A Web Based Application for Surveillance and Quality Management in Chronic Hepatitis C

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Abstract
Nearly 130 millions of people around the world are affected by chronic virus Hepatitis C infection. We have developed a web-based application for epidemiological surveillance and quality management in chronic Hepatitis C. Functionality offered by the system includes data collection and execution of predefined queries relevant in quality management. Application is available at www.healthgate.at.

Introduction
Nearly 130 millions of people around the world are affected by chronic virus Hepatitis C infection. Infected persons are at high risk for development of liver cirrhosis and liver cancer1. Up to date, very little is known about the epidemiology of hepatitis C in Austria, as well as about quality of care provided to infected patients.

Aim of this work was to design and develop a web-based information system for surveillance and quality management used by healthcare professionals caring for patients with chronic Hepatitis C.

Methods and Results
In year 2003, a peer group of Austrian hepatologists agreed on a minimal data set containing approximately 50 items. A pre-test of data collection forms was conducted using paper sheets, and minor changes were made to the minimal dataset.

In year 2004, a web-based application was developed using Java 2 Enterprise Edition technology and numerous open source libraries (e.g. Jakarta Struts). The application was deployed at www.healthgate.at and made available over the Internet to registered and authenticated users. Using this web application, participating health care centers can collect pseudo anonymous patient data and execute 11 queries relevant to epidemiology and quality of care. Queries allow a comparison of results obtained in the own healthcare centre with results of all other centers.

Results can be narrowed by use of predefined query execution criteria, which are: time frame of data collection, age, gender, duration of disease and genotype. Application screen shots are available at http://www.healthgate.at/cms/de/produkte/bars/indikationen/hepatitisC/.

Detailed PDF reports are produced offline using R package for statistical computing and Sweave and distributed to all centers twice yearly or upon user request.

Discussion
We implemented a web-based application for surveillance and quality management in Hepatitis C, which has been continuously in use for four years and contains data from more than 2,500 patients. The developed database is used for quality management in participating centers and for epidemiological surveillance at county, province and nationwide level.

In comparison with another developed information system for surveillance of Hepatitis C2, our system is web-based, thus allowing users a high degree of interaction and provides participants with data suitable for quality management. Disadvantage of our system is that data cannot be imported from electronic patient records (EPR). We plan to implement import functionality as soon as the minimal dataset is implemented in existing EPRs. Integration of the more detailed reports in the web application is underway.

We believe that the web-based approach presented here is suitable for surveillance and quality management in Austrian setting.

References