EHES
Measuring the Health of Europeans

European Health Examination Survey Conference

Monitoring the Health of Europeans

6-7 March 2012
Brussels, Belgium

Proceedings

Edited by Hanna Tolonen

Discussion Paper 2013_008

Edited by

Hanna Tolonen

Proceedings of the European Health Examination Survey Conference

Monitoring the Health of Europeans

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Organizers

The EHES Conference was organized by the EHES Reference Centre (RC). From following members of the EHES RC team in Helsinki, Finland were involved in the organzation:

- Sanna Ahonen
- Georg Alfhan
- Katri Kilpeläinen, EHES JA Coordinator
- Päivikki Koponen
- Kari Kuulasmaa, EHES Project Leader
- Katja Jalava
- Hanna Tolonen, EHES Project Manager
- Tarja Tuovinen

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Disclaimer

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Invitation

European Health Examination Survey Conference

Monitoring the Health of Europeans

6-7 March 2012
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The European Health Examination Survey (EHES) is a collaboration between European countries to collect nationally representative high quality health data which are comparable between countries and over time. The purpose of EHES is to facilitate evidence-based planning and evaluation of public health policies and actions. EHES is particularly valuable for monitoring major modifiable risk factors of chronic diseases, which cause 86% of deaths in Europe.

EHES Pilot project was conducted in 2009-2011. During that, standardized health examination surveys (HES) in the working age population were planned and piloted in 12 countries. Some of the countries had earlier national HESs and some were planning their first national HES. The core measurements, included by all countries, were weight, height, waist circumference and blood pressure, and blood samples were taken to measure lipid profiles and glucose or HbA_{1c}. These are modifiable determinants of major chronic diseases which cannot be monitored by other means, such as health interview surveys or administrative registers. There was also a short questionnaire to complement the data on the examination measurements.

The EHES Conference will present the key results of the EHES Pilot project and provide a forum for the discussions on the needs and uses of health examination data on both policy making and research. The conference has oral presentations but also posters describing the results of the individual national HESs or pilot surveys and the details of the work of the EHES Reference Centre.

The meeting of the Employment, Social Policy and Consumer Affairs Council of the European Union in December 2011 called the European Commission to:

"Consider the need for the better deployment of existing data and additional comparative data and information on unhealthy lifestyle behaviours, social health determinants and non-communicable chronic disease. This should be obtained for sustainable health monitoring system already in place or which might be established at EU level."

Agenda of the EHES Conference - 6 March 2012

Tuesday, 6 March 2012

Health examination surveys - from monitoring to health policy

Chair: Hanna Tolonen, EHES Project Manager, National Institute for Health and Welfare, Finland

Time	Topic	Speaker
9:00-9:30	Registration and setup of posters	
9:30-10:00	Opening of the conference	Stefan Schreck, EC/DG Sanco
10:00-10:30	Setting up EHES	Kari Kuulasmaa, EHES Leader
10:30-11:10	Coffee break and posters	
11:10-12:10	What EHES can provide - experiences from the pilot	Kari Kuulasmaa, EHES Leader
12:10-13:25	Lunch and posters	
13:25-13:45	Health examination surveys in Italy. Why and for what?	Donato Greco, Istituto Superiore di Sanita, Italy
13:45-14:05	40 years of health examination surveys in Finland	Pekka Puska, National Institute for Health and Welfare, Finland
14:05-14:25	New health examination survey in Slovakia	Eleonóra Fabiánová, Regional Authority of Public Health in Banská Bystrica, Slovak Republic
14:25-45:45	Discussion on the presented national experiences	
14:45-15:35	Coffee break and posters	
15:35-16:50	Panel discussion: Future of EHES	Elvira Göbel, EC/DG Sanco Barbara Kerstiens, EC/RTD Health Graham Fraser, ECDC Gauden Galea, WHO Euro Pekka Puska, National Institute for Health and Welfare, Finland
16:50-17:00	Closer of the day	Kari Kuulasmaa, EHES Leader

Agenda of the EHES Conference - 7 March 2012

Wednesday, 7 March 2012

Comparable data through standardization

Chair: Kari Kuulasmaa, Research Professor, EHES Leader, National Institute for Health and Welfare, Finland

Time	Topic	Speaker
9:00-9:30	Conclusions from the 1st day	Hanna Tolonen, EHES Project Manager
9:30-10:00	HEIDI-system for disseminating health indicators	Elvira Göbel, EC/DG Sanco
10:00-10:20	Harmonization of Dietary Surveys in Europe - Synerfies Through the EU Menu Process	Liisa Valsta, EU/EFSA
10:20-10:40	The use of HBM surveys as support for environmental health policies	Anke Joas, COPHES Project
10:40-11:20	Coffee break and posters	
11:20-12:00	EHES Manual and national HES manuals - a tool for standardized national HESs	Hanna Tolonen, EHES Project Manager
12:00-12:30	Importance of training in standardization - EHES Training Programme	Päivikki Koponen, EHES RC
12:30-13:45	Lunch and posters	
13:45-14:05	EHES site visits - learning from each other	Katri Kilpeläinen, EHES RC
14:05-14:30	Laboratory data quality	Georg Alfthan, EHES RC
14:30-14:55	Evaluation in EHES	Hanna Tolonen, EHES Project Manager
14:55-15:35	Coffee break and posters	
15:35-16:05	Recruitment - sharing experiences	Sanna Ahonen, EHES RC
16:05-16:30	Summary of the Conference	Hanna Tolonen, EHES Project Manager

Oral presentations, Tuesday, 6 March 2012

Opening of the Conference

Stefan Schreck
European Commission, DG Sanco

Summary of the opening

Stefan Schreck, the Health of the Unit for Health Information from the DG SANCO opened the conference. He pointed out that there is a common political willingness to enhance health examination surveys and therefore the EHES Pilot Project was financed.The EHES has proven its scientific value and also its value for public health prioritization.

The purpose of EHES was to identify best practices and to standardize those practices, not to re-invent and change systems if they work well. The EHES Pilot Project prepared the round for full-size HESs and DG SANCO is willing to help with further steps. Because of the shrinking budgets, it is challenging to convince countries that better coordinated health surveys are needed. However, it is for the Member States to decide how to continue.

Setting up EHES

Kari Kuulasmaa
National Public Health Institutute, Helsinki, Finland

Abstract

A health examination survey (HES) is a population survey which, in addition to a questionnaire, includes at least some physical and clinical examinations, laboratory tests, physical functioning tests etc. Administrative registers, health interview surveys and HESs together form the basis of a comprehensive population health monitoring system to support the development and evaluation of health policies and disease prevention.

The first HESs in Europe were carried out in the 1960. In the past 20 years national HESs have been conducted in 12 countries. Nevertheless, there has been no joint standardization for these surveys, and therefore there is no guarantee about their comparability. The WHO MONICA Project standardized cardiovascular risk factor surveys in 32 centres in 21 countries, mostly in Europe, in the 1980s and 1990. However, MONICA did not cover full countries, and the latest MONICA data are already 15 years old.

The European Health Examination Survey (EHES) is a collaboration to collect and report nationally representative, high quality data which are comparable between countries and over time. The target populations of EHES are the permanent residents of entire countries. The core age group to be covered by all countries is 25-64 years, which the countries can extend to all adults above 18 years. The national surveys are based on a probability sample, with a recommended sample size of at least 4000 persons. This allows the comparison between population subgroups, such as socio-economic categories, separately for men and women. All countries are expected to include a small set of core measurements. These are height, weight, waist circumference, blood pressure, total and HDL-cholesterol and fasting glucose or glycosylated haemoglobin. The last four are measured from a venous blood sample. These measurements provide indicators of important modifiable risk factors of major chronic diseases. Countries can add measurements based on national needs,

experience in HESs and availability of resources.

The countries are responsible for planning and conducting their national HESs. They are also responsible for the national reporting and funding of the surveys. The EHES Reference Centre (RC) takes care of the European level coordination, creates and updates the European survey protocol, provides advice to the countries, organizes training for the national trainers, organizes external quality assessment, and collects data from the countries for survey evaluation and European level reporting.

A feasibility study, conducted in the framework of EU's Public Health Programme in 2006-2008, concluded that EHES should be set up urgently in order to get all 17 national HESs planned for the next 5 years standardized. It also proposed the structure for EHES. Accordingly, a two years EHES Pilot Project was started within the EU's Health Programme to set up the EHES RC, to prepare national manuals for the EU and EFTA/EEA countries and to plan and prepare for national HESs in the first 12 countries. A small pilot survey was also carried out in these countries. The EHES RC was set up jointly by the national public health institutes of Finland and Italy, and Statistics Norway which had international expertise in survey sampling. The piloting countries were Czech Republic, Finland, Germany, Greece, Italy, Malta, Netherlands, Norway, Poland, Portugal, Slovakia and UK/England. Five of these had already full-size national HESs ongoing during the Pilot Project.

The Pilot Project is now coming to the end. EHES has been set up and it can target to expand standardized HESs to other countries. However, EHES cannot be called a sustainable system before also the future funding has been settled. Many countries have decided on the funding of their national HESs, and there are many others where a decision in pending. The future funding of the EHES RC is currently open.

Summary of the discussion

The Conference participants were interested in decisions to carry out the full-size HESs after the pilot. From the EHES Joint Action (JA) Partners Germany, England, Italy and the Netherlands already had an ongoing full-size survey when the pilot was started. Slovakia started a full-size survey in November 2011, Finland has a full-size survey in 2012 and there are decisions to carry out full-size HES in Greece (2012/2013), Luxembourg (2012), UK/England (annually), France (2013), Malta (2014), Czech Republic (2014) and Germany (2018). There are HES Plans for the next few years also in the other pilot countries (Poland, Portugal and Norway), but their funding is open.
The age limits (25-64 years) for the core EHES target group were questioned.

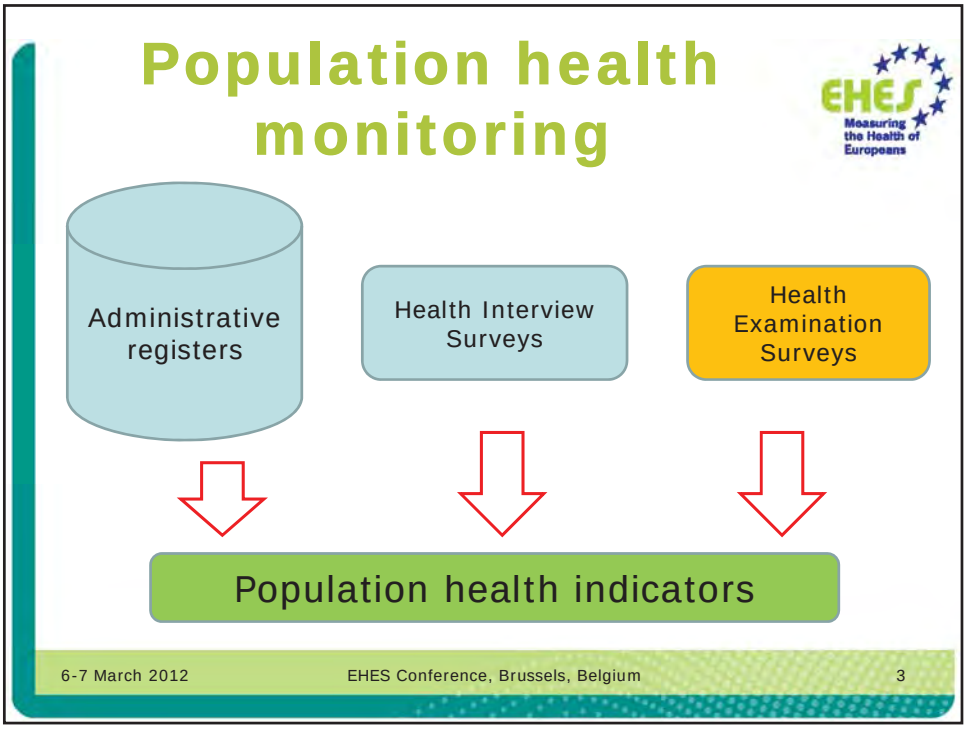
It was pointed out that this age group was chosen as the recommended core target group recognizing the fact that younger persons and elderly persons are equally important. For children and elderly different and for some measurements also new methods need to be developed.

Setting up EHES

Kari Kuulasmaa
EHES Reference Centre
National Institute for Health and Welfare (THL), Finland

Health examination survey HES

- A population survey with
  - Physical and clinical examinations, laboratory tests, physical functioning tests etc
  - A questionnaire
- Some crucial population level health information can be obtained only by HES


Population health monitoring
EHES
Measuring the Health of Europeans
Administrative registers
Health Interview Surveys
Health Examination Surveys
Population health indicators
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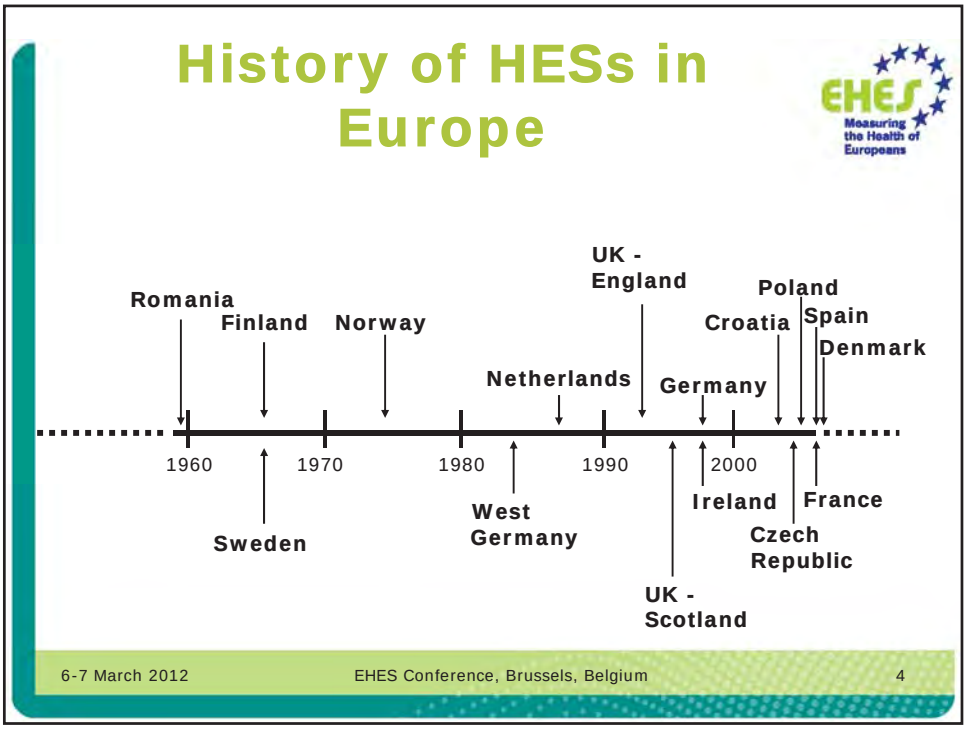
History of HESs in Europe
EHES
Measuring the Health of Europeans
Romania
Finland
Norway
UK - England
Poland
Spain
Croatia
Denmark
Netherlands
Germany
1960
1970
1980
1990
2000
Sweden
West Germany
Ireland
France
Czech Republic
UK - Scotland
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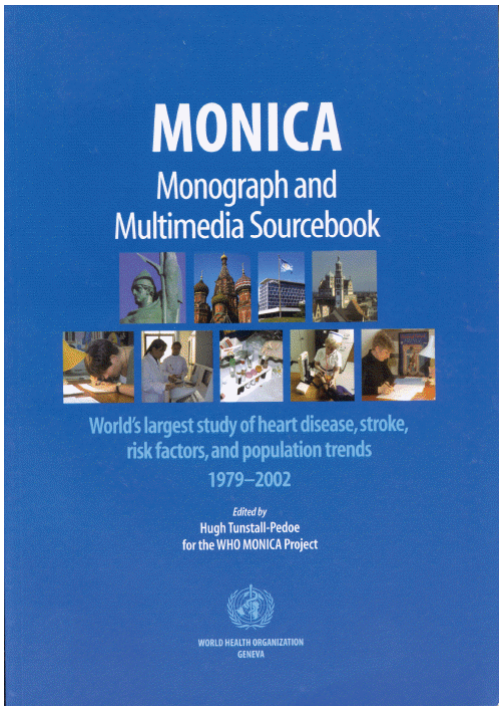

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WHO MONICA Project
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Lancet, 2000; 355: 675-687
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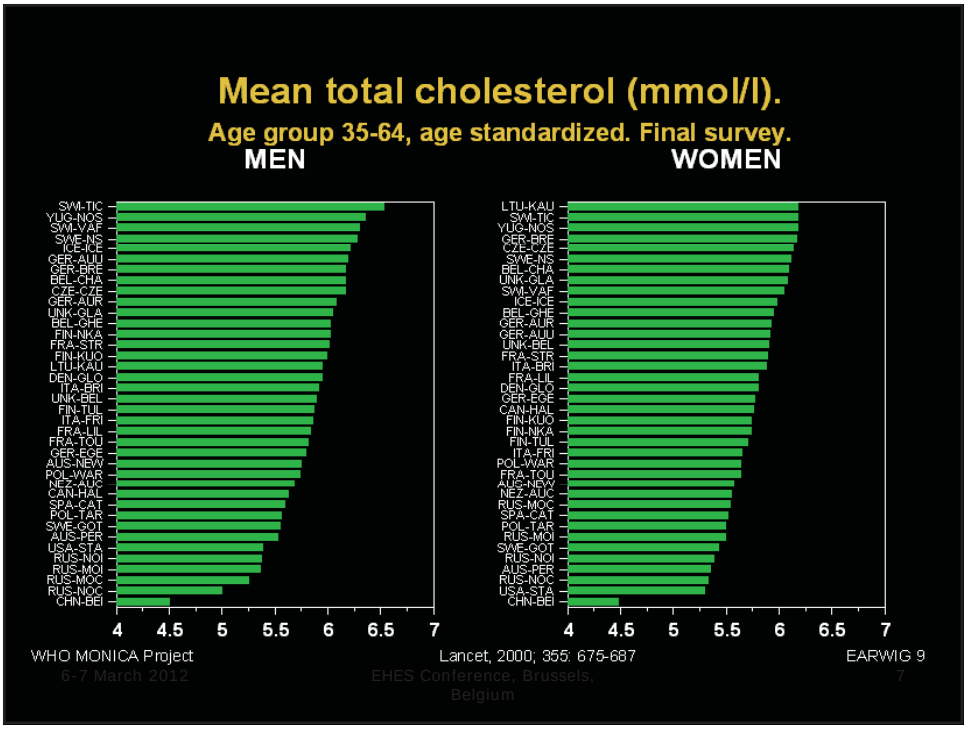

European Health Examination Survey

- Collaboration to collect nationally representative, high quality data which are comparable between countries and over time
- For planning and evaluation of health policies and health care, and for research
- Complementary to EHIS and administrative registers.

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Target population and sampling

- Permanent residents of entire countries
- Core age group: 25-64 years
  - Can extend to 18+
- Probability sample of at least 4000

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Selection of measurements

- Based on:
  - Epidemiological and public health criteria
  - Availability of international standards
  - Practicality for large population surveys
- Core measurements from all countries
- Additional measurements based on national interests, experience and resources

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Core measurements

Examinations	Questions

• Height
• Weight
• Waist circumference
• Blood pressure
• Blood samples
  •Total cholesterol
  •HDL cholesterol
  •Fasting glucose or HbA1c
	• Age and sex
	• Education
	• Occupation/income
	• General health
	• CVD
	• Hypertension
	• Hyper/dyslipidemia
	• Diabetes
	• Smoking

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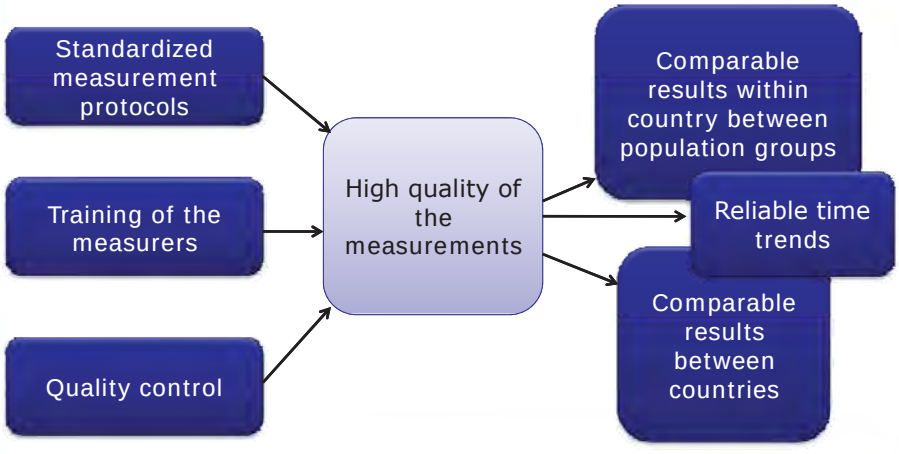
European standardization



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Structure of EHES

Countries

- Planning and conducting the national HESs
- National reporting
- National funding

Reference Centre

- Coordination
- European protocol
- Support to countries
- Training
- External quality assessment
- Common database
- Evaluation
- European level reporting

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Feasibility of EHES

- Feasibility study in 2006-2008:
  - Feasible in nearly all EU countries
  - Availability of funding is the main obstacle
  - Country contact persons expressed strong demand for Europe-wide standardization – should be set up urgently
  - Proposed the structure for EHES

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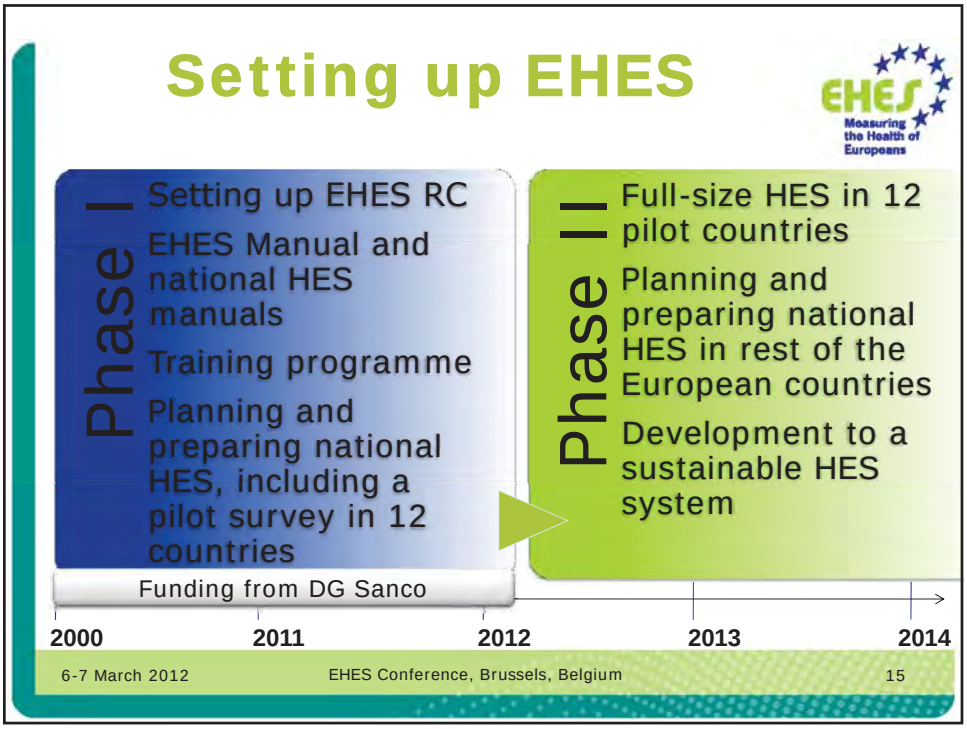
Setting up EHES
Phase I
Setting up EHES RC
EHES Manual and national HES manuals
Training programme
Planning and preparing national HES, including a pilot survey in 12 countries
Phase II
Full-size HES in 12 pilot countries
Planning and preparing national HES in rest of the European countries
Development to a sustainable HES system
Funding from DG Sanco
2000
2011
2012
2013
2014
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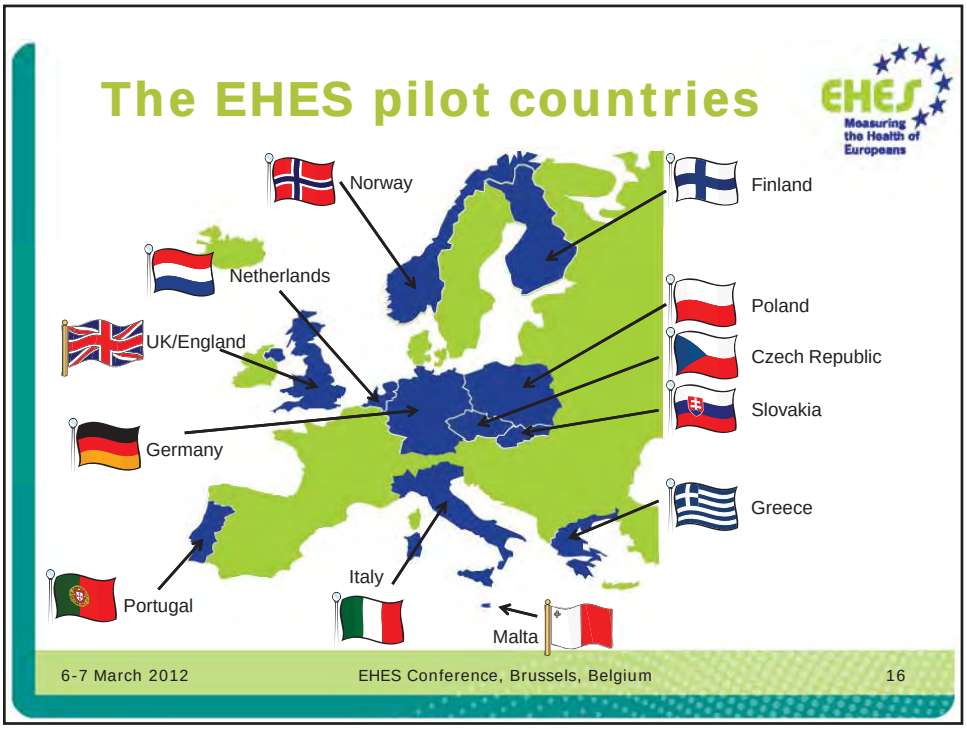
The EHES pilot countries
Norway
Finland
Netherlands
Poland
UK/England
Czech Republic
Slovakia
Germany
Greece
Italy
Portugal
Malta
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Full-size surveys

- Completed or ongoing during Pilot Project in 5 countries: Italy, Germany, Netherlands, Slovakia, UK/England
- Ongoing or planned for 2012-2015 in 10 countries
  - Czech Republic, Greece, Finland, France, Luxembourg, Malta, Norway, Poland, Portugal, UK/England

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Funding of EHES

- Some countries have decided on the funding of their national HES
- For others, partial European funding would lower the threshold for national funding
- Funding of the EHES Reference Centre is open

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What EHES can provide - experiences from the pilot

Kari Kuulasmaa
National Public Health Institutute, Helsinki, Finland

Abstract

This presentation addressed various frequently asked questions on EHES and used the data from the EHES pilot surveys in some of the answers. Key conclusions from the pilot surveys were also presented.

