



HIS • HES

# Improving the HIS/HES Database

Final Report of the European Union Health Surveys  
Information Database (EUHSID) during 2009–2011

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## **Publisher**

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## 1 Aims and specific objectives of the project

The main aim of the EUHSID project was to promote the use of standardised methods in national health interview (HIS) and health examination (HES) surveys in Europe. The HIS/HES Database was created to work as a tool for comparison of survey methods (sampling, design, participation etc.), examination protocols, questions and instruments used in the national health surveys.

The specific objectives of the project were to:

- update the database with new national health surveys and to maintain an up-to-date list of ongoing surveys
- provide a practical tool for the development of methods for the European Health Survey System, as well as for comparison and interpretation of the survey findings
- upgrade the technical functionalities of the database and develop the project website
- disseminate information about the database and promote its use, and stimulate cooperation between countries in the matters of health surveys
- contribute to the improvement of quality and comparability of health survey data by facilitating the search for reference instruments and recommendations related to survey methodology and to assess how selected instruments are applied in population health surveys.

Detailed description of the HIS/HES Database can be found in the EUHSID website ([www.euhsid.org](http://www.euhsid.org)) and in the final report of the previous phase of EUHSID, “Update and development during 2005–2008” ([www.euhsid.org/documents.html](http://www.euhsid.org/documents.html)). The report also presents a complete overview of the European Health Survey System and health monitoring in general.

## 2 Updates of the HIS/HES Database contents

### 2.1 New surveys

To obtain information on HIS surveys, enquiry letters were sent to contact persons in respective countries. Enquiry letters were not sent for HES surveys since the information about those were received through close collaboration with the contact persons of the European Health Examination Surveys (EHES). The surveys entered in the database in 2009–2011 are shown in tables 1–3.

**Table 1. Health surveys entered to the database during the period 1.1.–31.8.2009.**

Name of the survey	Country	Year	Survey type	Database code
Canadian Health Measures Survey	Canada	2007–2008	HIS/HES	CA04
Estonian Health Interview Survey	Estonia	2006–2007	HIS	EE08
National Health Survey	Spain	2006–2007	HIS	ES06
Health, Health Care and Insurance Survey	France	2006	HIS	FR19
Health Survey for England	UK (England)	2006	HIS/HES	UK33
Quarterly National Household Survey	Ireland	2007	HIS	IE10
Aspects of daily living	Italy	2007	HIS	IT11
Continuous Quality of life Survey	The Netherlands	2007	HIS	NL11
Living Condition Survey	Sweden	2007	HIS	SE08
National Survey of Public Health	Sweden	2007	HIS	SE09
Canadian Community Health Survey	Canada	2007	HIS	CA05
Survey of lifestyle, attitudes and nutrition SLAN	Ireland	2007	HIS/HES	IE09
FINRISK	Finland	2007	HIS/HES	FI21
KRAM	Denmark	2007–2008	HES	DK04

**Table 2. Health surveys entered to the database during the period 1.9.2009–30.4.2010.**

Name of the survey	Country	Year	Survey type	Database code
National Health Interview Survey	Australia	2007	HIS	AU04
Telefonischer Gesundheitssurvey	Germany	2007	HIS	DE09
EVTK	Finland	2007	HIS	FI23
PSELL – EU SILC	Luxembourg	2007	HIS	LU04
Health Care in Household	Poland	2007	HIS	PL02
EHIS	Slovakia	2007	HIS	SK04
Health Interview Survey	Belgium	2008	HIS	BE06
EHIS	Bulgaria	2008	HIS	BG04
EHIS	Cyprus	2008	HIS	CY03
EHIS	Czech Republic	2008	HIS	CZ04
EHIS	Malta	2008	HIS	MT02
Health Interview Survey	Romania	2008	HIS	RO02
Health Survey for England (HSE)	England	2007	HIS/HES	UK35

