Secondary use of Austrian health claims
data to explore adverse drug events

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Introduction

We developed a software tool for physicians to explore adverse drug events (ADEs) in Austrian health claims data.

1. Methods

We used a research database that consists of pseudonymized health claims data, especially medication data and data from hospital stays of all Austrian citizens in the years 2006 and 2007. We calculated potential drug-drug interactions by integrating an Austrian interaction database. The tool was developed with Java, R and PostgreSQL.

2. Results

The tool provides an overview of hospital stays with ADE-associated diagnoses and the preceding medication and potential interactions using socio-demographic parameters. We implemented association rule learning, a logistic regression model and the calculation of the number needed to harm.

3. Discussion

The tool has been already evaluated by physicians from three medical areas and used to generate hypothesis for clinical studies. Although there are limitations, secondary use of health claims data can complement clinical studies with population-based analysis in exploring ADEs. Currently we extend the tool to visualize regional distinctions.