Why the selected measurements

The EHES core measurements were selected because of their public health relevance. They measure important modifiable risk factors of major chronic diseases, which currently cause 86% of deaths in the EU and are major causes of premature death and disability. Monitoring of these risk factors in the population is a prerequisite for focused and efficient prevention of these diseases. Furthermore, these measurements can be administered in and standardized for large population surveys, they are acceptable ethically and to the participants, and their measurement is inexpensive.

Countries can, and do, take additional measurements, such as lung function tests, dental examinations, collect 24h urine etc. Some countries plan to combine their European Health Interview Survey (EHIS) with EHES. Also these additional measurements deserve joint standardization. EHES collects more blood than are needed for the core measurements. This can be used to measure additional biomarkers, including also infectious disease antibodies and biomarkers of environmental exposure.

How about children and the elderly

Inclusion of the elderly is optional in EHES. When they are included, it is advisable to include additional measurements on them, such as functional and cognitive capacity. When elderly persons are included, it is particularly important that institutionalized persons are covered. Otherwise the survey may be strongly biased towards those in good health.
It is equally important to monitor the health and health risks of children as the adults. However, more experience and work on the approaches suitable for child survey will be needed before recommending Europe wide procedures. There are now good experiences from some countries.

Uses of EHES data

The primary use of EHES is to provide an evidence base for policy development and disease prevention. EHES helps to identify the problem areas and changes in them, and will be needed for the evaluation of the policies and preventive actions. Trends in the indicators provided by a health examination survey (HES) will be particularly important.

To meet these needs, EHES needs to have fast basic reporting. Thorough multidisciplinary research is needed to extract the full information relevant to public health out of the data. HESs have traditionally been an important basis for epidemiologic research.

Why HES – why standardization

The EHES pilot surveys are two small and represent too small areas to provide meaningful health indicators. However, the pilot data highlights clearly how

- the subjective self-reported data on weight and height provide strongly biased estimates of obesity compared to the measured values;
- many of those with high blood pressure, high cholesterol or diabetes are unaware of the condition;
- many who report having hypertension and are not under medication have a normal blood pressure.

Careful standardization of the measurements is needed because even small biases in the measurements can correspond to a major public health impact. Therefore, the level of standardization needed for a HES is generally higher than for clinical practice.

Policy relevance of EHES

EHES addresses directly some key policy decisions. The EU's Health Programme 2008-2013 specifies "Seven risk factors -…high blood pressure, high cholesterol, overweight… account for 60% of DALY's." "It is essential to systematically collect, process and analyze comparable data". EHES is also very relevant for the European Innovation Partnership on Active and Healthy Ageing. In the political declaration of a High-level meeting of the United Nations in September 2011, Countries committed to "Strengthen country-level surveillance and monitoring systems, including surveys that … include monitoring exposure to risk factors, outcomes, social and economic determinants of health … recognizing that such systems are critical in appropriately addressing non-communicable diseases." The WHO/Euro: Action plan for the Strategy for the Prevention and Control of Noncommunicable Diseases (NCD) 2012-2016

emphasizes the importance of a monitoring system for NCD risk factors.

Conclusions from the EHES pilot surveys

In the EHES Pilot phase, which is now ending, 12 countries have been successfully standardized for EHES. These are confident to start a full-size national HES. There are also some other countries preparing to start a HES within two years using the EHES procedures. It became obvious that the EHES measurements are easier to standardize than the questionnaire items. The difficulty with the questionnaire items relates to the different languages and cultures. Furthermore, the measurement procedures of the counties with earlier surveys were close to the EHES procedures, whereas there were bigger differences in the questionnaires used in the earlier surveys.

Individual based sampling frames were available in ten pilot countries, and two countries used household sampling. However, the address information was not up-to-date in some countries, and therefore there was varying difficulty in contacting those selected to the samples.

The sharing of experiences between the piloting countries helped to find innovative approaches for improving participation rates. Nevertheless, achieving a high participation continues to be a challenge in all countries.

Summary of the discussion

There is evidence that the differences between self-reported and measured height, weight and health problems vary depending on country, socioeconomic status and time. Experience from UK/England shows that the proportion of persons who refuse height and weight measurements is getting higher, and obese persons may more often refuse the measurements.

HES makes it possible to collect DNA, which will be used for basic research, not for public health purposes. The opportunity to collect the samples in HES can be used for the benefit of the research community. Giving consent to use one's samples for genetic research is voluntary as all HES measurements are voluntary. The use of a centralized European biobank and collaboration between national biobanks will be evaluated later in EHES. The recommendation of BBMRI (Biobanking and Biomolecular Resources Research Infrastructure) is to create a distributed infrastructure with standardized biobanks in each country.

It is ofter difficult in organize and get funding for several different surveys (EHIS, EHES, biomonitoring, nutrition etc.). Several aims can be addressed in one survey, but it is recommended to expand the surveys with small steps.

A large survey with many measurements is challenging. A modular structure may be used, adding e.g. a module on environmental factors and/or nutrition into the EHES core survey.

As the EHES pilot results are based on small, unrepresentative samples of one or few areas in each country, the EHES Reference Centre (RC) has not reported pilot results by country. The pilot results show e.g. differences in the mean values between different pilot areas, but the results not represent the countries. The countries are responsible for the national reporting, and the data from five full-size surveys can be used for more detailed comparisons. The EHES RC will publish recommendations on how to calculate the national estimates. The estimates will be standardized for age and sex. The aim is to provide results by regions and socioeconomic groups, but this is not possible with the small pilot samples.

Effect of non-response to the results was also raised up. It was argued that non-response is a different issue for prevalence estimates and for analyzing trends.

In many countries the national HES can provide national reference values or reference data for epidemiological studies. The role of HESs in health monitoring and in providing data for scientific research may vary between countries. The experience from countries with previous HESs have shown that politicians do not actively ask for the information which a HES can provide, but once they see the information they become interested. The important role of media should not be forgotten when raising the political interest on HES results. The burden of disease calculations and health impact assessment are done in many countries and these require reliable data, which HES can provide.

The core of the HES should be based on public funding (e.g. from the health ministry or the budget of the national public health institute) with the main aim in risk factor monitoring and policy evaluation. Additional modules may be funded from different sources.


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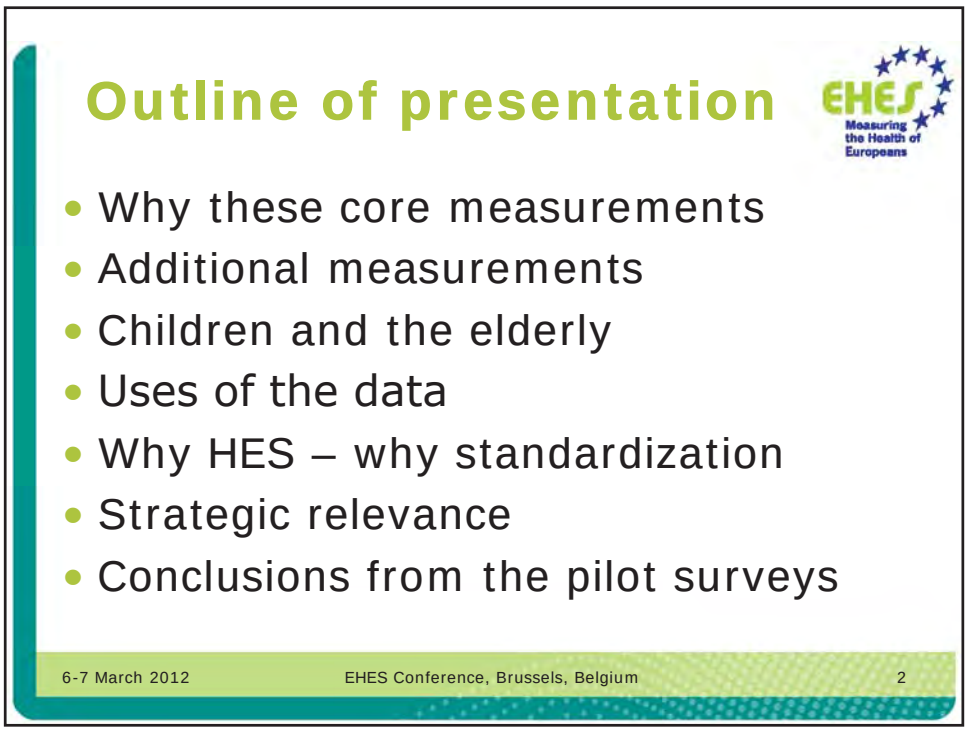
What EHES can provide
Kari Kuulasmaa
EHES Reference Centre
National Institute for Health and Welfare (THL), Finland


Outline of presentation
EHES
Measuring the Health of Europeans
Why these core measurements
Additional measurements
Children and the elderly
Uses of the data
Why HES – why standardization
Strategic relevance
Conclusions from the pilot surveys
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Core measurements

Examinations	Questions

• Height
• Weight
• Waist circumference
• Blood pressure
• Blood samples for
  • Total cholesterol
  • HDL cholesterol
  • Fasting glucose or HbA1c
	• Age and sex
	• Education
	• Occupation/income
	• General health
	• CVD
	• Hypertension
	• Hyper/dyslipidemia
	• Diabetes
	• Smoking

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Why these core measurements

- Major chronic diseases:
  - cause 86% of deaths in EU
  - are major causes of premature death and disability
  - Cardiovascular diseases alone cost €192 billion a year in EU (2006). 57% of this are direct health care costs.
  - Important to prevent for healthy work force and healthy ageing
- Key preventable risk factors:
  - High blood pressure, unfavourable blood lipid composition, high blood glucose, obesity and smoking

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EHES core measurements

- Can be standardized for population surveys
- Clear interpretation of results
- Can be administered in the survey setting
- Acceptable to the participants
- Ethically acceptable
- Reasonable cost

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Beyond core measurements

- EHES is a vehicle for nationally representative adult population surveys
- Can add measurements of national and/or wider interest
  - but don't add too much
- Desire for joint standardization

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Potential additional measurements

- Lung function test
- Physical function test
- Vision and hearing tests
- Cognitive function test
- ECG
- Bone density
- Dental examination
- 24 h urine for sodium intake
- others
- Full EHIS questionnaire
- Physical activity
- Alcohol consumption
- Use of health care services
- Social support
- Fruit and vegetable consumption
- Comprehensive dietary questionnaire

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Additional analyses of blood samples

- HbA1c
- Triglycerides
- Apolipoproteins A1 and B
- DNA
- Biomarkers of environmental exposure
- Infectious disease antibodies
- others

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Extending age range

- Elderly
  - Currently optional
  - Institutionalized persons important
- Children
  - Good experience from some countries
  - International standardization requires further work

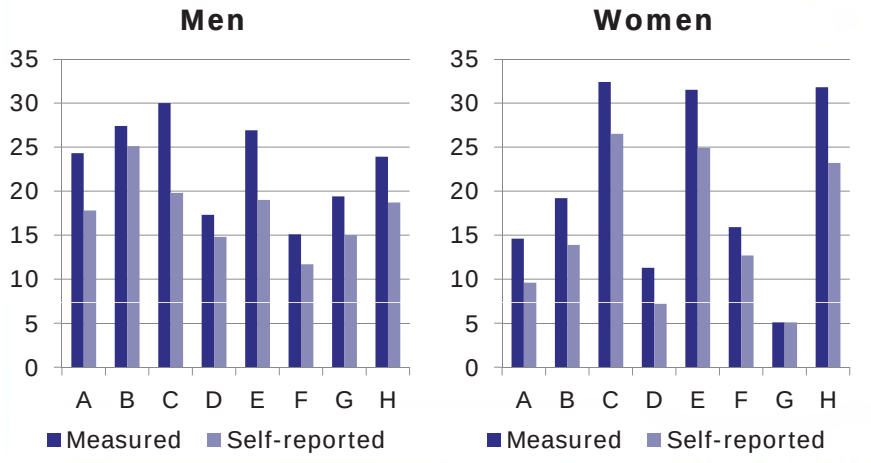
Uses of HES data

- Fast basic reporting
- Policy development and disease prevention:
  - To identify the problems
  - To evaluate policies and preventive actions
- Research
  - For extracting full information out of the survey for public health
  - Epidemiologic research

WHY HES?

- All know their weight and height – why to measure
  - Or do they?

Obesity (%) in EHES pilot surveys



WHY HES?

- You get prevalence of hypertension from interview surveys
  - Or do you?
- You might get blood pressure values from health service databases
  - But they don't represent the whole population
  - The measurements are not standardized

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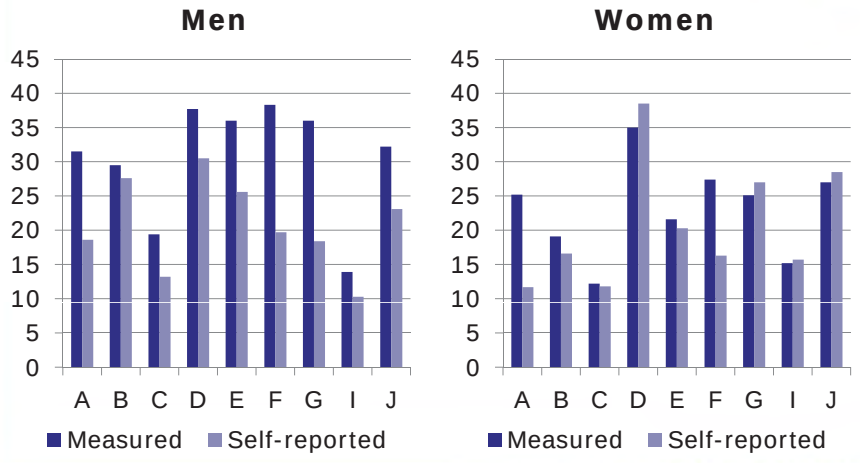
Hypertension (%) in EHES pilot surveys



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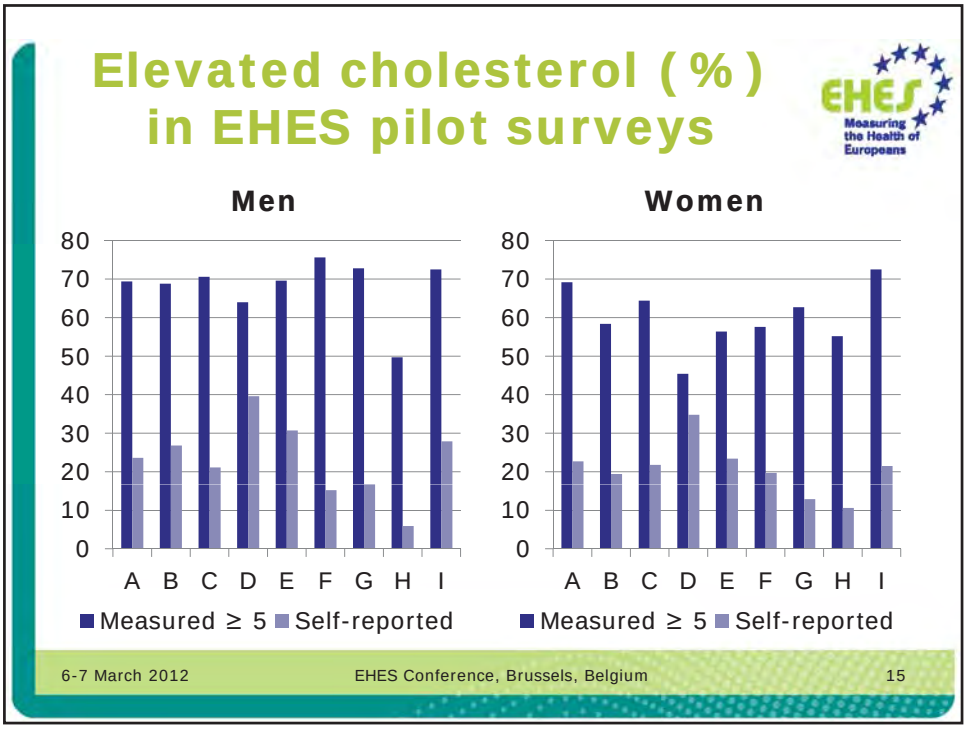
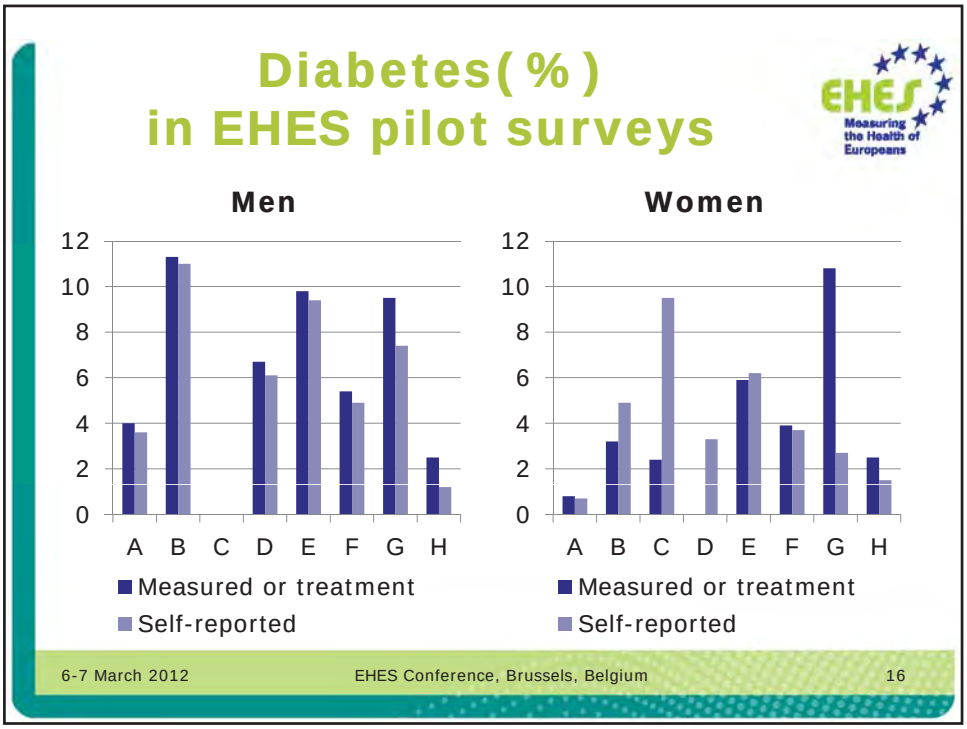

Elevated cholesterol (%)
in EHES pilot surveys
Men
Women
80
70
60
50
40
30
20
10
0
A B C D E F G H I
Measured ≥ 5
Self-reported
6-7 March 2012
EHES Conference, Brussels, Belgium
15


Diabetes(%)
in EHES pilot surveys
Men
Women
12
10
8
6
4
2
0
A B C D E F G H
Measured or treatment
Self-reported
6-7 March 2012
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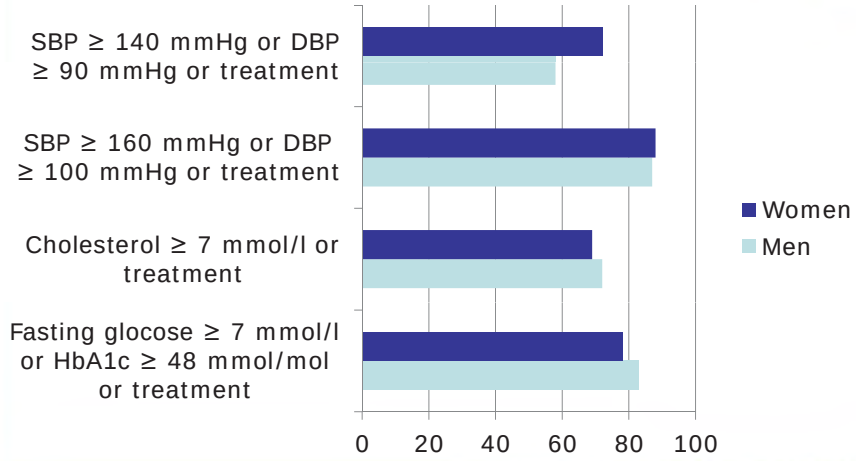
Awareness (%) among those with high blood pressure, high cholesterol or diabetes



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Why standardization

Risk factor	Change	Chance in CHD incidence
DBP	2 mmHg	8 %
SBP	2 mmHg	4 %
Total cholesterol	0.2 mmol/l	8 %

Source: Beaglehole and Dobson in Coronary Heart Disease Epidemiology (eds. Marmot and Elliott), Oxford University Press, 2005

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Strategic relevance - EU

- EU's Health Programme 2008-13:
  - "Seven risk factors -…high blood pressure, high cholesterol, overweight… account for 60% of DALY's"
  - "It is essential to systematically collect, process and analyze comparable data"
- Europe 2020 flagship initiatives
  - Innovation Union
    - Active and healthy ageing

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Strategic relevance – UN and WHO

- UN: Political declaration of High-level meeting 2011:
  - Countries committed to "Strengthen country-level surveillance and monitoring systems, including surveys that … include monitoring exposure to risk factors, outcomes, social and economic determinants of health … recognizing that such systems are critical in appropriately addressing non-communicable diseases."
- WHO/Euro: Action plan for the Strategy for the Prevention and Control of NCDs 2012-2016:
  - Emphasizes the importance of a monitoring system for NCD risk factors.