**Table 3. Health surveys entered to the database during the period 1.5.2010–30.6.2011.**

Name of the survey	Country	Year	Survey type	Database code
Swiss Health Survey	Switzerland	2007	HIS	CH03
National Survey of Public Health	Sweden	2007	HIS	SE09
Health and Wellbeing of Icelanders	Iceland	2007	HIS	IS04
Welsh Health Survey	UK (Wales)	2007	HIS	UK34
Health Survey for England	UK (England)	2008	HIS/HES	UK36
EHIS	Latvia	2008	HIS	LV06
Health Interview Survey	Turkey	2008	HIS	TR06
Scottish Health Survey	UK (Scotland)	2009	HIS/HES	UK37
EHIS	Spain	2009	HIS	ES07
EHIS	Poland	2009	HIS	PL08
EHIS	Hungary	2009	HIS	HU06

Ongoing and planned health surveys were closely followed and a list of surveys conducted since 2007 is available in the EUHSID website: [www.euhsid.org/listofsurveys.html](http://www.euhsid.org/listofsurveys.html). The list includes information on surveys that are:

- included in the HIS/HES Database
- not included (do not meet the inclusion criteria)
- being entered in the database.

Multi-country surveys were also followed and listed, but no new multi-country surveys were included in the database, since they did not fulfill the inclusion criteria. To be included in the database, the national health surveys or multi-country surveys had to meet the following conditions ([www.euhsid.org/selectioncriteria.html](http://www.euhsid.org/selectioncriteria.html)):

- Use representative population-based samples
- Recur at regular intervals (thus not once-only or one single wave)
- Not restricted to a part of the population only such as children, adolescents or patient groups (focus on adult populations)
- Not restricted to a single health component such as nutrition or infectious diseases.

Some exceptions were accepted, if the survey was informative for development of survey methods and otherwise enhanced standardisation.

## 2.2 Reference tools

A new, clearer structure was developed for the reference tools in the HIS/HES Database. The development of new reference tools was closely followed, but within the timeframe of the EUHSID project, only a few new reference tools were developed, and they were published too late to be entered in the database. As the new version of the reference tools structure in the database is now finalised, some new reference tools could be included. Among these are:

- European Health Examination Survey (EHES): [www.ehes.info](http://www.ehes.info)
- Indicators for monitoring COPD and asthma in the EU (IMCA): [www.imca.cat](http://www.imca.cat)
- Assessing levels of Physical Activity (ALPHA) project: [sites.google.com/site/alphaprojectphysicalactivity](http://sites.google.com/site/alphaprojectphysicalactivity)
- Standardizing measurements of alcohol related troubles (SMART): [www.alcsmart.ipin.edu.pl](http://www.alcsmart.ipin.edu.pl)

The following criteria were developed to decide if a reference tool could be included in the database:

- Has been developed and/or is feasible for use among the general population (e.g. not for specific patient groups only)
- Provides data for the European Community Health Indicators (ECHI; [www.echim.org](http://www.echim.org)) or other clearly defined health indicators
- Concerns at least one major public health problem (policy relevance)
- Has theoretical, epidemiological and/or clinical background
- Has been used and evaluated in several European countries, cultures or languages. Has evidence on validity and reliability of data collected with the tool in general population.

## 3 Improvement of the HIS/HES Database functionalities

Parallel with the updating work, the usability of the database was further developed. The development was based on the results of the Database Usability Survey carried out in April–May 2009 ([www.euhsid.org/documents.html](http://www.euhsid.org/documents.html)), and on the experiences of the administrators. The development work focussed on improving the database from the users' point of view. In addition to that, the usability improvements were needed to facilitate the updating work of the administrators. This work was started by listing needed improvements and evaluating how these could be implemented. After discussions with the Scientific Advisory Board and Project Partners a priority listing was developed.

