatio-temporal methods for counting data can be considered in this setting. This approach allows to allow to study the evolution of callings patterns. Specifically, hierarchical modeling, through Besag York Mollié (BYM) method will be used to meet this goal (see Besag *et al.* (1991) and Rue and Held (2005) for more details). Integrated Nested Laplace Approximation will be considered in order to fit this kind of models. The analysis will be performed by using covariates such as age, gender, study level, Gini index, incomes, number of bars and regulations/sanctions.

Nonparametric level set estimation techniques will be applied in order to identify the hot-spots of emergency calls. Significant covariates detected from hierarchical models fittings will be taken into account. In particular, differences between patterns by gender will be studied.

## References

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