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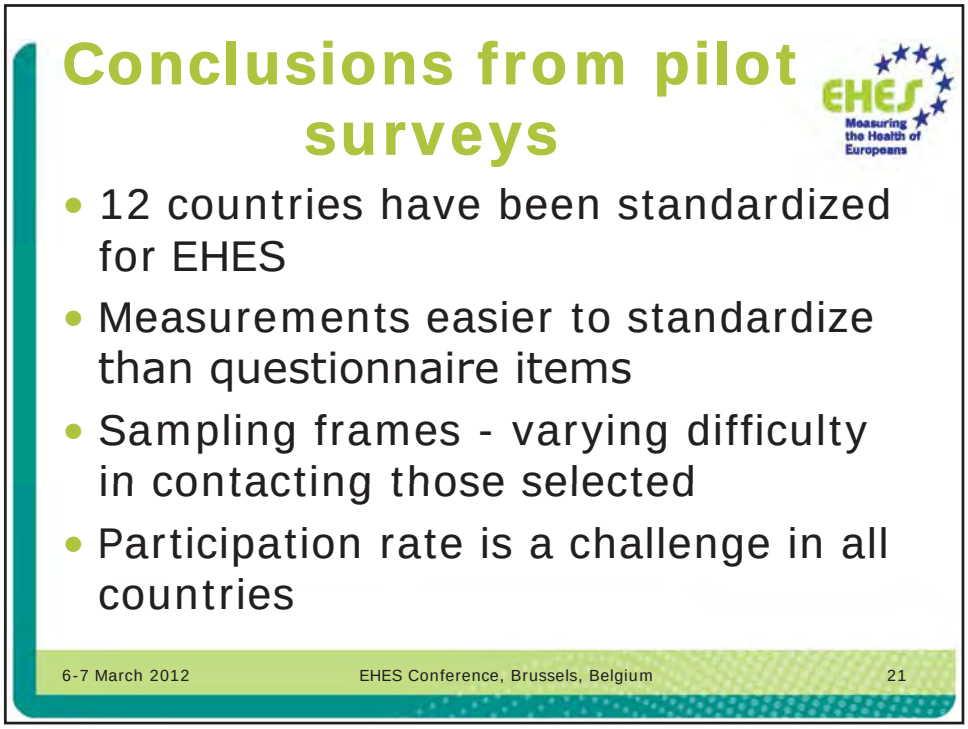
Conclusions from pilot surveys
EHES
Measuring the Health of Europeans
• 12 countries have been standardized for EHES
• Measurements easier to standardize than questionnaire items
• Sampling frames - varying difficulty in contacting those selected
• Participation rate is a challenge in all countries
6-7 March 2012
EHES Conference, Brussels, Belgium
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Health examination surveys in Italy. Why and for what?

Donato Greco
Istituto Superiore di Sanità, Rome, Italy

Abstract

The first national HES project , the CUORE Project, was launched in 1998 by the Italian Ministry of Health and coordinated by the National Institute of Health (ISS), Unit of Epidemiology of Cardiovascular Diseases (Head of Unit S. Giampaoli) of the National Centre of Epidemiology Surveillance and Health Promotion (CNESPS) with the following aims:

1. implement a surveillance system of coronary and cerebrovascular events (National Population-based Register of coronary and cerebrovascular events);
2. describe the risk factors in the Italian population (Cardiovascular Epidemiology Observatory/Health Examination Survey - OEC/HES);
3. evaluate cardiovascular risk of the Italian adult population.

Detailed information of this project are reported in http://www.cuore.iss.it.

The OEC/HES, represents the major source of information for CVD risk factors at national level, prevalence of high risk conditions and of CVD and other chronic degenerative diseases thanks to the exam of the adult general population and the adoption of standardized methodologies and procedures in data collection and measurements. The first OEC/HES was conducted between 1998 and 2002 and examined 4908 men and 4804 women, ages 35-74 years, in 52 centres homogeneously distributed throughout the Italian territory. In 2008, a new survey was launched and is still ongoing.

To assure data completeness and reliability, the results are supplemented by information collected periodically by the Italian Institute of Statistics through

health interview surveys (HIS), and compared with more objective data coming from cancer registers or routine statistics in order to develop an increased investment in health promotion, prevention, rationalization on health care and expenditure, thus providing a powerful framework for a rational policy decision-making process.

Another programme linked to the European programme "Gaining health" and the National Plan for Prevention is the "Okkio alla Salute - Promotion of healthy lifestyle and growth in primary school children-" survey (http://www.epicentro.iss.it/okkioallasalute/) launched in October 2007 by the Ministry of Health and coordinated by the ISS, Unit of Woman child and adolescent health (Head of Unit A. Spinelli) of the CNESPS. This project is aimed to estimate the prevalence of overweight and obesity in children and to collect information on diet and physical activity.

The OEC/HES, in cooperation with other surveillance systems periodically conducted, such as the Health Interview Survey and the 'PASSI'(www.epicentro.iss.it/passi/) health interview survey for self-perception of health status, the aforementioned 'Okkio alla Salute' survey, the longitudinal studies of the CUORE Project and the Register of Coronary and Cerebrovascular Events for evaluating temporal trend in the occurrence of cardiovascular disease, provides a complete picture of trends, high risk conditions and risk factors in the Italian general population.

il progetto cuore

Osservatorio Epidemiologico Cardiovascolare
Health Examination Survey 2008 -2011

Why and for what the HES in Italy?

Brussels

EHES
Measuring the Health of Europeans

Italy : 21 autonomous Regions federation

In Italy the National Statistics Institute perform periodical national health information survey HIS (www.istat.it)

Then there is a myriad of National, subnational, federal , regional, subregional, provincial, local, multilocal **HIS**

There are also a lot of surveys with some measurements : clinical, antronopometric , biological, genetic, molecular , social…….. HES
Local interest, poor sampling, unstandardized , unvalidated……

Large absence of nationwide representative reliable Examination based data.

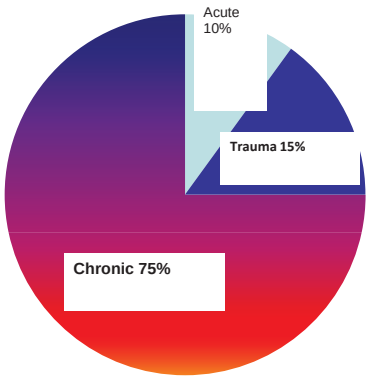
We are 60 millions

We spend 140 Billions € /year for health

12 million Hospital admissions every year

We have ½ million deaths annually

Of what we suffer



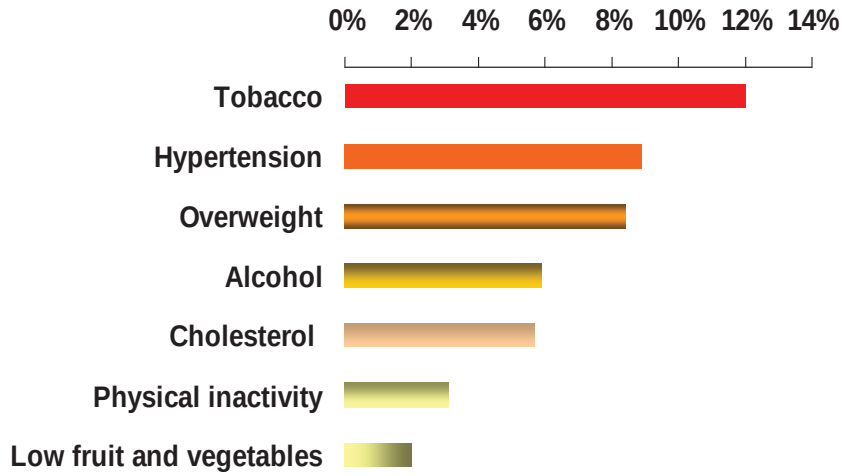
What determinants for crhonic diseases ?

- Smoking
- Alcool
- Sedentarety
- Incorrect diet

Justify 80% of etiology

All preventable factors !!

Attributable risk in Daly (Italia 2000)



WHO 2005

The national Prevention plan 2006-8

- Cardiovascular risk
  - Cardiovascular risk chart
  - Obesity prevention
  - Diabetes management
  - Secondary prevention of cardiovascular events
- Cancer
  - Breast Cancer screening
  - Cervix cancer screening
  - Colorectal screening
- Accidents
  - Workplace prevention
  - Road accidents prevention
  - Home accidents prevention
- Vaccinations
  - The vaccine info system
  - Risk groups vaccinations
  - Improving active vaccine offer

1.320 M€

Dedicated

CCM

To certify performance

Duties (Stewardship ?)

CCM (center for Disease Control Italy) : Adressing, coordinating, evaluating

guidelines

support

timetable

certification

Regions: planning and performing

Development plan

1. Planning
2. Projects
3. Realization
4. Performance

EVALUTATION and CERTIFICATION

- Is the plan adequate anfd realistic? Is there a timetable?
- Plans activities are completed or in evolution ?
- Health outcomes are being evaluated ?

We already have :Passi : Italian HIS

- Natiowide periodical phone interviews to a significant adult population sample.
- Performed by the 143 local health units
- In 2011 15.172 interviews
- A dedicated system for Children : OKKIO

data on :

www.epicentro.iss.it

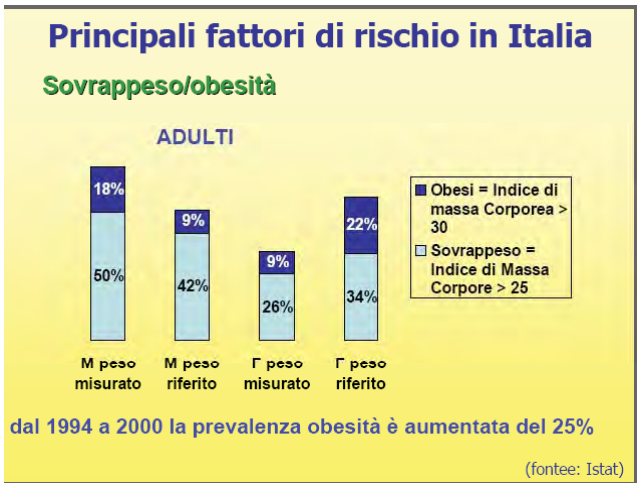
il progetto cuore

Osservatorio Epidemiologico Cardiovascolare
Health Examination Survey 2008 -2011

14 Regions – 2970 men and women ages 35-79 years
Prevalence (%) of BMI (kg/m²)

	Men		Women	
	Measured	Self-reported	Measured	Self-reported
25<=BMI<30	48	48	34	31
BMI>=30 obesity	26	18	25	17
BMI>=25 overweight	73	66	59	48

EHES



Then

Why and for what the HES in Italy?

- To validate HIS Passi informations
- To add biological information (glucose, cholesterol…)
- To evalutate the impact of Prevention Plan
- To offer to the local regions informations on their risk distributions.

National Prevention Plan 2005-2008

CVD risk assessment

GPs associations: SIMG, SNAMID, METIS

- Risk score software *cuore.exe*
- GPs training programme
- Cardiovascular Risk Observatory

Prevention of recurrent events

Cardiologists associations: FIC, SIC, ANMCO; neurologists; GPs associations: SIMG, SNAMID, METIS

- CHD (hospital discharge letter, disease management of heart failure)
- Stroke (organization of stroke units)

il progetto cuore

www.cuore.iss.it

Il Progetto CUORE 1998-2010

Supported by the Italian Ministry of Health and coordinated by the Italian Institute of Health - 1998

Aims

1. To implement a surveillance system of coronary and cerebrovascular events
2. To describe risk factors
3. To evaluate CVD risk of the Italian adult population

4. To train GPs on use and application of risk assessment
5. To explain the decline in CHD mortality
6. To update the Italian risk score and charts

il progetto cuore

CHALLENGES

- ORGANIZATION AT CENTRAL AND LOCAL LEVEL

- TRAINING PROGRAMME

- PARTICIPATION RATE

- COLLABORATION WITH HEALTH CARE PROFESSIONALS

- BUDGET

EHES Measuring the Health of Europeans

il progetto cuore

OEC/HES

1998-2002 9,712 persons ages 35-74 years

2008-2012 9,020 persons ages 35-79 years

- **Questionnaire** (physical activity, smoking habit, food frequency (EPIC), medical history, medications, family history of CVD)

- **Blood Pressure** (3 measurements) and pulse rate

- **Anthropometric Measurements** (weight, height, waist & hip circumferences)

- **ECG,** bone densitometry, spirometry, carbon monoxide

- **24 h urine collection** (sodium, potassium, iodine, creatinine, microalbuminuria)

- **Blood tests** (triglycerides, total & HDL cholesterol, fasting blood glucose, creatinine, complete haemachrome)

-**MMSE**: cognitive test ≥65

-**ADL-IADL**

EHES Measuring the Health of Europeans

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ORGANIZATION

Transfer equipment

Transfer the biological samples to the central laboratory and to the CNESPS biobank

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SUSTAINABILITY

Involve local personnel and maintain the quality control during the screening period

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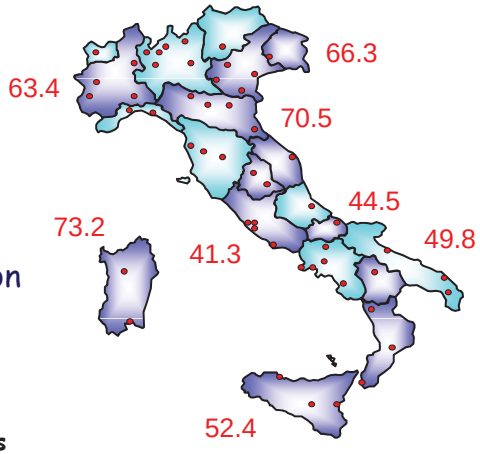
PARTICIPATION RATE



Participation Rate (%)

35-79 years

EHES Measuring the Health of Europeans

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PARTICIPATION RATE

Migrants are 5-10% of the sample

EHES Measuring the Health of Europeans

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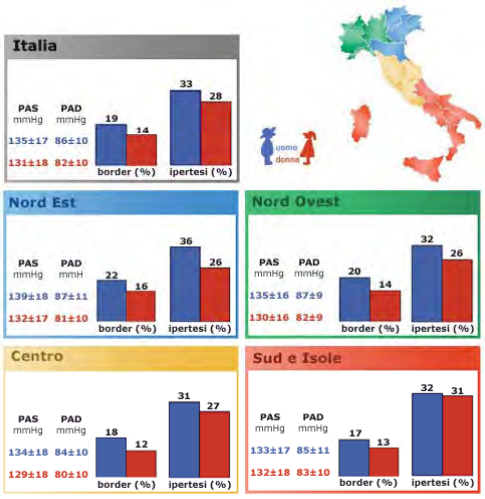
Site-Visit in **Brescia**

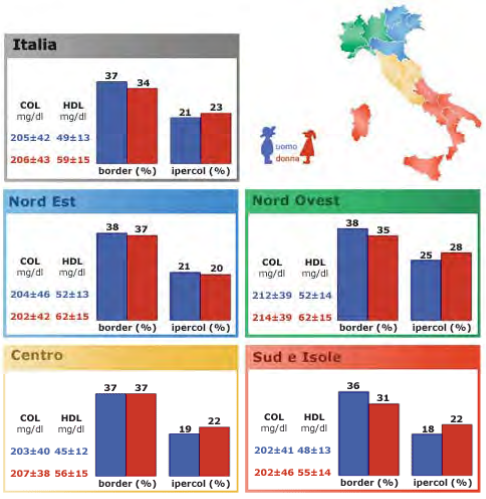
24 - 25 May 2011

EHES Measuring the Health of Europeans

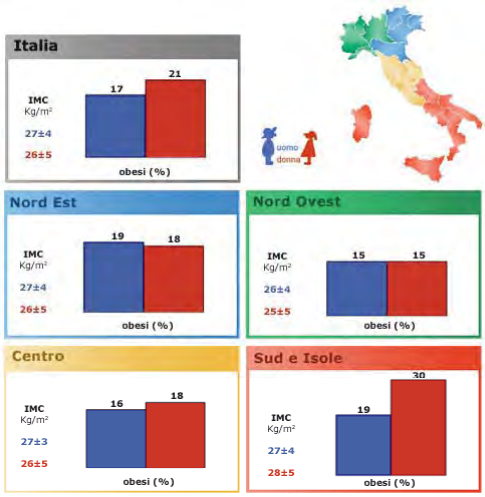
Blood pressure



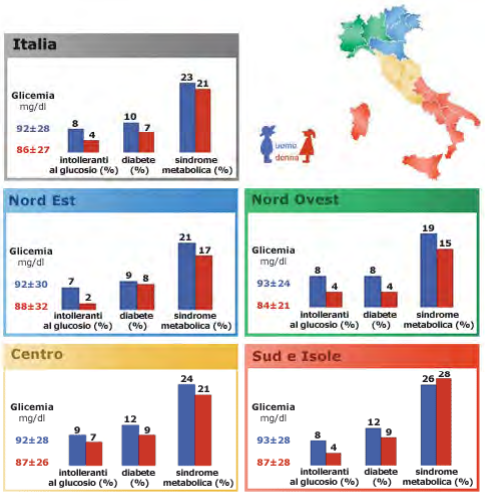
Cholesterol-HDL

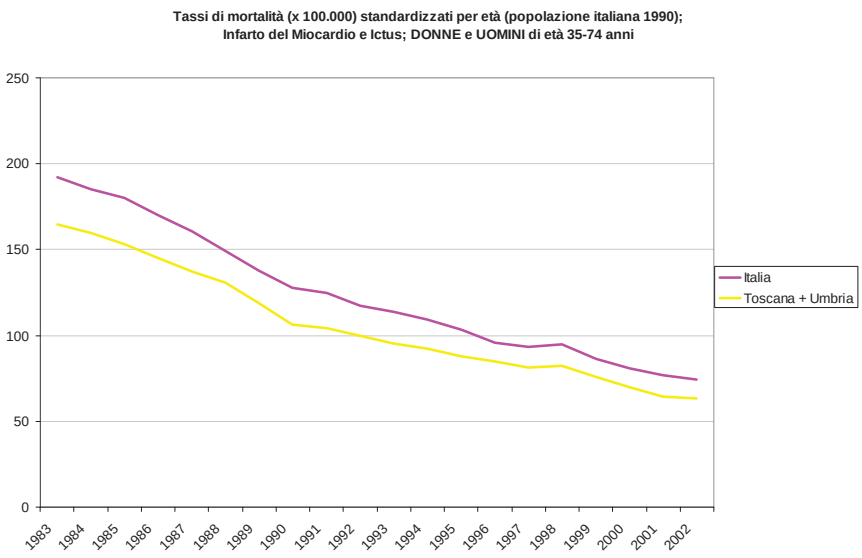


Body mass index



Glucose, Diabetes metabolic syndrome





Ministero della Salute

JULY, 2009

Official agreement reached for reformulation of the salt content of bread (approximately 15% reduction in two years) between Italian Ministry of Health and the main bakers' associations

guadagnare salute
rendere facili le scelte salutari

40 years of health examination surveys in Finland

Pekka Purksa
Director General, National Institute for Health and Welfare, Helsinki, Finland

Abstract

Building of modern health monitoring with repeated population surveys in Finland was much linked with building national prevention of cardiovascular and other chronic diseases (NCDs), with the start of the North Karelia Project in 1972. The baseline survey of that project formed the start of cross sectional health examination surveys ("FINRISK" surveys) that have been repeated since then every five years using cross sectional random population samples in different areas of Finland. Another major issue for the implementation of the surveys was transformation of the national public health laboratory to a modern national public health institute in 1978 (KTL, later THL), and it has since been the institutional base for the national health monitoring in Finland.

The national health monitoring, and especially the population based information on trends of health behaviour and risk factor levels, has been a very strong tool for national health policy and many national health programmes. It has served planning and evaluation of such activities, national health education and media advocacy work, and as rich source for scientific studies. The monitoring system has been one of the most important corner stones for the great success in national NCD prevention in Finland.

Pekka Puska
Director General
National Institute for Health and Welfare (THL)
Vice Precident, Int. Ass. of National
Public Health Institutes (IANPHI)

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40 YEARS OF HEALTH EXAMINATION SURVEYS IN FINLAND

EHES Conference
Brussels 6.3.2012

GREETINGS FROM FINLAND

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Historically in Finland

- Building up of modern health monitoring was much linked with building national prevention on cardiovascular and other chronic (NCD) diseases (esp. start of the North Karelia Project in 1972)
- Transformation of national public health laboratory to a modern national public health institute (1978 KTL and later THL) to serve as institutional base for national health monitoring

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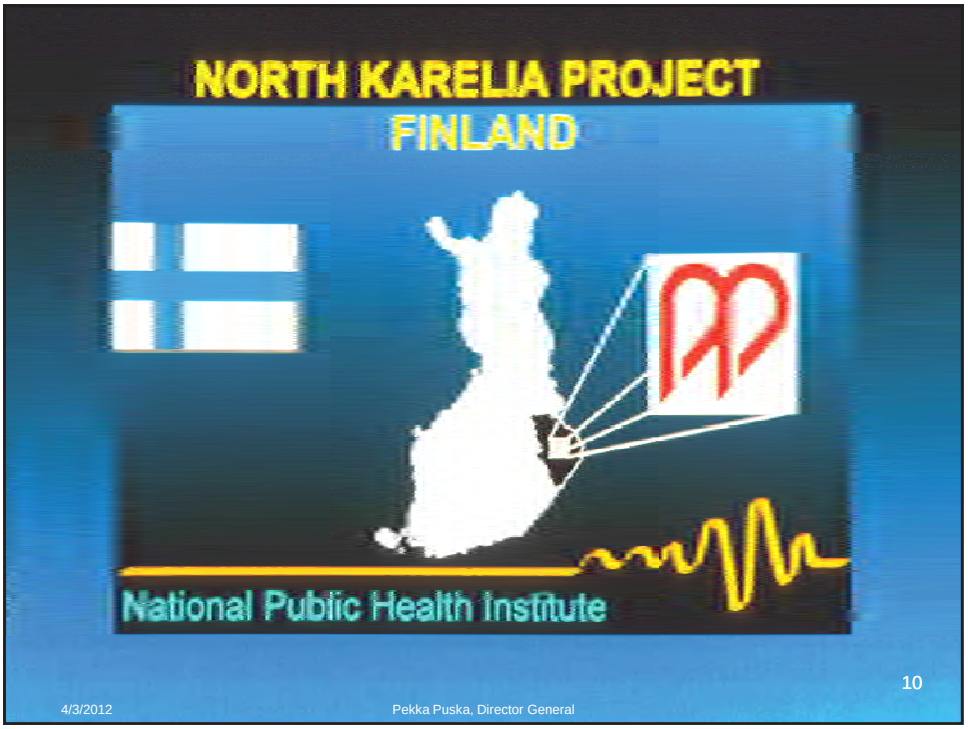

10

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CONCEPTS

- MONITORING
- SURVEILLANCE
- EVALUATION
- EVALUATIVE RESEARCH

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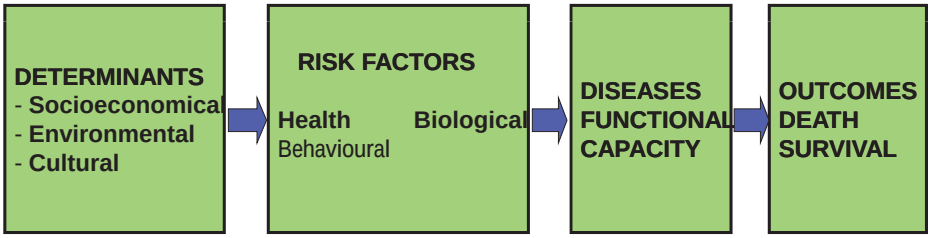
MONITORING AT DIFFERENT LEVELS



HEALTH PROMOTION

PREVENTION

TREATMENT SECOND PREVENTION

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HEALTH MONITORING AT THL: TARGETS AND INSTRUMENTS

TARGETS	INSTRUMENTS
Infectious diseases	Infectious disease surveillance
Chronic diseases	Registers and statistics
Functional capacity and subjective health	Health 2000
Risk factors	Finrisk surveys
Nutrition	Findiet surveys
Health behaviour and health promotion	Health behaviour monitoring