Agreed most important improvements and changes were included in the contract with an external IT company (Ausy; [www.ausy.fr](http://www.ausy.fr)). The development work focussed on several functions and to the layout of the database. Before the final version was released, there were two testing periods for the upgraded database. The testing was carried out at IPH and THL. After the both database testing periods, there were still several points that needed updates. The upgraded version of the HIS/HES Database (<https://hishes.wiv-isp.be>) was released on 7th June 2011.

### 3.1 Upgrades and new features

The upgraded version of the database includes e.g. the following changes:

- Search methods were improved for more limited results, e.g. search of specific questions by topic codes. EHIS topic codes were added as a new feature.
- Summary reports were improved by adding a possibility to choose one or more variables to be included in the summary instead of the whole dataset.
- More instructions were included and internal links added throughout the database to make the navigation easier.
- A new structure for reference tools was created, which enables searching by type, year and topic code.

These new features were added:

- Topic code definitions
- Glossary
- Feedback function
- User name reminder.

Because the upgraded version of the database was released only recently and close to the end of the project, some of the new features still need to be filled with information by the administrators before they can be fully utilised. Among these are the EHIS topic codes, definitions for HIS topic codes and the glossary of terms.

### 3.2 Technical development

There was a plan to install a copy of the database and the web application on THL's server as a test version. However, the installation was not feasible within the timeframe and resources of the EUHSID project. This would have worked as a test to verify how the database could be transferred from IPH to another organisation responsible for the development and update of the database in the future. This would also have facilitated testing new features in the database. It was decided that the new updated version of the database would be installed at THL after the development at Ausy

was completed. However, this was finalised so late that the installation was no more possible before the closing of the project.

To prepare the installation, a data manager at THL (Ari Haukijärvi) consulted the data managers and IT experts at IPH and Ausy. A complete PHP code of the database was not available, and there were no resources at Ausy to consult in the installation. The data manager at THL was consulted frequently throughout the project, to evaluate the feasibility of the required changes in the database structure, to prepare the documents for AUSY with a priority ranking of the changes, and to negotiate what could be done within the tasks listed in the contract between IPH and Ausy.

The HIS/HES Database consists of an SQL database installed on one server at IPH together with a PHP application in charge of the interface between the administrators and the end users on one side and the SQL database on the other side. The PHP application is installed on a virtual (VMware) server. Minor maintenance activities are needed on those servers besides regular back-ups and periodical cleaning of log files.

Direct access to the servers can be offered via a VPN connection. This has been used by example for the remote installation of the updates by Ausy on the IPH servers. Local access is also possible either:

- to the SQL database (via Access) to modify the content of some tables (such as the frequently used HIS instruments)
- or to specific directories of the web application to update the introduction or the user's/administrator's manuals.

## 4 Dissemination of the project

### 4.1 Project website

The EUHSID project website [www.euhsid.org](http://www.euhsid.org) has been constantly updated and developed during the running of the project. The website introduces the project itself and serves as a gateway to the HIS/HES Database presenting basic information and update news of e.g. recently added surveys. All reports and meeting materials of the project can be downloaded from the website, and all important news are published in the newsfeed. Links to other related projects and institutions are also included, as well as contact information of the project staff.

### 4.2 Newsletter

During the project, four releases of the EUHSID newsletter were released: in April 2009, October 2009, March 2010 and June 2011. These newsletters were directed to all registered users of the HIS/HES Database and also to other relevant persons (e.g. DG SANCO and Eurostat officials), in total about 1400 persons. The newsletters included information e.g. on:

- surveys that have recently been entered in the HIS/HES Database
- progress in the EU Health Survey System
- information on the upgraded version and future of the HIS/HES Database
- recent news on other population health surveys and projects.

