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## ***Sentinel Surveillance of Antibiotic Resistance in Switzerland (SEARCH)***

**Objectives** Development of a monitoring system for antibiotic-resistant human pathogens. The methodology of the surveillance system will be unique internationally and will provide a basis for research and development, establishment and control of preventive measures.

**Conclusions** This project has established and implements the Sentinel Surveillance of Antibiotic Resistance in Switzerland (SEARCH). SEARCH is a unique system worldwide, because of the broad coverage of bacteria, epidemiological indicators and hospitalised as well as ambulant patients. In fact, antimicrobial resistance data gathered in this system represent 60% of annual Swiss hospital days and at least 30% of all practicing medical doctors in Switzerland. A public SEARCH Web site will be accessible at [www.search.ifik.unibe.ch](http://www.search.ifik.unibe.ch). The database will be further linked with the European databases EARSS (European Antimicrobial Resistance Surveillance System) and ESAC (European Surveillance of Antimicrobial Consumption).

In future SEARCH will provide comprehensive knowledge about the epidemiology of antibiotic resistance and antibiotic consumption in Switzerland and a base for research projects on the epidemiology (including molecular epidemiology) of antibiotic resistance. Through SEARCH it will be possible to issue recommendations to policy makers and praxis about actions necessary to control emerging and existing resistance problems. Information of this kind is a prerequisite for the control of antibiotic resistance through knowledge transfer and intervention programmes on a local, national and international scale.

### ***Main results and findings***

The characteristics of the Sentinel Surveillance of Antibiotic Resistance in Switzerland (SEARCH) can be summarised as follows:

- The Federal Data Protection and Information Commissioner has reviewed and approved the project.
- The SEARCH data centre is located at the Institute for Infectious Diseases (IFIK), University of Bern.
- 22 Swiss clinical microbiology laboratories will be sending resistance data to the data centre.
- SEARCH will represent 60% of annual Swiss hospital days and at least 30% of Swiss medical practitioners. It will include also otherwise neglected populations groups such as outpatients and children.
- A public Web site at [www.search.ifik.unibe.ch](http://www.search.ifik.unibe.ch) will provide aggregated resistance data to the public; the Web site is expected to be in operation in spring 2007.
- Swiss antibiotic resistance data will be integrated into the European Resistance Surveillance System (EARSS) once the database is representative (spring 2007).
- Continued standardisation of resistance data and quality control are worked on by the SEARCH project team, the SEARCH steering committee, an annual full assembly of SEARCH laboratories and SEARCH working groups.
- Antibiotics sales (data for the years 2002 to 2005 purchased from IMS health GmbH, Hergiswil, Switzerland) and consumption data (project by Prof. Dr. G. Zanetti) can be analysed within the SEARCH database.
- An extension of the SEARCH database allows surveillance of community and hospital acquired bacteraemia rates (not restricted to resistant pathogens) and provides a tool for quality assurance to hospitals that have data in the SEARCH system.

#### Outlook for the SEARCH project

- The extension of the project duration to December 2007, approved by SNSF/NRP 49, will allow:
  - completion of the SEARCH system and the start of the productive phase in terms of research and intervention programmes;
  - completion of the linkage of the 22 laboratories;
  - the opening of the public Web site;
  - sending of resistance data to EARSS;
  - publishing of first comprehensive analyses of SEARCH data in an international journal;
  - initiation of further research projects on antibiotic resistance;
  - starting of a bacteraemia surveillance project within Swiss-NOSO;
  - continuing standardisation and quality control of SEARCH data (working group).
- Steps have been taken to establish SEARCH as a permanent structure and to secure financial resources and a proposal for financial support.

#### ***Publications of the NRP 49 project***

To be expected in 2007 and thereafter.