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SOURCES OF DATA FOR MONITORING

- STATISTICS (DEATHS etc.)
- HEALTH SERVICE DATA (PATIENTS, LABORATORY, etc.)
- NOTIFICATION (INFECTIOUS DISEASES)
- REGISTRATION (CANCER REGISTER etc.)
- SURVEYS
  - INTERVIEWS (PERSONAL, TELEPHONE, MAIL)
  - MEASUREMENTS

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Repeated cross sectional population surveys as important instruments in health monitoring

Health behaviour, subjective health } Health interview surveys

Biological risk factors
Prevalence of diseases
Functional capacity
} Health examination surveys

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EXAMPLES OF MONITORING RESULTS AT THL

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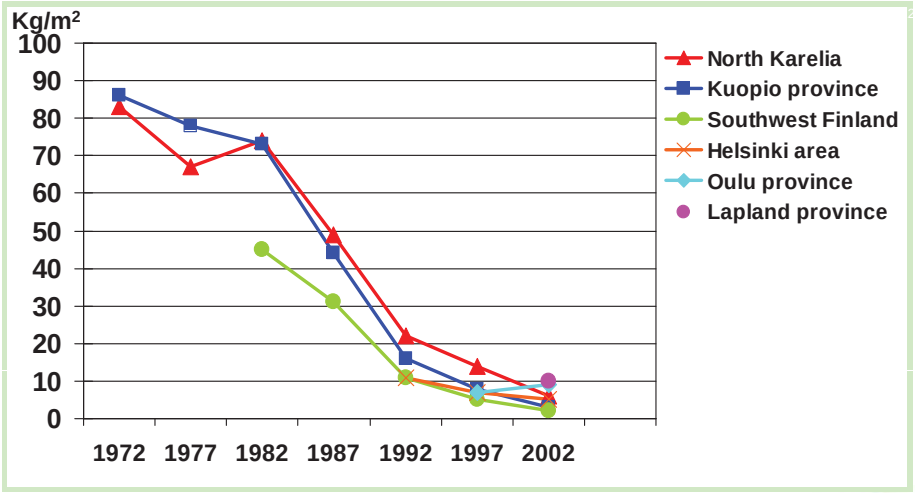
Use of Butter on Bread (men age 30–59)



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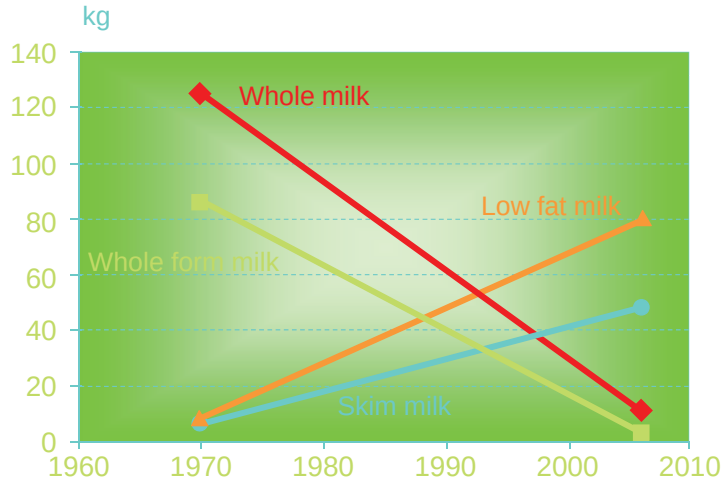
Milk Consumption in Finland in 1970 and 2006 (kg per capita)



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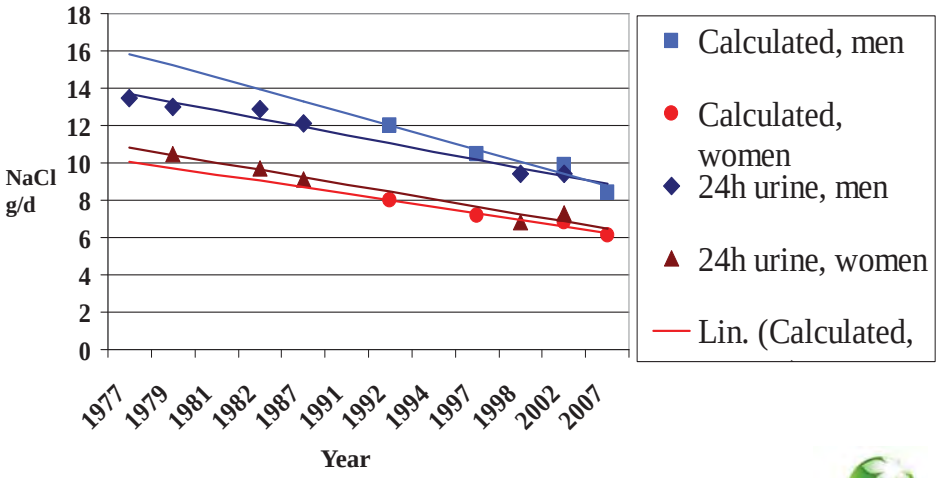
SALT INTAKE IN FINLAND 1977–2007



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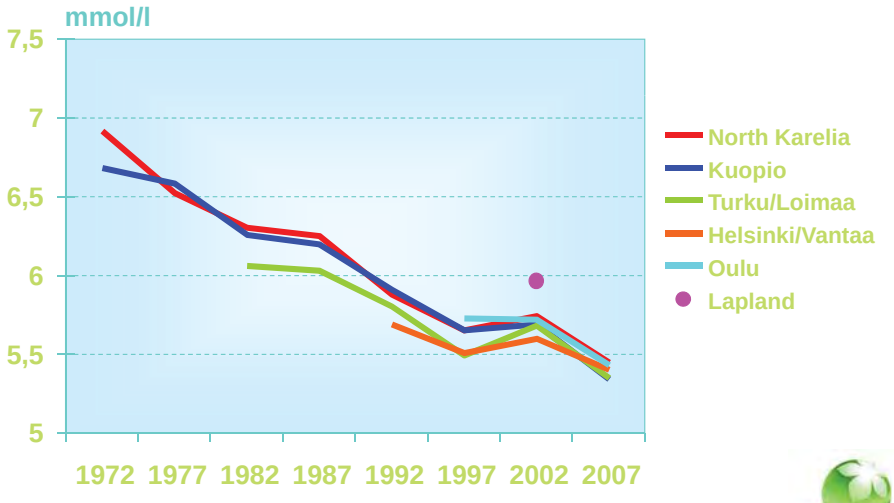
SERUM CHOLESTEROL IN MEN AGED 30–59 YEARS



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FINRISK Studies 1997 & 2002 Pekka Puska, Director General

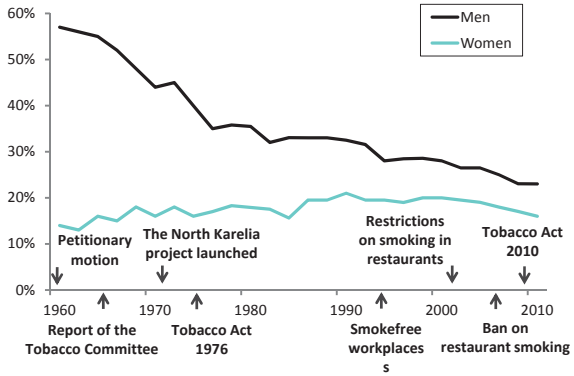

Figure X. Prevalence of daily smoking in Finland in 1960–2010 and selected tobacco control actions.

Sources: National Institute for Health and Welfare, Health Behaviour and Health among the Finnish Adult Population –studies 1978–2010; Leppo & Vertio (1986).

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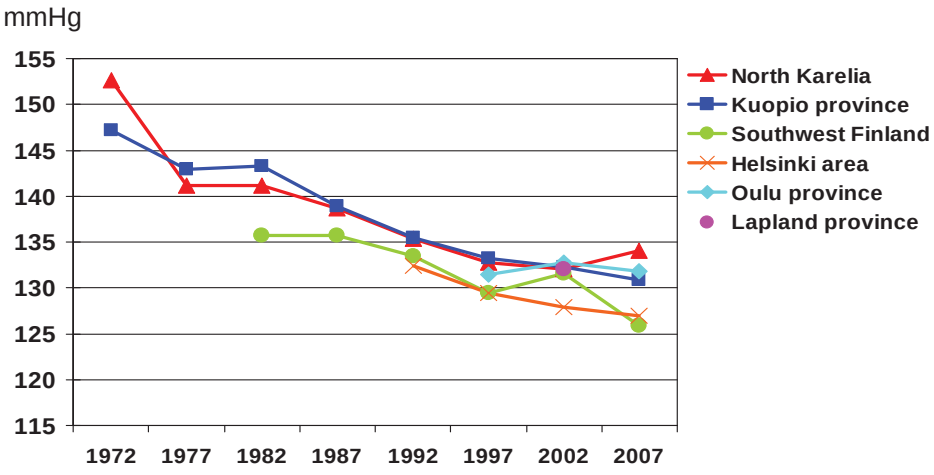
Systolic blood pressure in women (30–59 y)



North Karelia project evaluation and FINMONICA and the National FINRISK Studies 1972 - 2007

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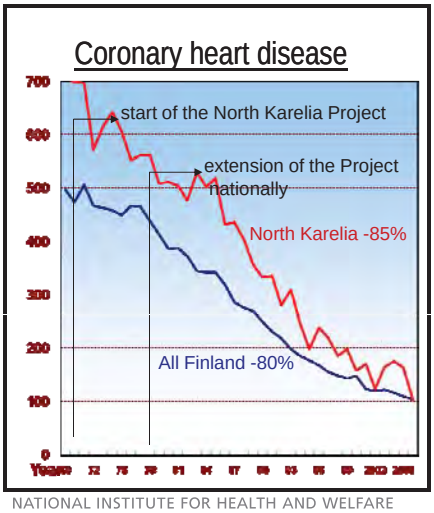
Pekka Puska, Director General

Change in age-adjusted mortality rates

Finland, males aged 35–64 (per 100 000 population)



	Rate per 100 000		
	1969-1971	2006	Change from 1969-1971 to 2006
All causes	1328	583	-56%
All cardiovascular	680	172	-75%
Coronary heart disease	489	103	-79%
All cancers	262	124	-53%

Gain of some 10 healthy years in Finnish population

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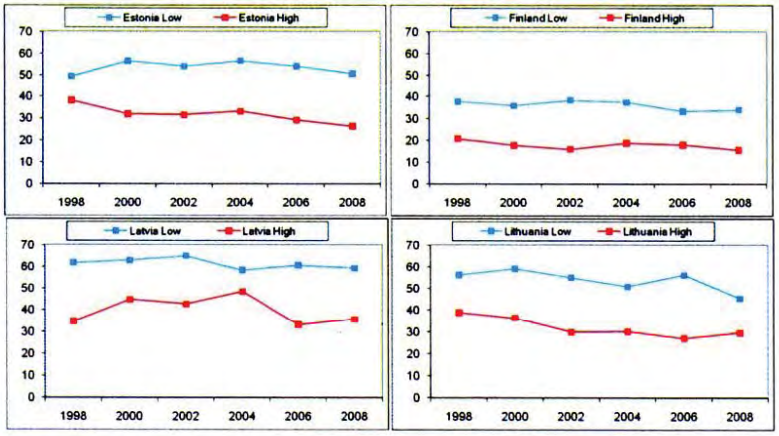
Trends of age-standardized prevalence of daily smoking among men from 1998 to 2008 by educational group (%).



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STANDARDIZATION OF MEASUREMENTS

- **WITH TIME**
- **BETWEEN AREAS / COUNTRIES**

- **INTERNATIONAL RECOMMENDATIONS (WHO EU projects etc.)**

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SURVEILLANCE / HEALTH MONITORING

- **STRONG TOOL OF NATIONAL PUBLIC HEALTH**
- **VITAL FUNCTION OF ANY NPHI**
- **NCD MONITORING OF INCREASING IMPORTANCE**

(WHO: NCD strategy,

UN: Political declaration)

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Cornerstones of NCD prevention and control (WHO global strategy)

- Attention to behavioural risk factors
  - Tobacco use
  - Unhealthy diet
  - Physical inactivity
  - Harmful use of alcohol
- Monitoring and surveillance of
  - Risk factors and diseases
  - Preventive actions
- Redirection of health services
  - Prevention
  - Chronic care model

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European health monitoring

- A cornerstone for EU public health policy
- Population surveys a key component for public health monitoring
- Surveys/monitoring of determinants/risk factors vital for preventive policies and programmes
- Strong institutional base (national institute) important for sustained monitoring and use of monitoring results (in close collaboration with MoH)
- Collaboration between national institutes and EU/Sanco needed for successful European health monitoring

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03/04/2012 Pekka Puska, Director General 24

Thank you

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New health examination survey in Slovakia

Eleonóra Fabiánová
Regional Authority of Public Health in BanskáBystrika, Slovak Republic

Abstract

Considerably high premature mortality and incidence rates of cardiovascular, oncological and other non-communicable diseases in adult men and women in Slovakia require harmonised fight against their preventable risk facors. The medical approach has to be „to know and to solve".Good scientific arguments are required to start with the health promotion activities and to reach broad acceptance at professional level and in the general public. To solve the problems with gaps in the knowledge about health status of the adult population, reliable information on medical causes of illness and exposure or risk factors are needed. Major chronic diseases are preventable through their risk factors such as tobacco smoking, high blood pressure, blood cholesterol composition, obesity, lack of physical activity. European health examination survey (EHES) offered the way how to collect nationally representative, comparable and high quality health data of adults to reach knowledge level adequate to solve the cumulated health problems.

Slovakia has a long tradition in implementing the WHO Countrywide Integrated Noncommunicable Disease Intervention (CINDI) programme. This involved four population health examination surveys (HES), but only at the regional level in the years 1993- 2008. Some informative data on health risks have been collected in the framework of the case- control cancer epidemiological studies performed in cooperation with IARC. Another good source of data could be periodic health examinations offered to all inhabitants every 2 years and coverd by health insurance. However, these data and other data obtained in health care settings or in the advisory rooms of Regional Institution of Public Health are not collected and not managed in representative, comparable form.

The need for objective data on the health of the population of the whole country had led to participation in the European Health Examination Survey (EHES) project. An EHES pilot survey was carried out in November-December 2010 by the Regional Authority of Public Health (RAPH) in Banská Bystrica. In the randomy selected sample of 250 persons 136 (54,4%) participated. The low participation rate was the main problem of the pilot study. A press conference was organised and the project was announced in the local press before starting of the pilot study. Participants were motivated by an invitation letter, a colourful leaflet and a small present. Home visits for the recruitment were not accepted by the invitees. Another problem was deviations from the standard measurement procedures, which were observed during the fieldwork. The pilot study confirmed the need for retraining of the personnel even though they had previous experience. A full-size national HES was prepared and started with its 1st phase at the end of the year 2011. This survey was funded by the Ministry of Health of the Slovak Republic – in the frame of preventive programme on cardiovascular diseases (Slovak Heart Foundation). Partial contribution was from the involved RAPHs (staff, travel expenses, communication.) The national HES is coordinated by the RAPH in Banská Bystrica and has been carried out in close cooperation with all 36 RAPHs in the country and with the Slovak Society of Cardiology. The national study is guaranteed by the Chief Hygienist, National Public Health Authority. A sample of 4000 persons was selected from the Central population registry of the Slovak Republic. The sampling procedure was discussed with Statistics Norway. The fieldwork was carried out by the health personnel of the 36 RAPHs. They are experienced in working in the field for counseling and health promotion. They were trained for the HES by the national coordinator. The questionnaire with the core questions of EHES was used with added questions on diet, physical activity and stress. The physical examinations included the measurements of blood pressure, height, weight and waist circumference. Total cholesterol, HDL cholesterol, glucose and triglycerides will be measured from the blood samples in one certified laboratory. The national HES is in process and the activites are scheduled to be finalized in April 2012. The vision of the 2nd phase of the national HES was prepared. The attempt will be to cover the whole country, it means to enlarge the HES to all 40 remaining districts in the country (76 districts have to be covered). The financing of the full-range project is still not available. We hope it will be managed on the EU level. The methodology and the gathered experiences will be spread out to the peers - medical professionals- in the final part of the common European programme.

NEW HEALTH EXAMINATION SURVEY IN SLOVAKIA

Eleonóra Fabiánová, M.D., PhD.
Regional Authority of Public Health in Banská Bystrica

European Health Examonation Survey Conference
Monitoring the Health of Europeans
6-7 March 2012, Brussels, Belgium

Contents

- Why health examination?
- Collection of health data in country and public health needs
- Former health examination surveys in Slovakia
- Why Slovakia started national health examination survey?
- What is expected from the NHES?

Why and how health examination ?

- **Because of medical logic - to know and to solve**
- **To obtain convincing arguments for justification of medical approaches, programmes, activities**
- **Evidence based medicine**

Health examination has to offer :

- Reliable methods of detecting and preventing disease and risk factors for disease to be able to reduce morbidity and mortality from illness
- Reliable data to provide preventive counseling interventions in an age-appropriate manner
- To choose appropriate tests and other preventive services for patients, population to maximize benefits and avoid harm

To whom it has to be focused?

- Reliable methods on indivudual level and application on the level of population and its groups
- To be able to serve for individual person and to reach effectiveness of the public heath effort

Collection of health data in country and public health needs

- Periodic Health Examination (clinicians) –personal right once in 2 years (coverd by health insurance companies – all inhabitants are insured)
- Counceling, basic health examination (36 Regional Public Health Authorities - RAPHS/ Advisory rooms, consultations)
- Where are the data ? In health records, some data used in reports, in databases (National Centre for Health Informatics - EUROSTAT, WHO, OECD...)

Counceling, basic health examination in RAPHs

e.g.

- Measurement of blood pressure is intended to detect hypertension so as to initiate treatment and prevent subsequent morbidity (e.g.,I.M., stroke or renal failure) or mortality.
- Counseling about smoking prevention and cessation to prevent lung cancer and emphysema.
- Education of patients about behavioral patterns related to iniciation of major diseases

What is needed and expected, missing

- Needed: Trust – in arguments, in methods
- Expected: Utilization of information for health benefits – individual, general
  including ⇨⇨ e Health (under preparation)
- **Missing or not satisfactory: comparable objective information on the major chronic disease risk factors**

Why EHES?
Benefits of the EHES

- Way how to obtain the high quality and comparable data on health and the health risks of the adult population
- The information obtained will be used for planning health policy and preventive activities, health care needs, depending on the socio - economic conditions and age.

Why National HES in Slovakia

- To obtain relevant information about health of the Slovak population in terms of risk factors for the major chronic diseases.
- Gap in health in comparison to old EU member countries.

  Cardiovascular and oncological diseases in Slovakia are at the forefront of causes of death. From the total number of deaths cardiovascular diseases accounted for 53,61% and 22,56% for oncological diseases(2008).

Time schedule of the National HES in Slovakia 2011/2012

- November 2011 – implementation of examinations
  – mass media promotion
- December 2011 – achievment of the last examinations
  – transportation of the frozen blood samples and measuring the samples in certificated Biochemical Laboratory
- January-March 2012 – entering data into the PC and data control
  – data analysis
  – writing the final report

National HES in Slovakia 1. phase

- The project is included in a priority tasks of chief hygienist
- The project is part of the National Programme for the Prevention of Cardiovascular Diseases, which was approved by the Ministry of Health
- Investigators: *particular 36 RAPHs in Slovakia* - Departments of Health Promotion
- Principal investigator - coordinator: *RAPH in Banská Bystrica* - Department of Epidemiology and Department of Health Promotion

Pilot HES project in Slovakia

- RAPH in Banská Bystrica involved
- Residents of the district of Banská Bystrica
- Timing: November 2010– January 2011
- Recruitment: random selected 250 men and women , age group 18- 64
- Participation: 138 (55,2 %)
- Problem: low participation rate

National HES

1. phase

– examination of 4032 respondents from the 36 selected districts in Slovakia

(*districts with the residence of 36 Regional Public Health Authorities (RAPHs)*)

- Funding:
- MH SR – preventive programme on cardiovascular diseases prevention

  (Slovak Heart Foundation)
- Partial contribution of particular RAPHs (staff, travel expenses, telephone...)

National HES

2. phase

- – examination of the respondents from the 4O remaining districts in Slovakia (*districts without residence of RAPHs*)

- Funding: the hope- European Commission?

Content of the National HES in Slovakia

- **Physical examination**: - *mandatory*: measuring the blood pressure, height, weight and waist circumference
  - *added*: body fat percentage

- **Blood tests** - *mandatory*: cholesterol, HDL cholesterol, glucose
  - *added*: triglycerides
- ✓ *36 RAPHs* – blood samples, centrifugation, pipetting, freezing of the samples

- ✓ RAPH BB - transportation to: *Certified Biochemical Laboratory in the Faculty Hospital in Banská Bystrica* – measurements of the samples

Questionnaire

Compulsory questions:

- personal data education, occupation, social status, health status, smoking
  - *added*:
  physical activity, diet, stress

- The emphasis is placed mainly on the maintenance of the standard working procedures during the examination

Time schedule of the National HES in Slovakia 2011/2012

- May 2011 – annotation of the National EHES study
- June 2011 – implementation into the National Prevention Programme of Cardiovascular Diseases
- September 2011 – solving the funding
  – establishment of the working group for the realisation of the National EHES study (10 PH professionals)
  - 1st meeting of WG
- October 2011 – material-technical equipment
  – staff training workshop

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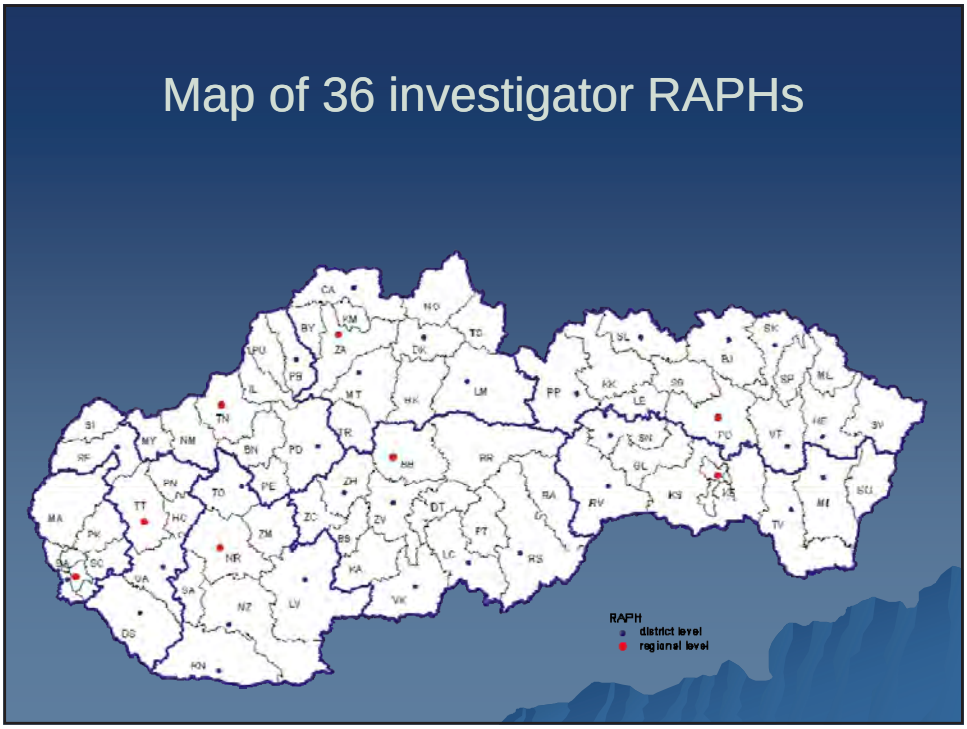
Map of 36 investigator RAPHs



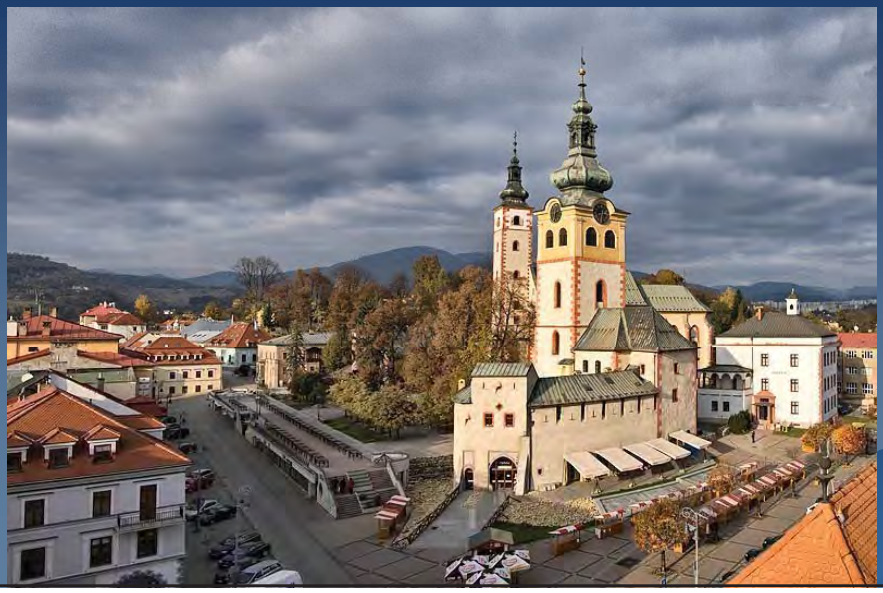
Tasks of coordinators

- Communication and cooperation with the coordinators from Finland, Norway and Italy
- Communication with Slovak Heart Foundation
- Preparation of materials and documents
- Material - technical equipment to carry out study in collaboration with the Slovak Heart Foundation
- Maintenance of random selection, communication with the Ethics Committee
- Staff training
- Quality control
- Promoting of investigators, solving the problems
- Working with data from the screening, analysis and interpretation

Tasks of investigators

- Staff recruitment
- Invitation of selected respondents
  (by post, by telephone)
- Examination of the respondents
- Entering data into the PC
- Cooperation with the local laboratories

Thank You for Your attention!



