

DEXHELPP

Decision Support for Health Policy and Planning

Programme: COMET – Competence Centers for Excellent Technologies

Programme line: K-Projects

COMET subproject, duration and type of project: Burden of Disease, [07/2014 – 06/2017], multi-firm

How sick is Austria? – Atlas of Epidemiology based on different data sources

In healthcare it is crucial to have a fundamental knowledge of the burden of diseases within the population. Therefore we aimed to develop an Atlas of Epidemiology to gain better insight on the epidemiological situation. Based on primary and secondary health care data, we aimed to present results in interactive charts and maps, comprehensible to experts and the general public. The atlas builds a framework for rapid deployment of new data and results in a reproducible and efficient way. As a first use case three methods based on two different databases for the estimation of diabetes prevalence in Austria are compared.



Different Sources – Different Results Methods Applicable for the Public

Evaluating the burden of disease by estimating the prevalence or incidence of a disease within a population is usually conducted based on a specific data source. Often different data sources exist and lead to different – sometimes horrendous different – results, which makes decision making and further analyses difficult. Communication the different results to the public and explaining these differences seem to be challenging. Therefore the partners of dexhelpp developed concepts and a first use case of the **Atlas of Epidemiology**, a **web-based tool**, capable of tackling this challenge.

The tool developed here is generic and can be adapted to other questions of epidemiology of interest. The first use case compares three methods of estimating the prevalence of diabetes based on two different data sources. The success of this use case and the positive response by social security institutions and individuals, encouraged us to plan and (currently) develop a second use case: the prevalence of

different diseases according to the ICD10 chapters based on the ATC-ICD project, where diagnoses are assigned to patients based on hospitalizations, sick leaves and prescription data.

The methods used for communicating the different results of the burden of disease to the public include interactive bar charts and heat maps of Austria for patients divided by region, gender and age together with descriptions of results. The user is encouraged to experiment with the different results.



Successful Implementation Use Case Diabetes

The first use case for estimating prevalence of diabetes was successfully implemented based on **two different data sources**:

- (i) reimbursement data 2006/2007 (GAP-DRG);
- (ii) national routine health surveys (ATHIS) for 2006/2007;

with **three different methods**:

- 1) **ATC-ICD** statistically relates pseudonymized data on medications to data on diagnoses from hospitalizations and sick leaves.
- 2) **Experts**: medical experts assign specific medications to diabetes diagnoses. Patients with these medications are identified together with hospitalized diabetes diagnosed patients in GAP-DRG.
- 3) **ATHIS** a sample of 15.000 persons was questioned if they a) ever had diabetes and b) were treated against diabetes in the last 12 months. Results are projected onto the Austrian population.

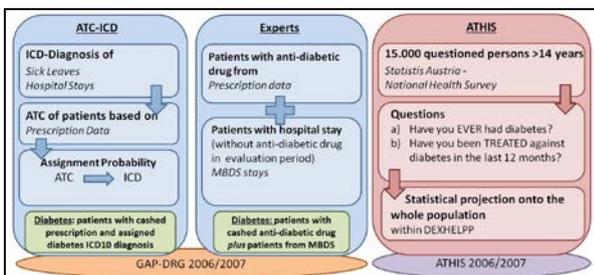


Fig. 1: Different Methods and Different Data Sources for the Use Case of Diabetes Prevalence.

Patients are divided by 10-year age-classes, gender and region. For the publicly online framework (dexhelpp.at), implemented in html and javascript, pre-processed data in different granularity is required and used.

Impact and effects

Our Atlas of Epidemiology was publicly presented online to decision makers, health care providers and social security systems. The feedback was very positive to our novel approach and has been incorporated. Maps of Austria represent the prevalence of diabetes for each

method and granularity level. The difference of the methods can be seen by clicking on the next map. For different age-classes (resp. different gender) the three **methods can be compared directly** within a bar chart. The **technology for a rapid deployment of new data** is now developed which has a major impact on estimating the burden of disease, since it is now possible in a fast and efficient way which allows focusing more on the intervention than the representation of epidemiology.

Besides depicting disease prevalence, the Atlas of Epidemiology also allows to quickly visualize health care service data and results of simulation models, which is important for decision makers and the communication to the public.

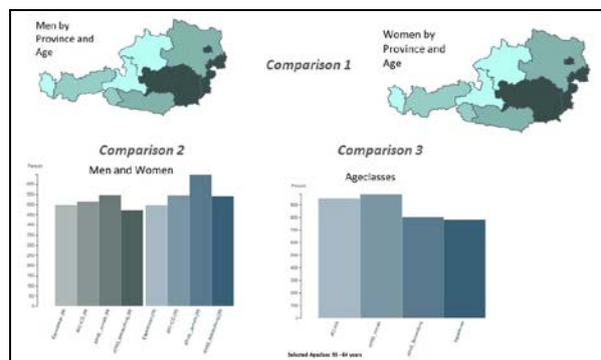


Fig. 2: Interactive Comparison methods for Use Case of Estimating Diabetes Prevalence based on different data sources.

Soon the results of the ATC-ICD project on the prevalence of different diseases based on ICD9 diagnoses and medication data will be integrated in an aggregated form. A television report of the Austrian national news broadcast (ZIB) was conducted on the Atlas of Epidemiology in February 2016 where improved comparability and accessibility of health care data was in the focus.

Contact and information

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