All releases of the newsletter are available at [www.euhsid.org/documents.html](http://www.euhsid.org/documents.html)

## 4.3 Presentations

The EUHSID Project and the HIS/HES Database have been presented and promoted on various international meetings, with the intention to spread information among public health professionals and thereby increase the number of regular users of the HIS/HES Database. These include the:

- EUPHA Conference in Amsterdam (Nov 2010)
- Health Surveys User Group Meeting in London (Jul 2010)
- 12th European Health Forum in Bad Gastein (Sep 2009)

In addition, EUHSID has been constantly promoted on the European Community level, e.g. during ECHIM and EUHSID meetings and seminars. The most important presentations, as well as promotional material can be downloaded from [www.euhsid.org/documents.html](http://www.euhsid.org/documents.html).

## 5 EHIS comparison

A pilot comparison of the questions wording used in the first wave of EHIS (European Health Interview Survey) was performed by the EUHSID project in 2010. This pilot test demonstrated the feasibility of a full comparison of questions covering all European countries in which the EHIS survey has been conducted. Based on the pilot a full comparison was carried out in the framework of the Eurostat ESSnet on Public Health Statistics, based on a separate contract between Statistics Austria and THL (HIS Task 1.4 Report on “Comparability assessment of the EHIS questions used in the national surveys”).

The main purpose of this exercise was to find out to which degree the original EHIS questions (formulated in English) have been used in the national survey questionnaires. The study aimed to identify which EHIS questions are included in national surveys, find out if the questions are identical to or different from the original, and analyse potential differences.

Of the 20 European countries that have conducted the EHIS wave I, 10 have included all questions in their national questionnaires. The other ten have used abridged or altered questionnaires. Of all the EHIS questions, 89% were included in the national questionnaires. 66,5% were evaluated as totally comparable with the original EHIS questions. 21% were evaluated as partially comparable and 1,5% as non-comparable. 11% of the questions were missing.

A final report including detailed findings can be downloaded from [www.euhsid.org/documents.html](http://www.euhsid.org/documents.html)

## 6 Coordination of the database

### 6.1 Scientific Advisory Board

The project has consulted a scientific advisory group of experts in the domains of health interview and health examination surveys. This allowed having additional discussion on the content and organisation of the database after the presentation of the project during the Eurostat HIS Core Group and Technical Group meetings. HES experts in this group were:

- Juliette Bloch, Sanitary Surveillance Institute, Paris, France
- Monique Verschuren, Nal Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands
- Grazyna Broda, National Institute of Cardiology, Warsaw, Poland
- Enric Duran, Municipal Institute for Medical Research (IMIM), Barcelona, Spain

HIS experts were:

- Jiri Holub, Institute of Health Information and Statistics, Prague, Czech Republic
- Luule Sakkeus, National Institute for Health Development, Tallinn, Estonia
- Alessandra Tinto, National Institute of Statistics (ISTAT), Rome, Italy
- Girts Brigis, Riga Stradins University, Riga, Latvia

Finally, some participants were experts in both HIS and HES:

- Cornelia Lange, Robert Koch Institute, Berlin, Germany
- Jennifer Mindell, University College of London, United Kingdom

One meeting of the scientific advisory board was organized at 14.–15.9.2009, at THL, Helsinki. The following topics were discussed:

1. Recent developments in health indicators (ECHIM) and health surveys (EHES) in the framework of the Public Health Programme of DG Sanco
2. Recent developments in the framework of the partnership health of Eurostat
3. EUHSID Progress report
4. HIS/HES Database User Survey 2009
5. Reference tools
6. Multi-country surveys: definition, inclusion criteria and adaptations in the database format
7. Identifying national EHIS questions and assessment of correspondence with EHIS source questionnaire
8. Topic codes (definitions, need for new, recoding)
9. Technical development of the database: prioritisation
10. Pooling national HIS data: current situation and future potentials
11. Dissemination of EUHSID: EUHSID website, newsletters, presentations and reports
12. Work plan for 2009–2010 and agreement on the tasks of the members of the advisory board
13. Future of the HIS/HES Database and the project

The minutes of the meeting are available at [www.euhsid.org/documents.html](http://www.euhsid.org/documents.html).