Summary of the discussion on experiences on HESs in Italy, Finland and Slovakia

The value of a national HES can also be evaluated by comparing the money needed for the standardized national survey and the money spent in several surveys with local interest, poor sampling, without standardized and validated methods. It is better to invest in representative, reliable and good quality surveys.

HESs have been used to validate results from interviews, get new information on biological factors, to evaluate the impact of national prevention plans and programmes and for estimation of the burden of disease. For example in Italy, the results on salt intake have led to an agreement with the main bakers' associations to reduce salt in bread.

Standardization of repeated surveys over time for monitoring trends is important. Information obtained from repeated surveys provides a tool for health policy. HESs can help to understand the need for prevention and to help better reallocate money to health promotion.

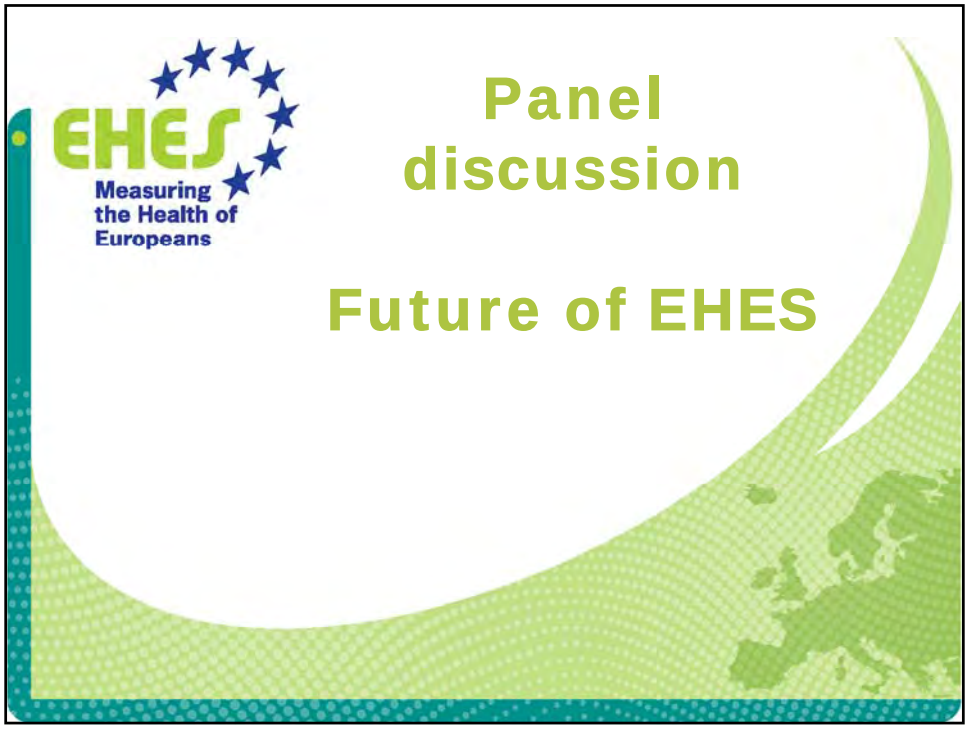
Getting a HES system established in a country is often difficult and hard work. After the HES system has been established, politicians tend to find money to fund it as closing the system would be more difficult than continue funding it.

The surveillance of communicable diseases is well organized in Europe. The system needs to be built for non-communicabe diseases (NCDs). NCDs are there all the time, we need actions to combat the risks, not the diseases. This is why a different approach is needed for NCDs. The role of the European Commission in building the system for NCDs was raised up.

Panel discussion - Future of EHES

Members of the panel from left to right

Gauden Galea, WHO Euro
Pekka Puska, International Association of National Public Health Institutes (IANPHI)
Elvira Göbel, EC/DG Sanco
Barbara Kerstiens, EC/DG RTD/Health
Graham Frazer, ECDC



Panel questions

- What EHES can offer for health monitoring, public health policy making and research from your perspective?
- How your organization could contribute to making the EHES a sustainable monitoring and research structure?

Summary of the panel discussion

The panel included representatives from WHO/EURO - Gauden Galea, International Association of National Public Health Institutes (IANPHI) - Pekka Puska, European Commission/DG SANCO - Elvira Göbel, European Commission/DG RTD/Health - Barbara Kerstiens and European Center for Disease Prevention and Control (ECDC) - Graham Fraser. The panelists were asked to address two questions, and then a discussion involving all conference participants followed. The two questions were:

- What EHES can offer for health monitoring, public health policy making and research from your perspective?
- How your organization could contribute to making the EHES a sustainable monitoring and research structure?

The global NCD monitoring framework is being developed at the WHO. The outcome targets, indicators and data sources for 2020 were discussed at the European Regional Technical Consultation on Noncommunicable Disease Surveillance, Monitoring and Evaluation in Oslo, 9-10 February 2012 (http://www.euro.who.int/__data/assets/pdf_file/0011/158816/NCD_Mtg_Oslo_-Feb2012_Report.pdf). A national survey with measurements has been suggested as the data source for several indicators. A political mandate and agreement from the ministries is needed to build the NCD surveillance system. At the moment the European ministers have decided to wait for the agreement on global NCD targets and indicators, before final decisions are made on the outcome targets, indicators and data sources.

The STEPS, which WHO has developed for the low and middle income countries, can be seen as a cousin of EHES. There is no conflict in the survey protocols between these two, but EHES goes further in the standardization and stores blood samples also for other uses than the core measurements. The countries should be allowed to choose between EHES and STEPS. In low and middle income countries both money and capacity have been the barriers to build up public health surveillance. In EU MSs money is the most important obstacle, not competence. It has been seen that it is wise to start with a core set of examinations. If the data collection can be organized with computer assisted systems, basic results can be reported soon in fact sheets which the decision makers value. If the surveys are ongoing and repeated every year money can be saved in building the system.

There are big differences also between EU Member States in the availability of data for the indicators, risk factor prevalence and in the public health policy and role of prevention. The less experienced countries need support from international organizations to get these issues in the national agenda. It has

been agreed that the WHO, OECD and the European Commission should work towards a common approach. At the international level there is good progress towards NCDs getting more focus.

There have been discussions on the targets and methods for risk factor monitoring also in the International Association of National Public Health Institutes (IANPHI). Health monitoring has been accepted as a core task for these institutes in most countries. The institutes in many countries work with the ministry and media to utilize the results. They also do scientific analysis in collaboration with universities. It is important to monitor trends. This requires careful standardization.

The value of EHES is recognized by the European Commission. It will provide reliable health data which is not available in the European level at the moment. National HESs and national health monitoring needs to be at the national agenda and be funded national. The EU added value in standardization needs to be recognized. Through that, also EHES has to be taken into the national agenda and promoted by Member States. WHO and EC need to work together to find a joint way to proceed. EC/DG RTD could help in building a research infrastructure around EHES.

EHES has also potential value for communicable disease surveillance. Communicable disease monitoring is largely based on recorded cases. However, there is a problem of comparability, because the recording depends on the health system in each country. EHES can provide comparable prevalence data. ECDC is not in the position to carry out surveys, but it is keen to collaborate with countries on the serology. The experts at ECDC can list the communicable diseases that could be analyzed from the EHES samples and the questionnaire items that would be needed. In the ECDC there is interest in getting information on e.g. chlamydia and salmonella prevalence. ECDC could fund analysis of retrospective or epidemiological serum samples in the bases of research and development studies.

All panelists agreed that EHES is a good health monitoring system and essential for all countries. It was pointed out that the Commission has given support to set up the system; it cannot provide long term funding. This is why the countries need to be committed to build a sustainable system for EHES. Discussion at the political level is now needed to get support from the MSs for organizing sustainable European level coordination and standardization for EHES.

Institutes of all countries should work with the ministries of health and media to raise interest in the surveys and to fully and effectively use the collected data. That would increase the understanding of the importance of health examination surveys for providing information for health policies.

There has been good collaboration between the EHES RC and the Commission, and between the EHES RC and the contact persons in the countries. In most countries also collaboration between the national survey organization and the ministry has worked well. In future, more focus should be paid to the EU political level and dialog between MSs and EC on importance of standardized health examination surveys. For the future of EHES it is important that MS address the importance of EHES in the Council and to the Commission. EC will support only topics which have a strong support from the MSs.

Oral presentations, Wednesday, 7 March 2012

EHES Measuring the Health of Europeans

Summary of the 1st day

Hanna Tolonen

Opening

- EHES has proved its
  - Scientific value
  - Value for public health prioritization
- EC can support the preparation of the EHES systems (best practices in Europe)
- MS has to decide how to develop the system further

Experiences from EHES pilot

- Comparison of self-reported and measured indicators of BMI, hypertension, hyperlipidemia and diabetes
- Differences between pilot surveys
- How much of the pilot results will be reported

Country examples - Italy

- HES is used to
  - Validate HIS data
  - Get information on biological markers
  - Evaluate impact of prevention plan
  - Provide regional level information on risk factors
  - Influence on health related regulations (salt in breads)

Country examples - Finland

- Monitoring and prevention system since early 1970's
  - Different data sources together
- Health inequalities
- Standardization is important for trends

Country examples - Slovakia

- Establishing a new HES system
- A need for age group and subgroup specific information to target prevention activities more effectively
- To obtain a trust among stakeholders
- Find the ways to utilize the results

Country examples - discussion

- When HES is started in the country, it is difficult to stop
- Results of the HES has to be used widely
  - Marketed to the policy makers through media

Country examples - discussion

- HESs are needed to monitor risk factors of the diseases, not diseases
- HES is an effective tool to show how to target prevention activities and to monitor the outcome of the prevention in the population level


During the breaks
EHES
Measuring the Health of Europeans

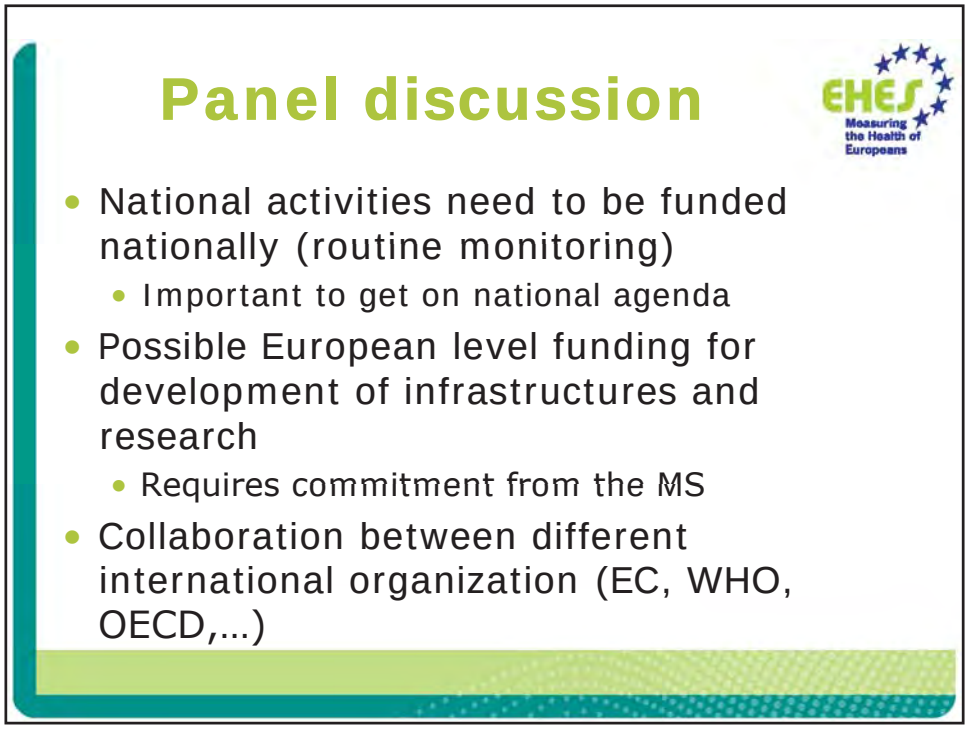

Panel discussion
EHES
Measuring the Health of Europeans
Gauden Galea WHO/Euro
Pekka Puska IANPHI
Elvira Göbel DG Sanco
Barbara Kerstiens RTD Health
Graham Fraser ECDC

Panel discussion

- Funding of the HES is a universal problem
- WHO STEPWise approach vs. EHES
- Priority to have reliable national level data for health monitoring
- HES can provide reliable data for health indicators, which is currently missing at the European
- Need for evidence based information

Panel discussion

- EHES can provide
  - a rich data source for public health research
  - Has a potential also for surveillance of infectious diseases – communicable disese burden across Europe


Panel discussion
EHES
Measuring the Health of Europeans
National activities need to be funded nationally (routine monitoring)
Important to get on national agenda
Possible European level funding for development of infrastructures and research
Requires commitment from the MS
Collaboration between different international organization (EC, WHO, OECD,...)

HEIDI-system for disseminating health indicators

Elvira Göbel
European Commission, DG Sanco, Luxembourg

Abstract

- Heidi (Health in Europe: Information and Data Interface) is an internet based wiki tool for European health information and data. With topics related e.g. to health status, determinants, systems and policies, Heidi aims to offer up-to-date information about a comprehensive set of health issues at European level.
- The initial content in Heidi wiki was based on the work of two projects co-financed by the Health Programme: the EUPHIX, and the Eugloreh report – "The Report on the Status of Health in the European Union".
- Heidi can be browsed by anyone with internet access, but access to edit and update information is reserved to health experts recognized in their field at European level. Editors will not be paid. They must be independent of industry, commercial and business or other conflicting interests.
- DG SANCO is the administrator of Heidi. SANCO grants the rights to edit Heidi and can change or withdraw these rights. SANCO monitors the contributions from the editors as regards their appropriateness and the overall use of the wiki. In case the editors cannot solve conflicting views or disagreements on how to present facts by consensus, SANCO may decide to act as an arbitrator, to ask for a third opinion or to withdraw the given article temporarily or permanently.
- Heidi differs from SANCO's other information tools, e.g. SANCO Public Health Website or the EU Health Portal in three ways: 1) Heidi is content driven and has expert information on health topics (vs. Portal which contains mostly links to other websites); 2) Heidi's content is not limited only to DG SANCO's/Commission's activities in health (vs. SANCO Public health website); 3) Heidi' target audience is regarded to be people professionally

involved in health (vs. both Portal and public health website which are targeted to the general audience).

- Heidi wiki is intended to be a one-stop-shop for European health information and data. Therefore it links with other Commission electronic information sources but also with others, e.g. with WHO. Health reports SANCO publishes will be available in Heidi, and a comprehensive bibliography will provide further links and reference.
- Information in Heidi is presented as text, tables, graphs, charts and maps. Graphical elements can be downloaded as pictures or as interactive data presentations.
- For health experts, Heidi provides a tool for sharing, comparing and developing information across Europe. As a dynamic platform, Heidi enables users to correct or adjust existing information quickly and give feedback of its usefulness. In concrete terms, readers will be able to use the wiki as a kind of 'living report' on health in the EU. Furthermore, Heidi provides a social media for health experts, as networking and exchanges are possible through the dedicated spaces in the wiki. Ultimately, Heidi can help develop evidence-based policies to improve the health of Europeans.
- The official launch of Heidi will be this year on 3rd May 2012 at the Public Health Conference in Brussels.

Link to Heidi homepage: http://ec.europa.eu/health/heidi

Summary of the discussion

The differences and similarities between the HEIDI system and the WHO and OECD databases were raised up. The data and definitions for the indicators are not always comparable between these databases. A work has been started to harmonize these but it will take years to complete. For the EC, the European Community Health Indicators Monitoring (ECHIM) project will be finalized by June 2012 and it will summarize results on the availability of ECHI -indicators and prepare a road map for the next steps in implementing the indicators.

The HEIDI -system is based on input from volunteer experts who apply to get access as editors. It was agreed that the HEIDI -system has potential compared to the previous public health reports, but it is now up to the experts how much it will be used and if it will become a successful channel of information. Countries with full-size HES are already welcome to use HEIDI for dissemination of their results.

HEIDI-system for disseminating health indicators

EHES Final Conference
Brussels
6-7 March 2012

Elvira Göbel, European Commission, Health Information

What is Heidi?

Health in **E**urope: **I**nformation and **D**ata **I**nterface: a **wikipedia** on health information

Tool for pooling, presenting and updating good quality health information throughout Europe

Heidi's background

Euphix

Euglobreh

Projects co-financed under the EU's Health Programme

Comprehensive information on health status, determinants, diseases, health systems, trends, policy aspects etc.

A good basis to develop Heidi into a living report on health in EU – to become a sustainable information source

Health and Consumers

What is the aim?

Create THE one-stop-shop for health information in the EU*: to contain data, information, indicators, analysis, reports, links, references, bibliography,…*

Involve *the wider* ***health community*** *throughout EU in providing and maintaining information*

European added-value by providing a single central health reference for the EU

Health and Consumers

Who can use Heidi?

Creation and editing of content: health experts in Europe: a quality assurance mechanism to ensure that information is reliable.

Anyone can browse Heidi and make suggestions about the content.

Target audience: those professionally involved in health – policy makers, health professionals, academics, NGOs…

"Layered" presentation for different audience groups.

Commission's role to monitor use of wiki in general, not validate content

Health and Consumers

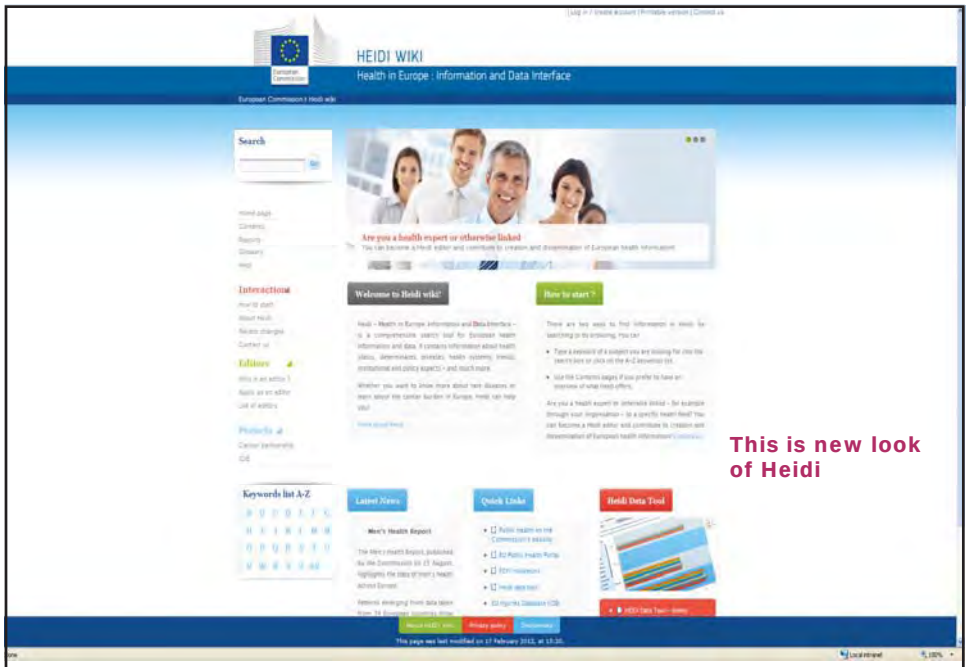
Heidi *vs.* Health Portal *vs.* EC Public Health Website…

Linkage between platforms

No overlapping; Heidi is:

- **Content driven**
- **Primarily targeted to experts**
- **Not limited to Commission activities**

Health and Consumers



This is new look of Heidi

The rules of Heidi

- A Wikipedia for Health
- Articles covering health status, diseases, determinants, health systems and policies
- Content created by experts who can apply to become editors
- Application form available on the website
- EC grants rights to editors
- In HEIDI wiki, data will be presented with the Heidi data tool
- A full wiki version will be available from the first half of 2012
- HEIDI wiki will be officially launched on 3rd May 2012 at the Health Programme Conference (http://ec.europa.eu/health/programme/events/ev_20120503_en.htm)

https://webgate.ec.europa.eu/sanco/heidi/index.php/Main_Page

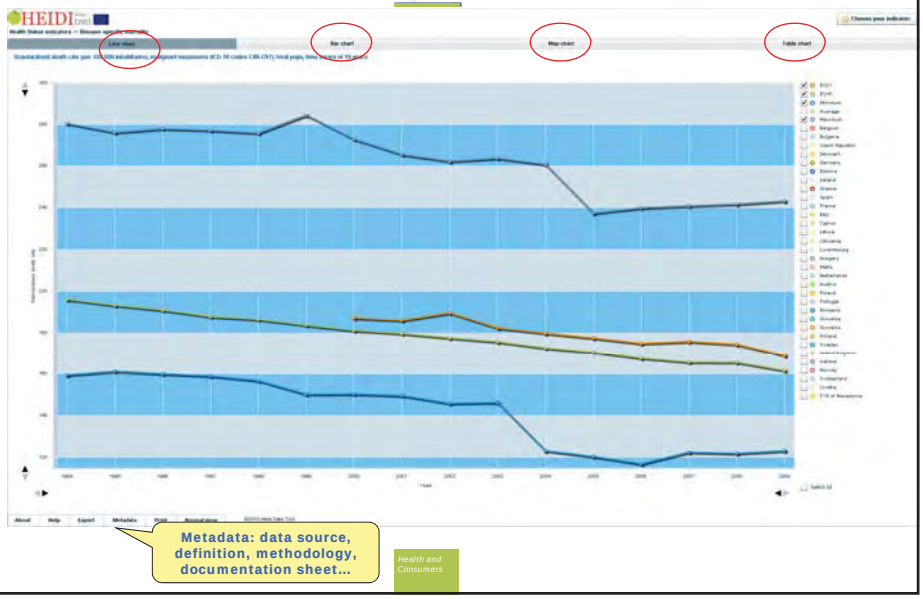
Health and Consumers

Heidi data tool: a graphic tool to present already implemented ECHI indicators

- Presentation of indicators in 4 main groups:
  - Demography and socio-economic situation
  - Health status
  - Health determinants
  - Health interventions: health services
- Presentation of each indicator in different lay-outs:
  - Line chart
  - Bar chart
  - Map
  - Table
- Information on metadata and definition of indicators
- Updated as soon as new data is available
- Development of the tool by DG SANCO is ongoing

http://ec.europa.eu/health/indicators/indicators/index_en.htm

Health and Consumers



Health and Consumers


European Commission
Thank you!
Health and Consumers

HEIDI beta WIKI

Directorate-General for Health & Consumers

Where does Heidi come from?

