# DSA Algorithms for Mortality Forecasting

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It has been well recognized that borrowing information from populations with similar structural mortality patterns and trajectories is helpful to the mortality forecasting of a target population. One crucial step to gain an enhanced forecasting accuracy lies in the selection of a proper group of populations. To the best of our knowledge, however, no structured method exists to select the group flexibly and effectively. In our paper, we consider the mortality forecasting for a general target population from the Human Mortality Database (HMD). We develop an effective procedure to select a group of populations from the HMD to enhance the mortality prediction of the target population. Instead of grouping populations according to geographical or socioeconomic information, we obtain the group from the mortality data themselves via some machine learning methods. We design a DSA (deletion-substitution-addition) algorithm to choose the "best" grouping, which has both reliable explanatory power for current mortality patterns and superior performance in terms of forecasting accuracy for each target country.