## 6.2 Tasks and personnel

IPH has been in charge of the Health Interview Surveys. As the coordinator IPH has closely followed up of the work of the subcontractor (Ausy) in the upgrade of the database. The personnel at IPH were:

- Jean Tafforeau, Project Coordinator: coordination between THL and IPH, link with Eurostat and DG SANCO
- Véronique Verhocht: database manager collecting information on new surveys and database update for the HIS part.

THL has been in charge of the HES and combined HIS/HES surveys. THL has also taken care of the EUHSID project website, the EHIS comparison and the newsletter. The personnel at THL were:

- Päivikki Koponen, Project Coordinator at THL, supervising the other staff members
- Johanna Mäki-Opas, Researcher: collecting information on new surveys, database update, planning and testing the upgraded version of the database
- Sanna Ahonen, Researcher: collecting information on new HES, database update, planning and testing the upgraded version of the database, EUHSID website development and updates, EHIS comparison, newsletters, reports
- Ari Haukijärvi, Data manager: consulting in IT issues and database development
- Kari Kuulasmaa, Research professor, EHES Project Leader: consulting in survey methods
- Hanna Tolonen, Researcher EHES Project manager: consulting in survey methods
- Ritva Prättälä, Head of the Department: administrative issues at THL, staff management
- Eila Linnanmäki, Head of the Unit: administrative issues at THL, staff management
- In addition, other HIS and HES experts at THL have been consulted without any funding from the EUHSID budget: Arpo Aromaa and Antti Tuomi-Nikula.

## 6.3 Bilateral meetings and other forms of collaboration

Three bilateral meetings were organised to facilitate shared planning of project tasks and collaboration between IPH and THL staff:

1. 5.–6.2.2009 at THL, Helsinki
2. 14.–16.9.2009 at THL, Helsinki
3. 10.3.2010 at THL, Helsinki

In addition to the EUHSID website a wiki extranet site was developed and kept at THL to share the project's internal documents, draft reports, and other non-public documents.

## 7 Importance and future of the HIS/HES Database

The upgraded version of the HIS/HES Database has been in use for only one month before the project was closed. The testing periods and the updating carried out by the administrators after the release of the upgraded version showed that the improvements were successful. However, some new functions have not yet been fully utilised. Data entry for the topic code definitions, and the glossary of terms used in the database have not been finalised. More detailed background information for reference tools have not been entered in the new structure. The project partners are seeking a solution how to progress further with these tasks.

As it was not possible during this project period to test how the database can be transferred to another organisation, this needs to be done after decisions where the database will be further developed and updated in the future.

The HIS/HES Database has proven to be valuable source of sharing information between survey organisers, researchers and students. It is highly appreciated by the users as revealed from the results of the user survey. The user statistics of the database show that during 1.1.2009–30.6.2011 the database had 693 users (excluding the administrators) and they accessed the database in total 1826 times. There is no other single database that contains as much information on the methods, questions and examinations used in national health surveys in Europe. The database has also recently been further developed to better serve its users. It would be very important to solve how the database can be kept up-to-date to serve the implementation of EHIS and EHES and standardisation of other European surveys.

Feedback from the recipients of the EUHSID newsletter have also shown that the newsletter and the EUHSID website have been an important source of information on the development of health survey methods, as well as on recent national surveys. There is a clear need for keeping up and developing such a source where information on both survey methods and actual surveys can be found. The EUHSID website, the newsletter and the database have been an important source of information for national survey coordinators, public health students and researchers, as well as for other projects developing and using surveys as a data source.

The database is also an important source of information for the scientific community that will start using the microdata of the EHIS wave I, that will be made available in March 2012. The HIS/HES Database is indeed a unique source of information where the content of the surveys can be found and compared between different countries.

The database has up to now been developed and updated during several project periods. As one part of the European Health Survey System, it needs more permanent solutions to ensure future development and updates; it is obviously crucial for the implementation of the future waves of the EHIS and the EHES.