The initial content in Heidi wiki was based on the Eugloreh report (Report on the Status of Health in the European Union), a project which was supported by the EU Public Health Programme and published in 2009.

The Eugloreh benefited from collaboration of health authorities or institutions from all EU Member States, Croatia, Turkey, Iceland and Norway, and of major intergovernmental, international and European organisations and agencies. Moreover, more than 170 European experts provided their knowledge and analysis for the report.

http://ec.europa.eu/health/heidi

http://europa.eu/

Health-EU
http://health.europa.eu

Directorate-General for Health & Consumers
http://ec.europa.eu/health/

HEIDI beta WIKI
http://ec.europa.eu/health/heidi

Looking for health information?

Heidi (Health in Europe: Information and Data Interface) is a wikipedia on health. It helps you to find comparable European health information and data, and is free to use.

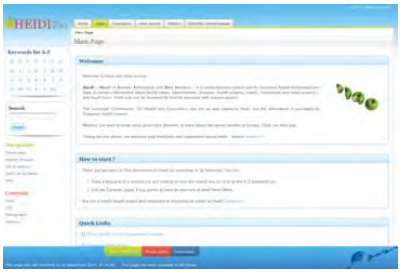
Heidi has articles about health status, determinants, diseases, health systems, trends, institutional and policy aspects - and much more.

Everyone with internet access can use Heidi wiki.

The European Commission, DG Health and Consumers, has set up Heidi, but the content is up-dated on voluntary basis by experts and health authorities, agencies and institutions in the EU countries.

Heidi offers everyone up-to-date information about health issues at European level.

Heidi can help you!



For health experts, Heidi provides a tool for sharing, comparing and developing information across Europe. As a dynamic platform, Heidi enables users to correct or adjust existing information quickly and give feedback about its usefulness.

Ultimately, Heidi can help develop evidence-based policies to improve the health of Europeans.

Whether you want to know more about rare diseases or learn about the cancer burden in Europe, Heidi can help you!

HEIDI beta WIKI

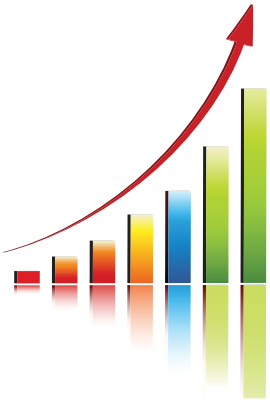
How can you contribute to Heidi?

Heidi is still work in progress – the technical system is ready but the content still needs to be refined and made more user-friendly. In this, you can contribute:

- During the test phase. we would like to hear your feedback and suggestions – let us know what you think of Heidi's navigation, usefulness or topics covered!
- Are you a health expert or otherwise linked – for example through your organisation - to a specific health field? You can become a Heidi editor and contribute to creation and dissemination of European health information!

Go to Heidi:

http://ec.europa.eu/health/heidi



Technical guidelines

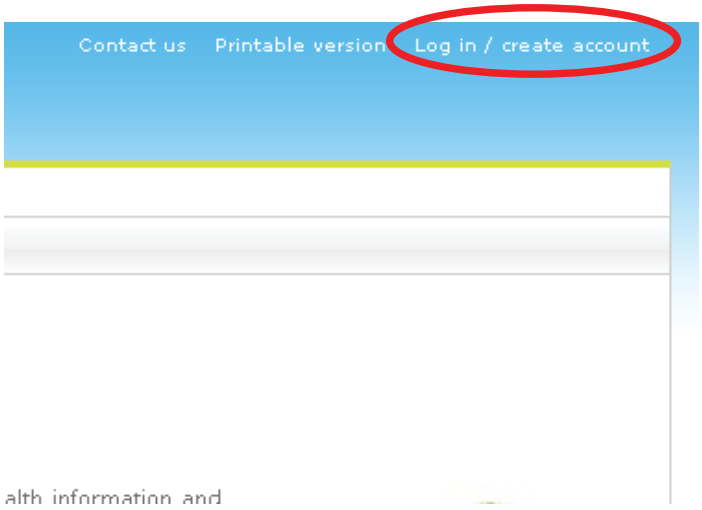
Authentication with ECAS

What is ECAS?

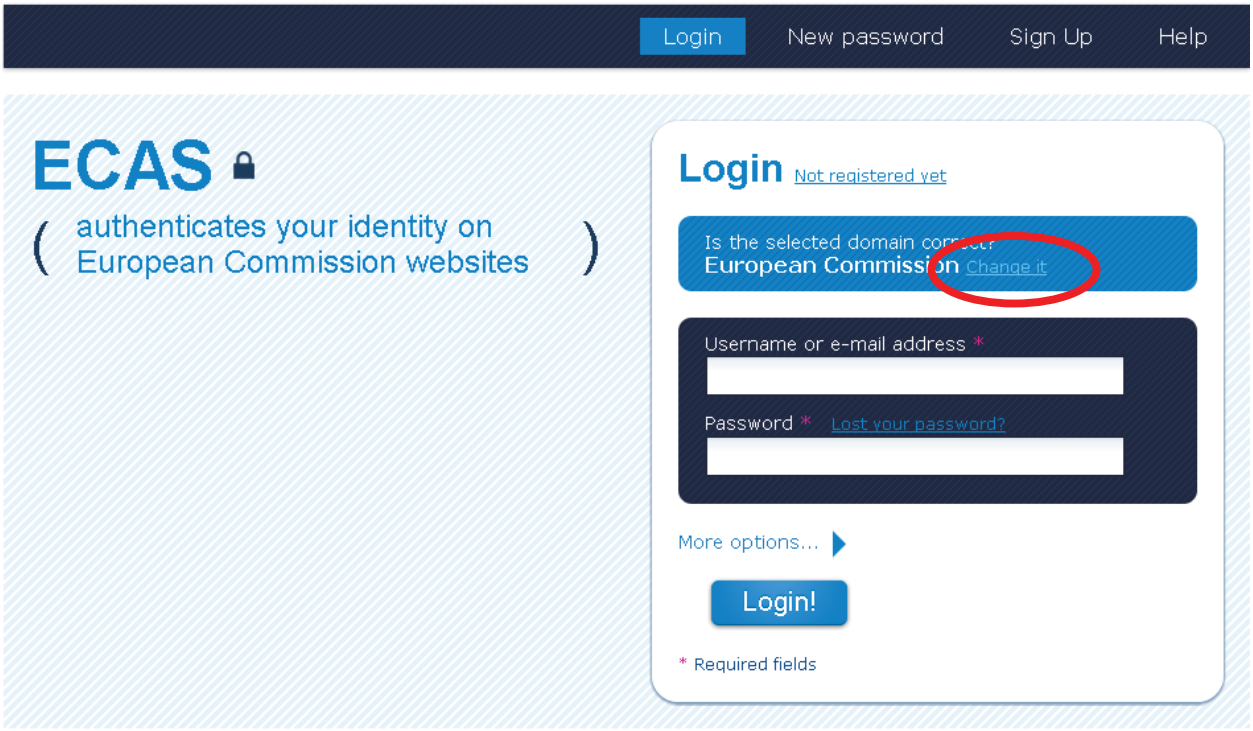
ECAS is a common authentication service provided by the European Commission for all EC applications and websites.

How to create an account on ECAS?

First, access the Heidi Wiki website (for example here https://webgate.ec.europa.eu/sanco/heidi/) and click on the "Login / create account" link on the right.

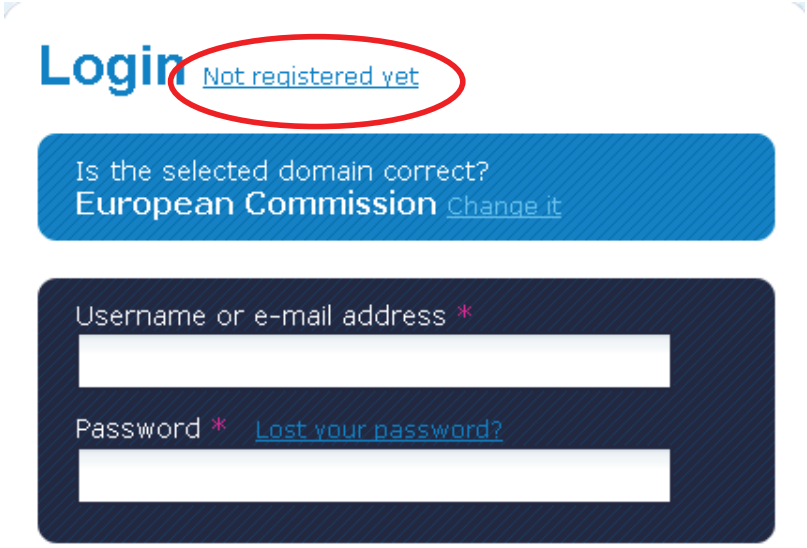


- Click on the indicated link to change your domain

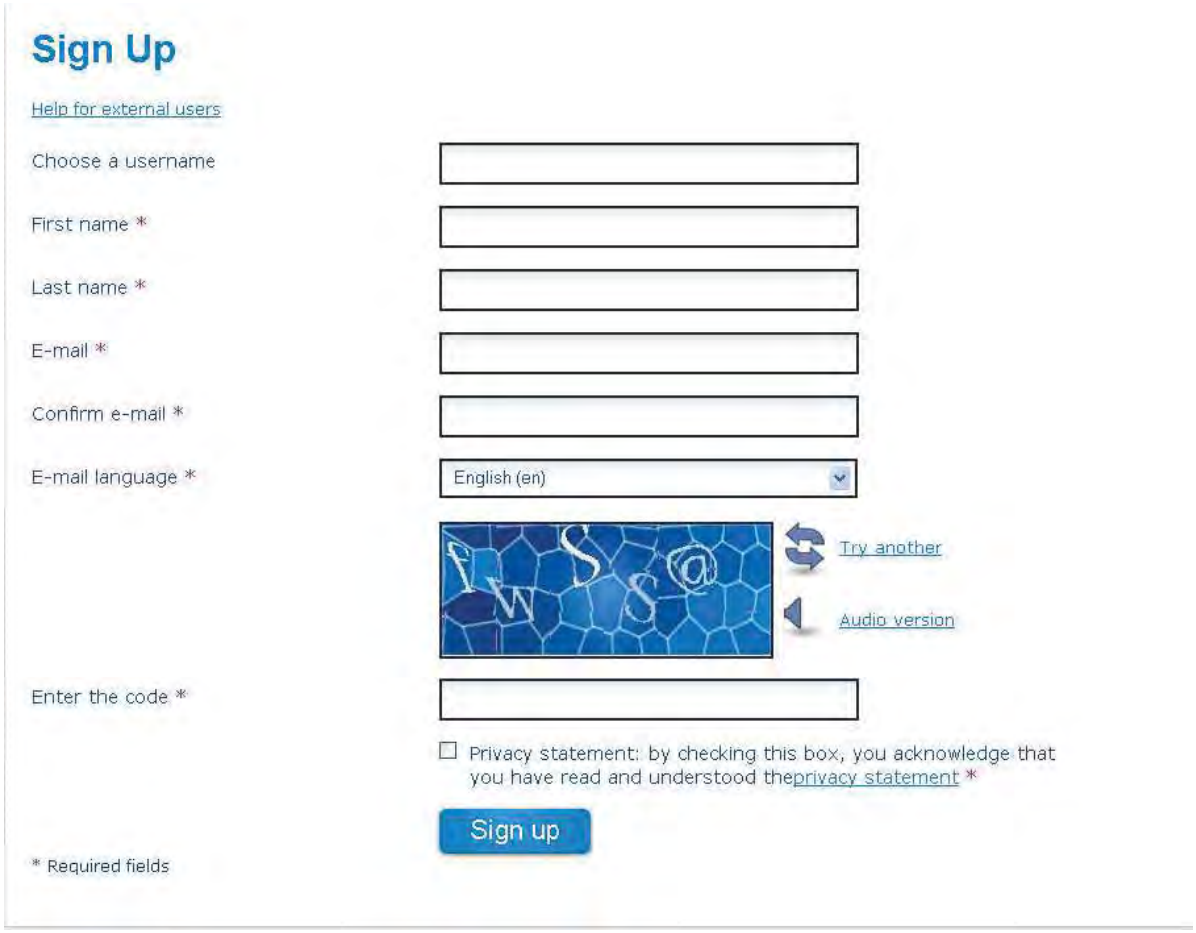


- Choose 'Neither an institution nor a European body'

- Then click on the link indicated below



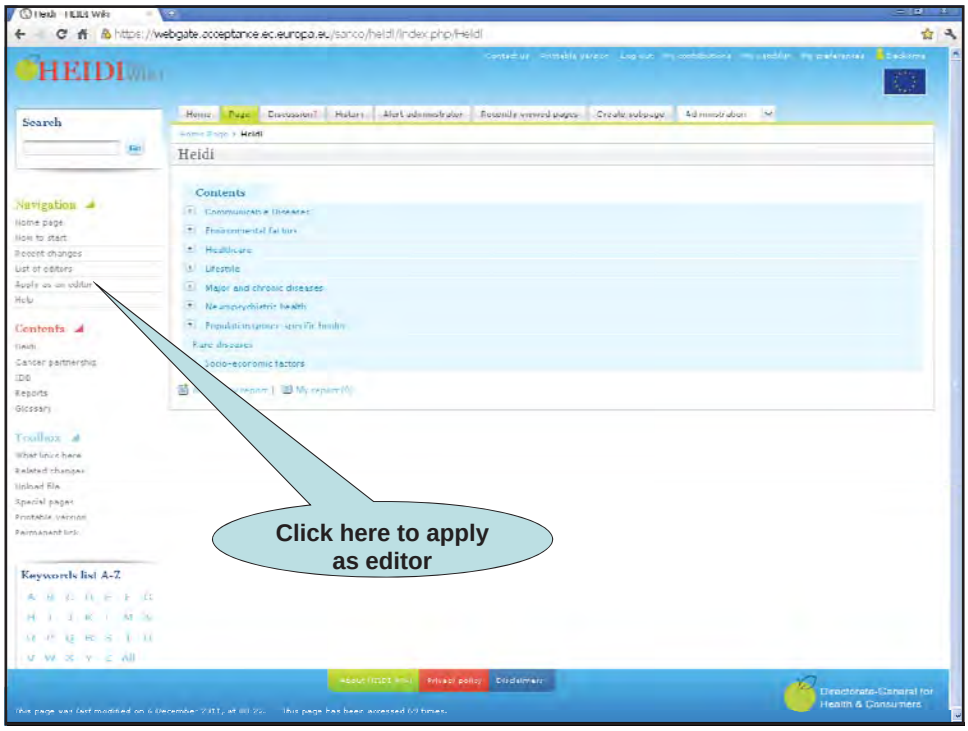
- After filling the form, click on the "Sign up" button.

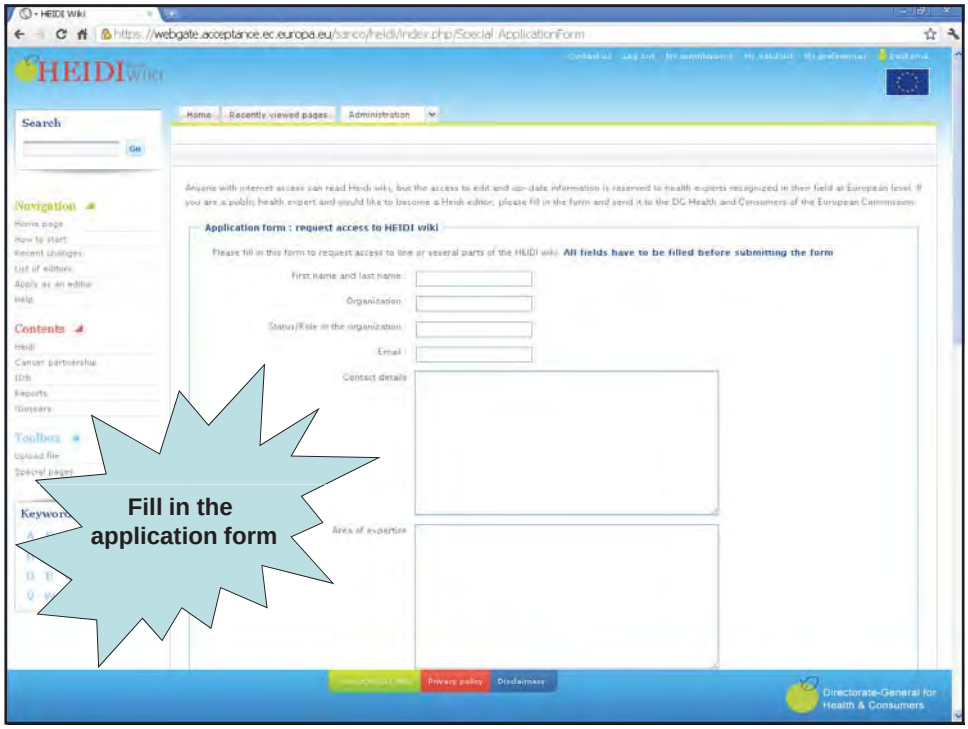


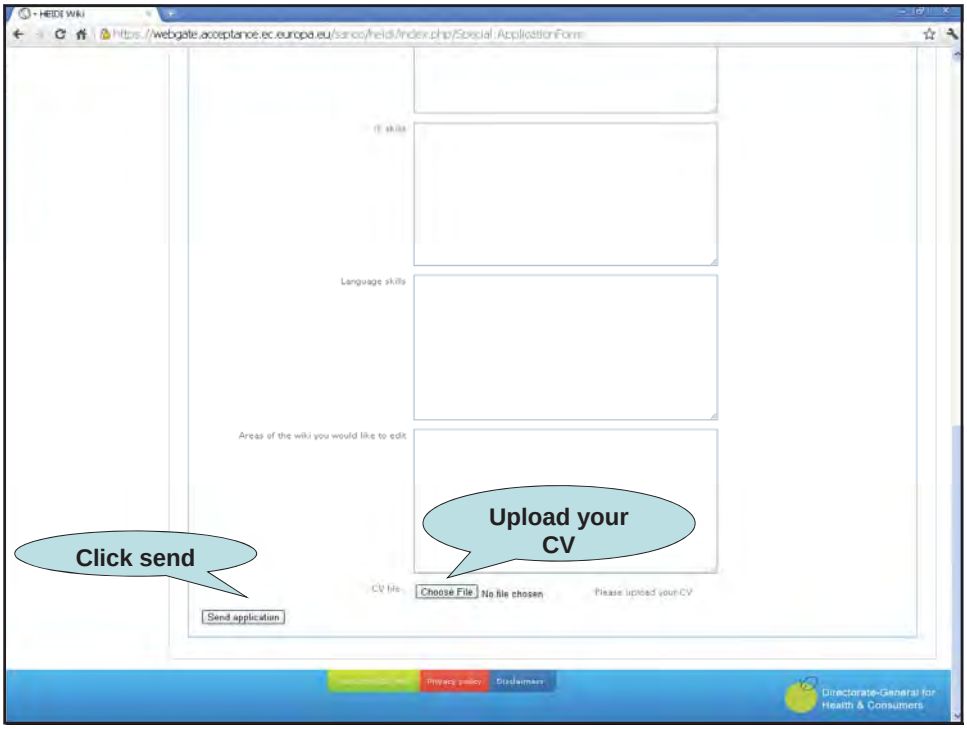
- You will receive an email to set your password. Click on the link present in the mail to set your password.

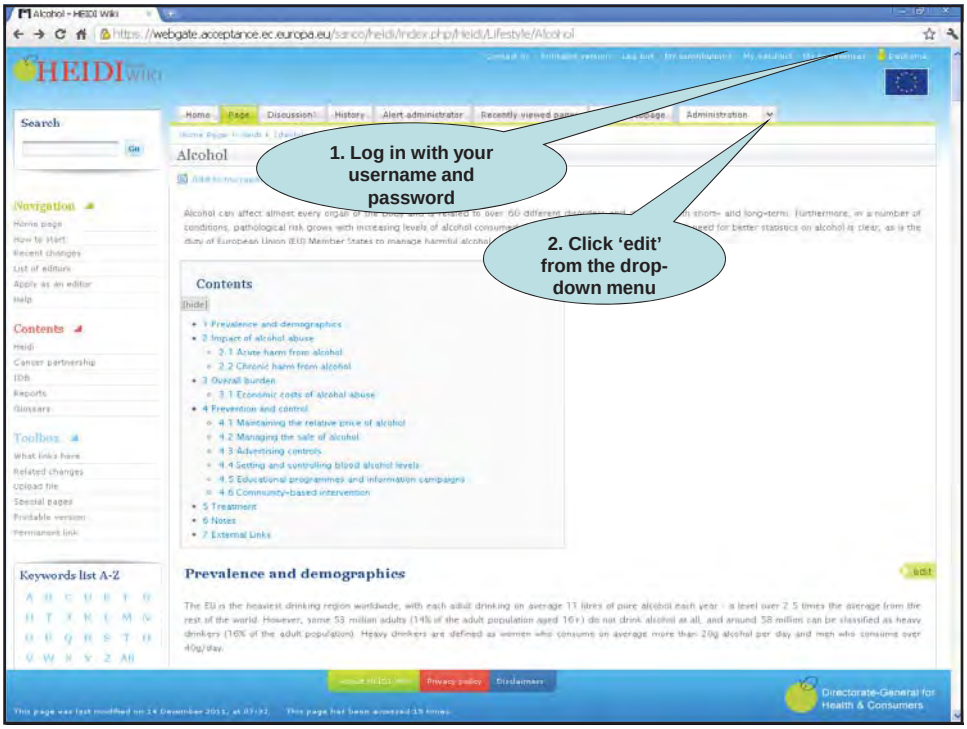
- Once you have created your account, you will be able to log in the HEIDI wiki by clicking on the 'Log in /create account' link.

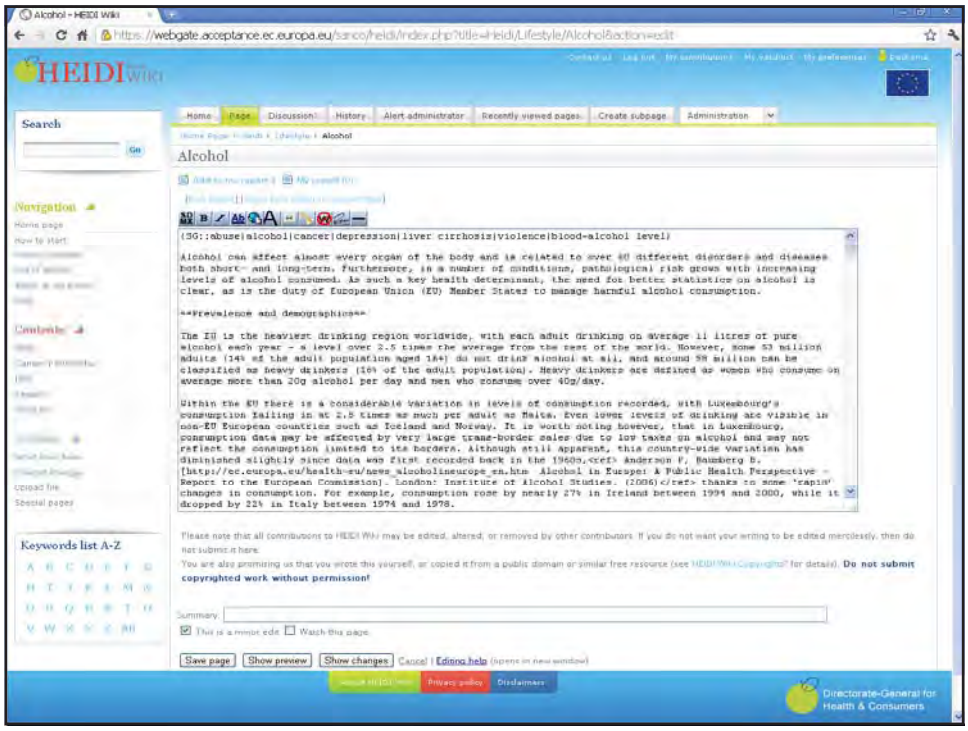
NB : at the beginning, an user doesn't have any rights on the wiki. So when you have created your account, send us an email so that we will give you rights on the sandbox area.


