

**EXTENSION OF SIMPLE PREDICTIVE MODELS TO ACCOUNT FOR REGIONAL VARIATION IN CANCER
INCIDENCE PREDICTION**

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A method has been proposed for calculating approximate confidence and prediction intervals both for the numbers of cases and for the age-adjusted incidence rates by assuming Poisson or extra-Poisson distribution of stratum-specific number of incident/mortality cases. It can be applied to predict incidence/mortality cases based on a model with any functional form of linear predictor or link function.

The practical application of the method has been done using a group of simple, linear and multiplicative age-period/cohort models, linear in time which are most often useful in the context of prediction. Thanks to their simplicity, the precision of the predictions produced by them is also satisfactory.

This presentation shows how to extend the models to include regional variability for incidence prediction. A set of alternative regional models is analysed and verified in the context of prediction using Finnish data. The practical examples show that not taking into account regional variation can produce misleading results. At the same time the final models chosen show a good performance in terms of precision and moving into the future historical age-specific-regional incidence patterns.