Click here to apply as editor


Fill in the application form


Upload your CV
Click send
Send application


1. Log in with your username and password
2. Click 'edit' from the drop-down menu
Alcohol
Contents
Prevalence and demographics


Alcohol - HEIDI Wiki
HEIDI Wiki
Search
Navigation
Contents
Keywords list A-Z
Home
Page
Discussion
History
Alert administrator
Recently viewed pages
Create subpage
Administration
Alcohol
{3G::abuse|alcohol|cancer|depression|liver cirrhosis|violence|blood-alcohol level}
Alcohol can affect almost every organ of the body and is related to over 60 different disorders and diseases both short- and long-term. Furthermore, in a number of conditions, pathological risk grows with increasing levels of alcohol consumed. As such a key health determinant, the need for better statistics on alcohol is clear, as is the duty of European Union (EU) Member States to manage harmful alcohol consumption.
Prevalence and demographics
The EU is the heaviest drinking region worldwide, with each adult drinking on average 11 litres of pure alcohol each year - a level over 2.5 times the average from the rest of the world. However, some 53 million adults (14% of the adult population aged 18+) do not drink alcohol at all, and around 58 million can be classified as heavy drinkers (16% of the adult population). Heavy drinkers are defined as women who consume on average more than 20g alcohol per day and men who consume over 40g/day.
Within the EU there is a considerable variation in levels of consumption recorded, with Luxembourg's consumption falling in at 2.5 times as much per adult as Malta. Even lower levels of drinking are visible in non-EU European countries such as Iceland and Norway. It is worth noting however, that in Luxembourg, consumption data may be affected by very large trans-border sales due to low taxes on alcohol and may not reflect the consumption limited to its borders. Although still apparent, this country-wide variation has diminished slightly since data was first recorded back in the 1960s.<ref> Anderson P, Baumberg B. [http://ec.europa.eu/health-eu/news_alcoholineurope_en.htm Alcohol in Europe: A Public Health Perspective - Report to the European Commission]. London: Institute of Alcohol Studies. (2006)</ref> thanks to some 'rapid' changes in consumption. For example, consumption rose by nearly 27% in Ireland between 1994 and 2000, while it dropped by 22% in Italy between 1974 and 1978.
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You are also promising us that you wrote this yourself, or copied it from a public domain or similar free resource (see HEIDI Wiki:Copyrights for details). Do not submit copyrighted work without permission!
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Directorate-General for Health & Consumers

Harmonisation of dietary surveys in Europe - Synergies through the EU Menu process

Liisa Valsta
European Food Safety Authority, Parma, Italy

Abstract

Over 20 countries in Europe have carried out national dietary surveys during the past two decades using differing methodologies. The European Food Safety Authority (EFSA) has since 2005 worked towards harmonising dietary survey methodology and building of a common European Union (EU) food consumption database. Harmonised food consumption data are the basis for improving accuracy of EU wide exposure assessments. Improved risk assessments can assure more targeted risk management and permit more accurate risk communication resulting in increased consumer confidence. Harmonised and detailed food consumption data can also assist in serving the needs of nutrition monitoring in European countries.

The collection of accurate and harmonised food consumption data is a top priority for EFSA for collaboration with the EU Member States. In 2007, EFSA created the "Expert group on food consumption data" (EGFCD), a network with representatives from each EU Member State. The Expert Group coordinates the efforts to harmonise the collection and collation of food consumption data. The EFSA Guidance document on dietary surveys in EU was published by EFSA in 2009, after endorsement by the EGFCD. By early 2010 a pan-European food consumption survey project proposal called the EU Menu was presented to and supported by the Advisory Forum and the Scientific Committee of EFSA and the European Commission (DG SANCO). Pilot and supporting projects covering age groups from infants to the elderly were initiated (PANCAKE, PILOT-PANEU and EMP-PANEU). EFSA's first support to Member States to collect national data according to the EU Menu survey requirements were granted in

2011 to France and Estonia. Two new related calls have been launched in early February 2012. The EU Menu survey coordinated by EFSA is proposed to be performed as a rolling program, i.e., in several countries per year during a 5-6 years period.

The EU Menu protocols and pilot field surveys will be finalised by the end of 2012. Based on the pilot results, the methodology will be adjusted as needed.

The EFSA initiatives, actions and collaboration with the EU Member States since 2005 are important parts of the harmonisation process for European dietary data collections.

Reference: European Food Safety Authority; General Principles for the Collection of National Food Consumption Data in the View of a Pan-European Dietary Survey. EFSA Journal 2009;1435. (51 pp.). DOI:10.2903/J.Efsa.2009.1435. Available online: www.efsa.europa.eu

Summary of the discussion

The interest of European Food Safety Authority (EFSA) is focused on food consumption data that is representative at the EU level. They are especially focused on vulnerable and high risk population groups.

The EFSA guidelines for data collection were published in 2009 and pilot projects PANCAKE (on children and breastfeeding women) and PANEU (adults) are ongoing. Some of the PANCAKE and PANEU project partners are the same countries which participated in the EHES pilot but participating organization within countries may be different. The potential for combining data collection for EHES and nutrition surveillance was raised up. In many EU countries, the Food Safety Authorities and Public Health Authorities do not have very close collaboration and are not aware of each others' initiatives.

The Eurostat, which coordinates the European Health Interview Survey (EHIS) does not collect individual based data on nutrition. It was suggested that survey burden and cost in the countries could be reduced by integrating the EFSA tool, EHIS and EHES in the European Survey System.

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Harmonisation of Dietary Surveys In Europe – Synergies Through the EU Menu Process

Liisa Valsta
Dietary and Chemical Monitoring Unit

EHES Conference
Brussels, 7 March, 2012

efsa
European Food Safety Authority

- **Why is EFSA active in collecting and harmonising food consumption data?**
- **Evolution of food consumption data and food terminology**
- **Synergies through the EU Menu process**

Data collections

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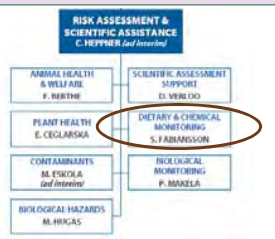
1. Harmonisation and standardisation
2a. Contaminant monitoring
2b. Residue monitoring – pesticides/vet
3. Dietary monitoring
4. Calculating exposure
5. Scientific reporting



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Role of food consumption data in risk characterisation

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Hazard Identification

Hazard Characterisation

Chemical or microbiological occurrence data

Exposure Assessment

Food consumption data

Risk Characterisation

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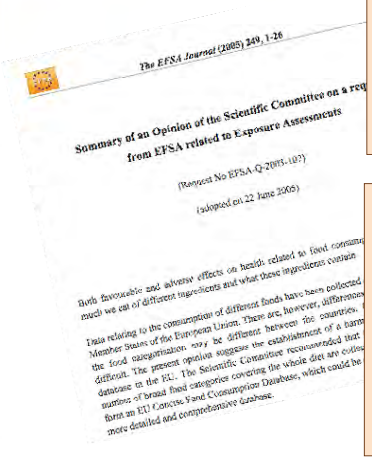
4

Scientific Committee


The EFSA Journal (2005) 249, 1-26

Summary of an Opinion of the Scientific Committee on a req
from EFSA related to Exposure Assessments

(Request No EFSA-Q-2005-107)

(adopted on 22 June 2005)

Both favourable and adverse effects on health related to food consump
much we eat of different ingredients and what these ingredients contain

Data relating to the consumption of different foods have been collected
Member States of the European Union. There are, however, differences
the food categorisation may be different between the countries.
difficult. The present opinion suggests the establishment of a harm
database in the EU. The Scientific Committee recommended that
matrices of broad food categories covering the whole diet are collec
form an EU Concise Food Consumption Database, which could be
more detailed and comprehensive database.

In 2005 the **Scientific Committee** suggested the establishment of a harmonised food consumption database in the EU.

It also recommended that EFSA should contribute to the development of a European framework for the harmonisation of food consumption data in the EU and make these data publicly accessible.

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Needs assessment

Consumption data
Representative for EU
Capturing regional differences
Acute and chronic exposure

Vulnerable groups
Special diets
Pregnant women
Children

High consumers
Ethnic diets
Big eaters
"Unusual habits"

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Evolution consumption data

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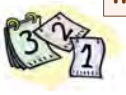
CONCISE
Broad categories, not covering children, not harmonised, no FFQ

COMPREHENSIVE
Detailed categories, partly covering children, not harmonised, no FFQ

HARMONISED
Detailed categories, covering children, harmonised including FFQ



2008 — 2010 — 2014 — 2017

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Comprehensive Database:Adults

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Country (survey)	Name of the dietary survey (Acronym)	Survey period	Target population	Age range	Method	Replicates
Austria	Austrian Study On Nutritional Status (ASNS)	2005 - 06	Adults	19-65	24 h dietary recall	1
Belgium	Diet National 2004	2004 - 05	Adults	> 15	24 h dietary recall	2
Bulgaria	National Survey of Food Intake and Nutritional Status	2004	Adults	> 16	24 h dietary recall	1
	NUTRICHILD	2007	Small children	< 5	24 h dietary recall	2
Czech Republic	SISP04	2003 - 04	Children and adults	> 4	24 h dietary recall	2
Denmark	Danish Dietary Survey	2000 - 02	Children and adults	4-75	Food record	7
Estonia	NDS 1997	1997	Adults	19-64	24 h dietary recall	1
Finland	FINDIET 2007	2007	Adults	25-74	48 h dietary recall	1
France	INCA2	2005 - 07	Children and adults	3-79	Food record	7
Germany	National Nutrition Survey II	2005 - 07	Adults and adolescents	14-80	24 h dietary recall	2
Hungary	National Repr Surv	2003	Adults	> 18	Food record	3
Ireland	NSFC	1997 - 99	Adults	18-64	Food record	7
Italy	INRAN-SCAI 2005-06	2005 - 06	Children and adults	> 0.1	Food record	3
Latvia	EFSA_TEST	2008	Children and adults	7-66	24 h dietary recall	2
Netherlands	VCP2003	2003	Adults	19-30	24 h dietary recall	2
Poland	IZZ-FAO-2000	2000	Children and adults	1-96	24 h dietary recall	1
Slovakia	SK MON 2008	2008	Adults	19-59	24 h dietary recall	1
Slovenia	CRP-2008	2007 - 08	Adults	18-65	24 h dietary recall	1
Spain	AESAN-FIAB	1999 - 2001	Adults	17-60	Food record	3
	AESAN	2009	Adults	18-60	24 h dietary recall	2
Sweden	RIKSMATEN 1997-98	1997 - 98	Adults	18-74	Food record	7
United Kingdom	National Diet & Nutrition Survey (NDNS)	2000 - 01	Adults	19-64	Food record	7

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Comprehensive Database: Children (EXPOCHI)

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	Country	Provider	Period	Age years	Representative	Subjects	Days	Method
1	Belgium	Ugent	2002-03	2.5 to 6.5	Regional (Flanders)	661	3	Dietary record
2	Cyprus	REF	2003	2 to 18	National	303	3	Dietary record
3	Czech Republic	NIPH	2003-04	4 to 14	National*	602	2	24-hour recall
4	Denmark	DTU Food	2000-02	4 to 10	National*	606	7	Dietary record
5	Finland	Evira	2003-06	1, 3 and 6	Regional (South Finland)	1,448	3	Dietary record
			2000	7 to 8	Regional (South-west)	250	4	Dietary record
6	France	AFSSA	2005-07	3 to 10	National*	574	7	Dietary record
7	Germany	FKE	2006-08	1 to 10	Regional (Dortmund)	926	3	Dietary record
8	Greece	UoC	2004-05	4 to 6	Regional (Crete)	874	3	Dietary record
9	Italy	INRAN	2005-06	1 to 10	National*	252	3	Dietary record
10	Poland	NFNI	2000	1 to 14	National*	611	1	24-hour recall
11	Spain	FIN	1998-00	1 to 14	National	382	2	24-hour recall
		PGHI	2004-05	4 to 14	Regional (Basque)	1050	2	24-hour recall
12	Sweden	NFA	2003	3 to 4	National	2,495	4	24-hour recall
13	Netherlands	RIKILT	2005-06	2 to 6	National	1,279	3	Dietary record

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* The same data are also available in the Comprehensive Database for adults.

Different consumption patterns induced by differences in survey methodology?

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Examples :

- **24 h dietary recall** vs. **food record**
- **broad survey period**, from 1997 (Estonia) to 2009 (Spain)
- from **1 to 7 days data** per subject
- **individual** vs. **household** sample unit
- from **28% to 98%** response rate
- **week-end days** not evenly represented in 6 surveys
- **seasonality** not fully covered in 10 surveys (only one season represented in 4 surveys)
- body weight and height **measured or estimated**
- **food classification**

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Evolution food terminology

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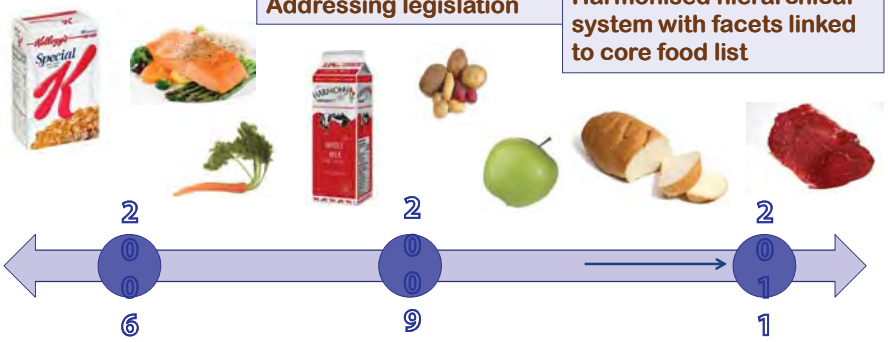
CONCISE
15 broad categories and 13 sub-categories
Ad hoc EC requests

FOODEX 1
Hierarchical system with four levels
Addressing legislation

FOODEX 2
Harmonised hierarchical system with facets linked to core food list



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FoodEx2

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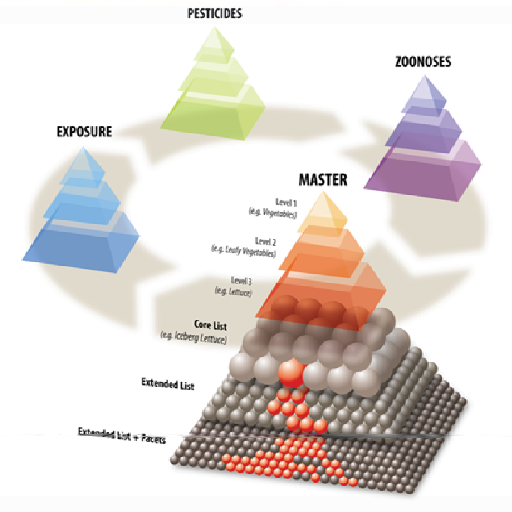

European Food Safety Authority; The food classification and description system FoodEx 2 (draft-revision 1). Supporting Publications 2011:215. [438 pp.]. Available online: www.efsa.europa.eu

FoodEx2 browsing tool. Available online: www.efsa.europa.eu

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EU Menu plan in short

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- Aims to collect harmonised food consumption data at European level 2013-2018
- Survey of 80,000 people in total
- In 27 Member States
- All food and beverage consumption collected with methods allowing modelling of comparable intake distributions
- Using the EPIC soft software (or comparable)
- Anthropometric measurements (e.g. measured weight and height)

EFSA Guidance published 2009

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General principles for the collection of national food consumption data in the view of a pan-European dietary survey

- EFSA needs
- Sampling method and design
- Dietary assessment methodologies
- Administration of the interview
- Dietary survey tools
- Non dietary information and quality control

Discussed and endorsed by the **Expert group on food consumption data** in mid October 2009.

Published on the EFSA Journal in December 2009.

Harmonised database

EU Menu - the first harmonised pan-European food consumption survey

- ✓ Create collaborative MS consortium
- ✓ Develop standardised guidance
- ✓ Provide access to methodological platform
- ✓ Initiate pilot projects for children and adults
- • Publish principles and protocols
- • Collect representative food consumption data over all four seasons for children and adults

PANCAKE Article 36 project

Pilot study for the Assessment of Nutrient intake and food Consumption Among Kids in Europe (PANCAKE)
Project leader: RIVM (The Netherlands)
Project period:
December 2009 – June 2012

The main objectives of the project are to develop and test tools and procedures for the collection of individual food consumption data for:

- infants up to 11 months of age,
- toddlers from 12 up to 35 months of age,
- other children from 3 to 10 years of age,
- breastfeeding mothers

Harmonised database

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EU Menu timing of actions

Activity	2010	2011	2012	2013	2014	2015	2016	2017	2018
Planning, collaboration, coordination			★						
Two project pilots, capacity building									
EFSA's intention to support harmonisation activities									
Dietary survey in 5-7 countries									
Dietary survey in 5-7 countries									
Dietary survey in 5-7 countries									
Dietary survey in 5-7 countries									
Dietary survey in 5-7 countries									
Databases, processing of data									
Dissemination of results									

★ =Nomination of the EU Menu WG with Advisory Function

Questions?

Liisa Valsta
liisa.valsta@efsa.europa.eu

The use of HBM surveys as support for environmental health policies

Anke Joas*, Pierre Biot, Ludwine Casteleyn, Marike Kolossa, Juergen Angerer, Argelia Castaño, Greet Schoeters, Ovnair Sepai, Lisbeth E. Knudsen, Milena Horvath, Louis Bloemen, Reinhard Joas and Dominique Aerts
* BiPRO GmbH, München, Germany

Abstract

In Europe an increasing public environmental health interest and awareness has developed from concerns of the (general) public, regulators, and non-governmental organisations (NGOs) about rising incidence rates for a number of important diseases, and the potential risks of exposure to environmental stressors (e.g. endocrine disruptors) for human reproduction and health (e.g. asthma, cancer, ADHD, obesity).

To reduce potential risks a considerable number of regulatory measures has been taken on EU level in particular for chemicals. REACH, the European Union chemicals legislation, and increasingly other regulatory measures for chemicals and products as well as the Community Strategy for Endocrine disrupters require health risk assessment and management for workers and the general population. Under REACH this includes the obligation to derive limit or guidance values for all substances that are considered to have an impact on health.

A better understanding of determinants of health is also required to improve effective health promotion and disease preventive policies and to reduce public health costs. This is of particular importance, as the majority of major chronic human diseases are likely to result from the combination of environmental exposures to chemical and physical stressors and human genetics, with environmental determinants and their effects still often poorly understood.

As a consequence, requests for collective as well as individual data on ex-

posure that could be used for risk assessment and management are constantly growing and a better understanding of the health and environment relationships is asked for. HBM surveys have shown to be able generating such information, which cannot be supplied by external dose-based exposure assessment and classical risk assessment alone. HBM survey data allow interpretation at individual and population level using guidance and threshold values. Additionally success of risk reduction measures and interventions can be proven by analysis of spatial and temporal trends. HBM surveys are the ideal tool to collect exposure data on European populations, as they integrate all sources and pathways and provide first hand information of the body burden at a certain time.

In this context the European pilot study for an HBM framework across the EU (COPHES and DEMOCOPHES) will provide results about the feasibility of a harmonised sampling and analysis approach including capacity building and knowledge transfer. COPHES has established a first Europe wide harmonized protocol for HBM surveillance of the European population. The Life+ funded feasibility study DEMOCOPHES implements this and will provide a first set of European values from school children and their mothers for cadmium, mercury, different phthalates and the nicotine metabolite cotinine from 17 European countries by end of 2012. A limited number of countries will measure in addition bisphenol A, triclosan and parabens in urine. Investigation of biological samples is complemented by questionnaire data about residential environment, housing, nutrition, smoking behaviour, other exposure-relevant behaviour, occupation, and socio-demography for determination of exposure risks.

The pilot study is limited with regard to the selected set of substances, matrices and sample size. Priorities for the future comprise identification of appropriate biomarkers, including the development of validated analytical (large-throughput) methods, and the development of a European approach for the derivation of statistically based reference values and health based HBM guidance values. Other aspects are appropriate information, education, communication and dissemination of study results, data storage and sample/data sharing.

An integration of a European HBM survey (as piloted in (DEMOCOPHES/COPHES) with a harmonised Health Examination Survey (as piloted in the European Health Examination Survey (EHES) would allow to realise considerable synergies in recruitment, information collection and sampling of study participants. Thus, an important share of surveillance costs can be achieved.

In conclusion, human biomonitoring data provide significant advantages over an external dose-based exposure assessment for risks assessment and risk management activities for the general population. A combination of human

biomonitoring data and a toxicological dose–response assessment provides an extremely powerful and scientifically robust approach to conducting a risk assessment as required by REACH and other chemical regulations. An approach how to harmonise the diverse biomonitoring activities throughout Europe has been tested out and first results will be available in autumn 2012. The health examination survey sticks to a comparable time line to supply results of the harmonisation effort. An integration of HBM and health examination survey would constitute a good option a) to elucidate relations between exposure to environmental factors and health complains and b) a prerequisite for a considerable reduction of costs by of fieldwork synergies.

COPHES and DEMOCOPHES are funded by the EU and FP7 and LIFE+ respectively. Thanks to the COPHES/DEMOCOPHES consortia for the support. www.eu-hbm.infothe pilot results, the methodology will be adjusted as needed.

Summary of the discussion

Major synergies in the data collection for EHES and Human Biomonitoring, especially regarding the sampling, recruitment of participants, and collecting samples and sample storage (biobanking) were seen. The COPHES pilots have used urine and hair samples, but also blood could be used. The COPHES and DEMOCOPHES projects have also aimed at building a sustainable system and developing the infrastructure. For biomonitoring purposes also pooled samples could be used, not necessarily individual samples.

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The use of HBM surveys as support for environmental health policies

European Health Examination Survey Conference
Monitoring the health of Europeans

06 - 07 March 2012
Brussels

Anke Joas, Pierre Biot, Ludwine Casteleyn, Reinhard Joas
(DEMO)COPHES

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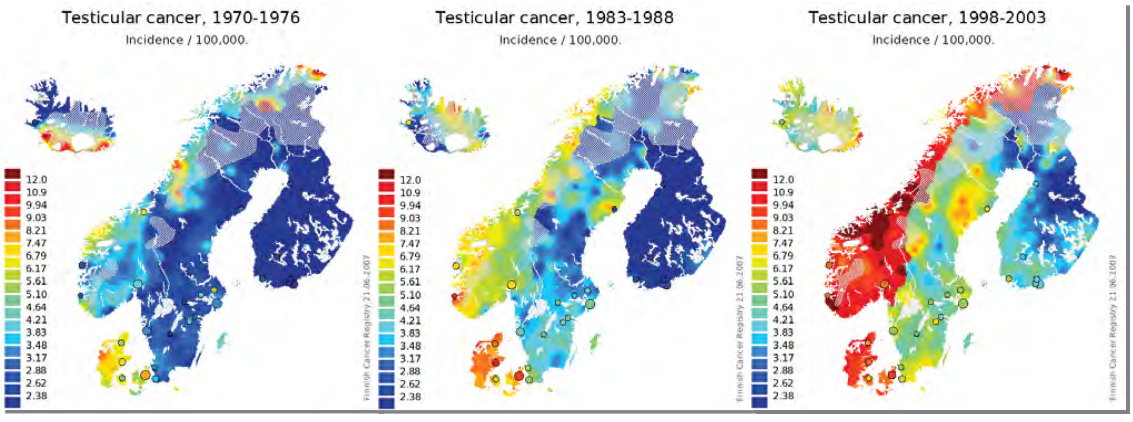
Examples of trends in incidence rates raising concern



© NORDCAN; Association of the Nordic Cancer Registries

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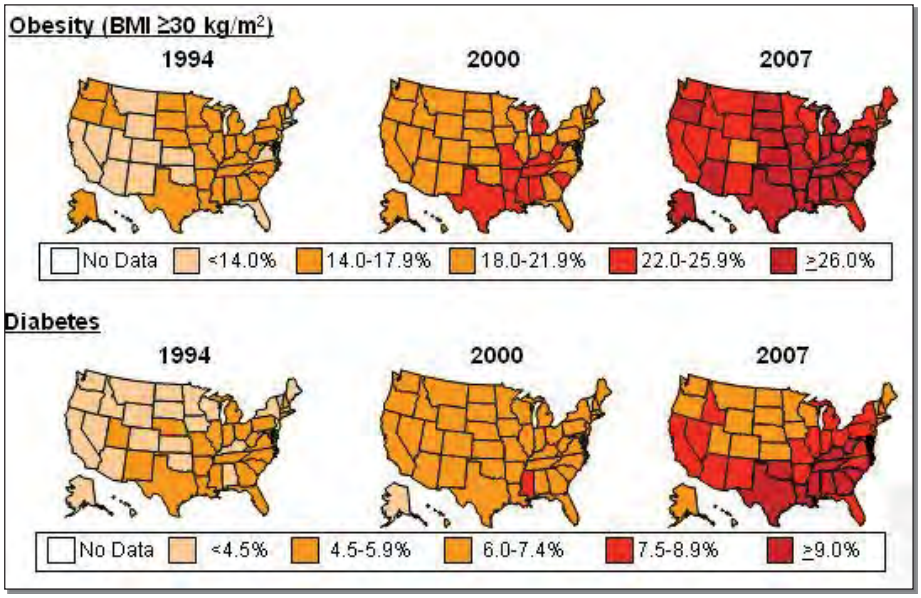
Examples of trends in incidence rates raising concern



NHANES, 2008

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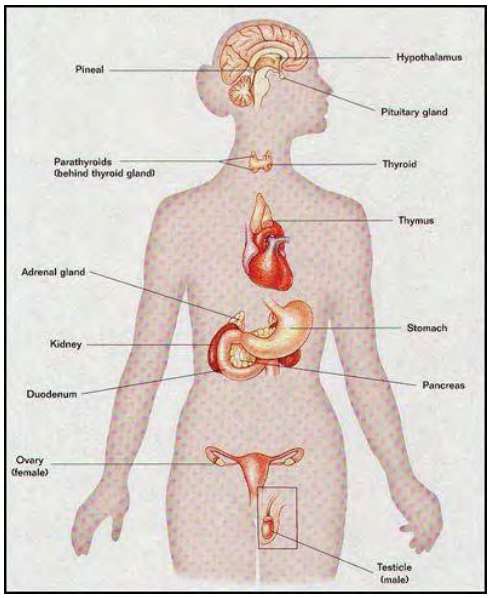
Endocrine disrupters as potential causes for increased risks

Obesity, Metabolic syndrome,
ADHD, Autism
Cancer (Breast, Vagine, Prostate, Testes)
Polycystic Ovary Syndrome
Endometriosis
Hypospadia, Cryptorchism
Reduced sperm count and motility
Precocious puberty
Fibrocytosis, Leiomyoma
Impaired immune and thyroid function
Osteoporosis

Roughly 200 Substances classified in EC list of priority substances



Holt, Rinehart & Winston; Modern Biology (1996)

4

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Examples of EU risk minimisation activities

REACH Regulation	Risk assessment and determination of limit/guidance levels derived-no-effect level (DNEL) for hazardous substances;
Plant protection product Regulation	Ban for endocrine disrupters (EDCs); EDC properties considered as given for CR (Cat 2);
Biocide Directive	Analogue ban as in PPP envisaged for revised directive; ongoing evaluation of 400 substances for PBT, CMR properties
Cosmetic Regulation	Revision of rules for EDC until 2015.
Food contact material Regulation	Migration limits for plastics; ban on BPA in baby bottles
Toys Directive	Substance migration limits for plastics

Concrete risks and mode of action of covered substances not yet fully understood

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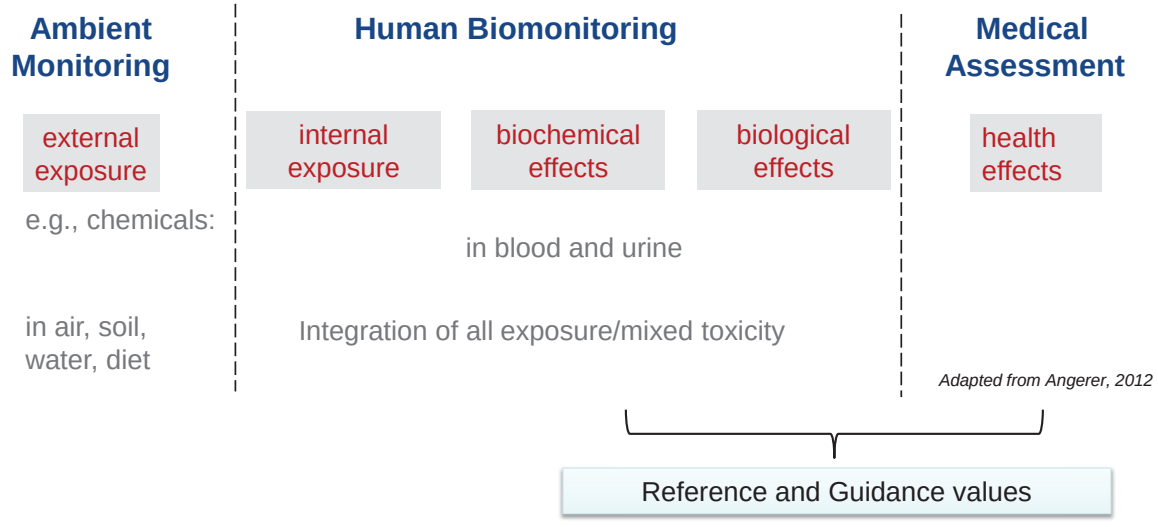
Assessment of health risks of environmental stressors



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Successful examples of population-based HBM surveys

1. US (NHANES/CDC, annually since 1999)
2. Canada (CHNS, Canadian Health Measures Survey, 2007 – 2009, 2010-2013)
3. Germany (German Environmental Specimen Bank (ESB) since 1974, GerES I – IV,1986 – 2006)
4. Czech Republic (Environmental Health Monitoring System since 1994)
5. Flemish HBM Programme (2002 – 2006, 2007- 2011)
6. France (ENNS study – population-based HBM and nutrition survey)
7. Italy (PROBE – first HBM survey for heavy metals 2008 – 2010)
8. WHO survey on POPs; envisaged activities related to mercury

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Examples for policy implications of HBM surveys

1. HBM surveys detecting elevated dioxins & PCB levels in human tissues – e.g.limit values
2. Survey detecting increasing levels of polybrominated flame retardants in blood - ban
3. NGO campaign showing widespread human contamination with PBTs and endocrine disruptors as trigger to REACH
4. HBM survey showing unexpected possible exposure to organophosphates - measures related to juice?
5. National HBM survey on cotinine levels in children - need for additional smoke control
6. National/regional HBM surveys on mercury and cadmium - impacts of socio-economic factors on environmental health in terms of elevated or reduced risks

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Major advantages of HBM surveys for E&H policies

1. Analysis of contamination levels and trends
2. Personalisation of exposure and potential risks (awareness raising effect)
3. Verification of exposure and risk estimates

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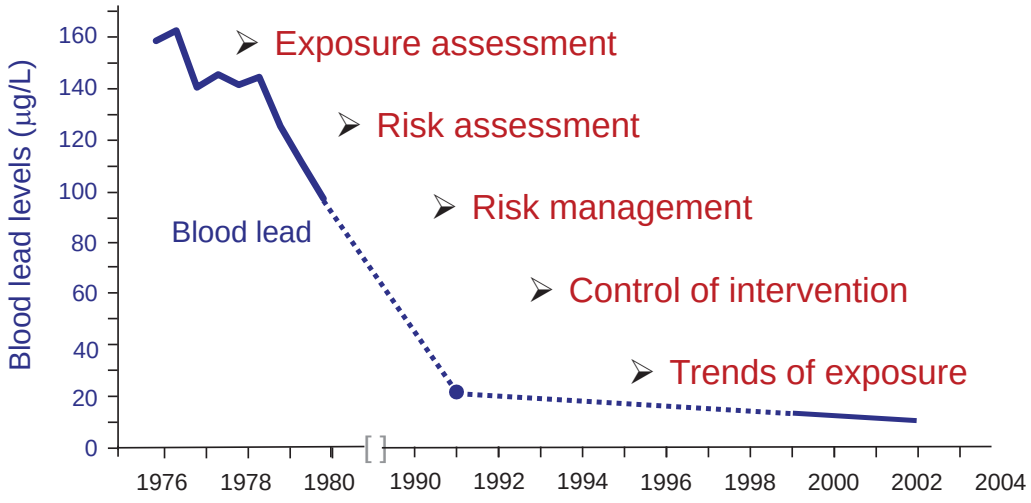
Risk identification and policy effectiveness monitoring via HBM



Angerer 2012 based on L. Needham 2004

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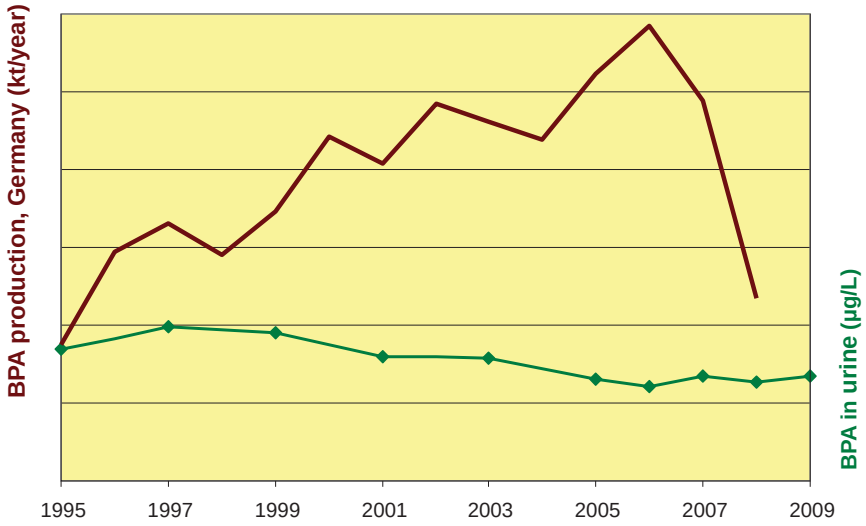
Verification of exposure estimates via HBM survey data



Kolossa 2011

Median from **ESB data** (Munster, n=60/ year, analysed by IPA-DGUV),
total annual **production** of manufactured goods, DE

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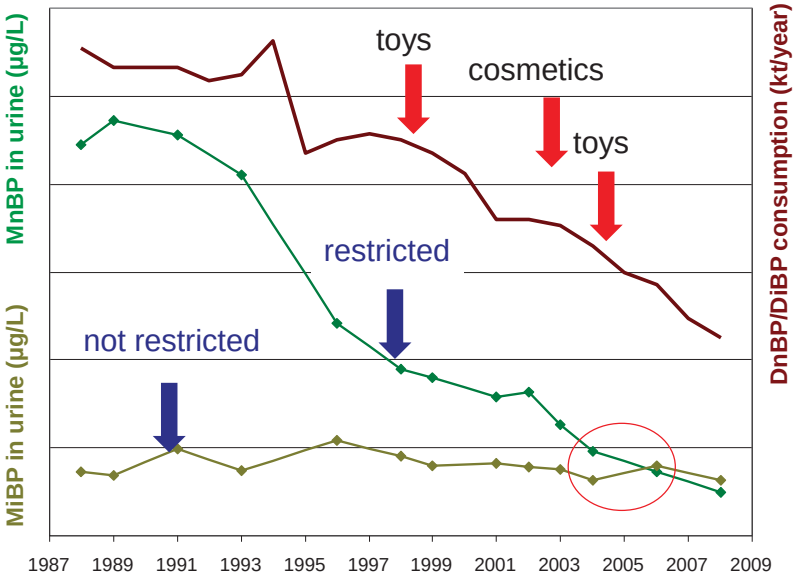
Verification of policy effectiveness & identification of new risks



Kolossa 2011

Median from **ESB** data (Munster, n=60/year, analysed by Univ. Erlangen);
consumption of Σ DnBP & DiBP in Western Europe.

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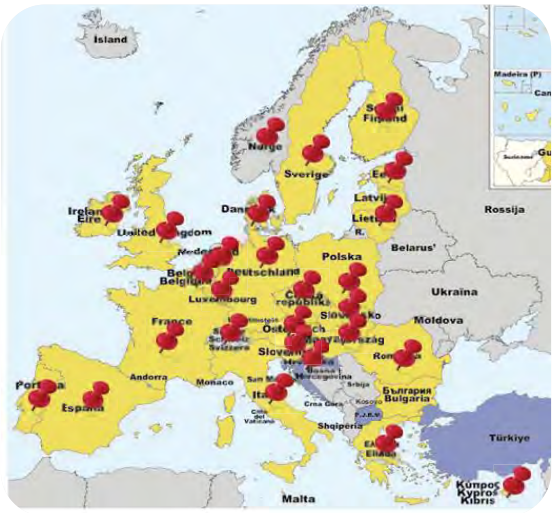
The European HBM pilot survey 2009-2012

COPHES Consortium to Perform Human Biomonitoring on a European Scale

- → Framework
- → Protocol
- → Standards
- → Quality Control
- → Guidance, Training
- → Analysis on EU level
- → Recommendations & Conclusions



DEMOCOPHES Demonstration of a study to coordinate and perform human biomonitoring on a European Scale

- → Pilot in 17 countries
- → children and their mothers
- → Questionnaire information
- → Samples (cadmium, phthalate metabolites, cotinine in urine; mercury in hair; bisphenol A, parabene, triclosan in urine)
- → Biobanking

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Reasons for selecting the biomarkers for the HBM pilot survey 2009-2012

Mercury: e.g.fish	Damages nervous system, kidney & stomach
Cotinine: tobacco smoke	Cancer, asthma & coronary heart diseases
Cadmium: e.g. batteries	Bone density, CVD, carcinogen
Phthalates: soft plastics	Premature births & genital defects, fertility
BPA: canned food, paints, varnish & glues	Fertility & neurodev. disorders, CVD & diabetes
Parabens: medicines, cosmetics & foodstuffs	Fertility & neurodev. disorders, CVD & diabetes
Triclosan: personal care products	Thyroid disruptions, dermatitis & allergies

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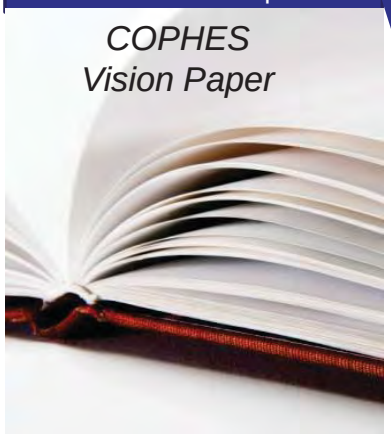
Remaining challenges and implementation needs

HBM embedded in an organisational and regulatory context with clear set objectives and scenarios for use of data and samples



1. Integration in surveillance infrastructure (synergies)
2. Prioritisation of substances of concerns (biomarkers) to be monitored & reported
3. Reference & guidance values for exposures/effects
4. Additional protocols, analytical methods & AQ/QS
5. EU data storage and data sharing/exchange, and international cooperation/exchange
6. EU structure for interpretation and inter-comparison of nationally collected data
7. Ethical and data protection issues in the light of future sample use

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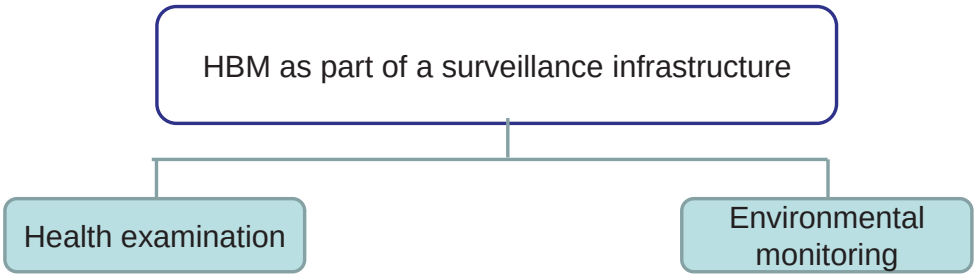
Exemplary role for HBM surveys in EU surveillance



Major synergies achievable:

- Recruitment
- Sampling and biobanking
- Information collection on exposure factors and other health determinants

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Added value of collaboration between HES and HBM

Information on potential environmental factors for major diseases with public health relevance making use of synergies

Questionnaire information on env. “risk factors”
Random sample of the general population
Pilot surveys in 17 countries
Anthropometric measurements: Height, weight

Core measurements: none
Matrix: Urine and Hair
Substances: cadmium, phthalates, cotinine, mercury; (Bisphenol A, paraben and triclosan)

Questionnaire and physical measurements
Random sample of the general population
Pilot surveys in 13 countries
Anthropometric measurements: Height, weight, and waist circumference
Core measurements: Blood pressure
Matrix: Blood
Substances: Total- and HDL-cholesterol, and glucose

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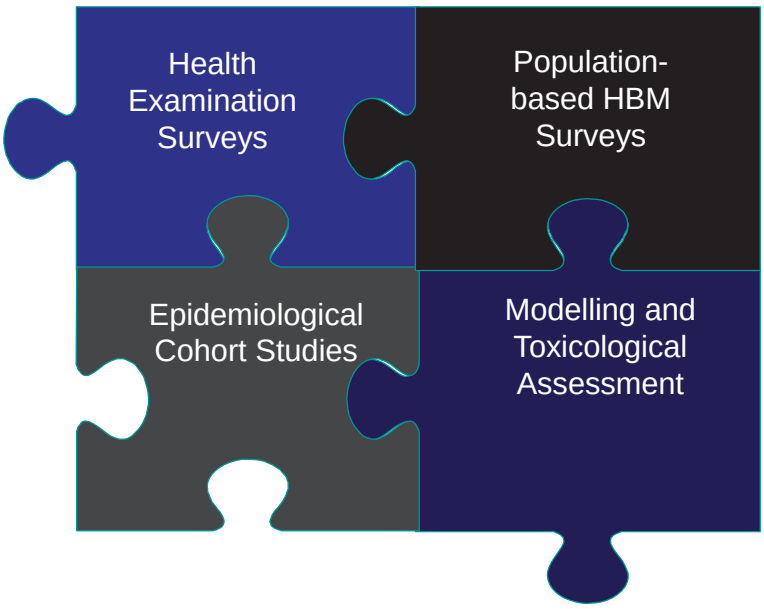
Major parameters to support environmental health policies



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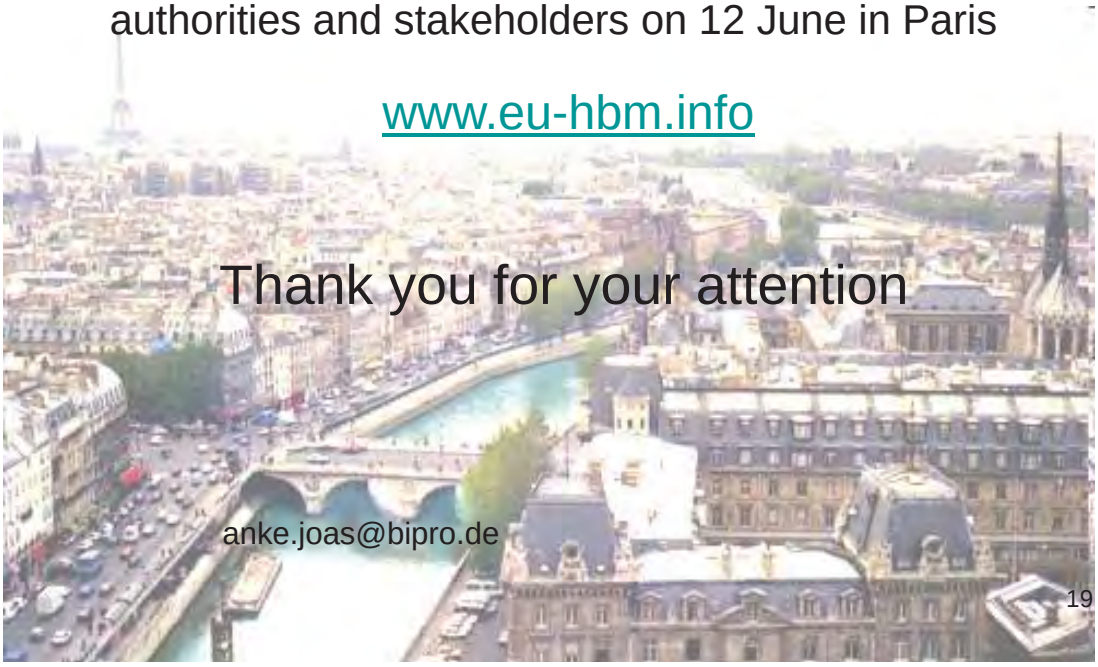
COPHES HBM meeting with Member State authorities and stakeholders on 12 June in Paris

www.eu-hbm.info



EHES Manual and national HES manuals - a tool for standardized national HESs

Hanna Tolonen, Päivikki Koponen
National Institute for Health and Welfare, Helsinki, Finland

Abstract

To obtain comparable results between countries or population groups within country, and reliable time trends of the health indicators, high quality data are required. This can only be achieved with high quality of the measurements.

High quality of the measurements can be ensured by standardized measurement procedures, proper training of the personnel conducting the measurements and with internal and external quality control. In EHES, all these three categories have both national level and European level. For standardized measurement protocols the EHES Manual at the European level and national HES manuals at the national level exist. For the training of the fieldwork staff, the EHES Training programme covers the European level and the national training programmes the national level. For quality control, the European level quality control includes external quality assessment and evaluation activities and at the national level, internal quality control actions are needed. This presentation focuses on the manuals.

A HES manual is needed to document agreed protocols and procedures. During the survey, it serves as a reference for the survey organizers on what has been planned and agreed on. The HES manual is an important reference also for the fieldwork staff on measurement protocols and other survey procedures. After the survey, the HES manual is an important reference for all those using the data.

The EHES Manual has three parts:

- Part A: Planning and preparing for the national HES,

- Part B: Fieldwork procedures, and
- Part C: European level collaboration and co-ordination.

Parts A and B have been published at the EHES web site at http://www.ehes.info/manuals/EHES_manual/EHES_manual.htm. Part C is under preparation and should be finalized by the end of April 2012. Also Part C will be published at the EHES web site.

The EHES Manual provides the European standard measurement protocols for the EHES core measurements of height, weight, waist circumference and blood pressure, and for blood sample collection, handling and analysis for the lipids and plasma glucose. For other topics, like sampling, ethical and legal issues, selection of the fieldwork staff and examination sites, survey organization and logistics, etc. the EHES Manual gives guidelines. Many of these topics are strongly dependent on the national legislation, infrastructure and culture.

Un the EHES Pilot Project, 12 pilot surveys were conducted and for each of them a national HES manual was prepared. The pilot countries can be classified in three categories: 1) countries with ongoing national HES when the EHES Pilot Project started, 2) countries with recently conducted national or regional HES, and 3) countries without previous experience or recent HES.

Four countries had ongoing national HES at the time when they participated in the EHES Pilot Project. These countries had a national HES manual and as the fieldwork was already ongoing, it was not possible to change the manual. These countries evaluated the differences between their national HES manual and the EHES Manual to see how well they already followed the EHES recommendations.

In all four countries, anthropometric measurements and blood pressure measurement followed the EHES recommendations. For blood sample collection, the protocols were identical to the EHES recommendations. Only in one country, the blood sample handling deviated from the EHES protocol due to the fact that they conducted all the measurements at the home of the participant. This sets some limitations on what can be done for the blood samples right after the sample have been drawn. In one country, glucose was measured from serum in their national HES but for the participants of the EHES pilot, they did glucose measurements on both serum and plasma.

Questionnaire items were more difficult to standardize between the ongoing national HESs and EHES. One country did an additional testing, asking the pilot survey participants to fill in both their regular national HES questionnaire and the EHES questionnaire. This provided valuable information for the comparisons of the questionnaires.

Four countries had conducted national or regional HES recently (within 3-5 years). In these countries, the national HES manual from the previous surveys could be used as bases for the new national HES manual. It was important to evaluate the differences between the previously used protocols and questionnaires and the EHES recommendations.

In all four countries, measurements and blood sampling and handling followed the EHES recommendations. In questionnaires, some deviations were observed. Two countries decided to keep the questions from their previous surveys to ensure reliable trend estimates. Also questions which were not included previously were added to the questionnaire.

Four countries had neither previous experience nor a previous national or regional HES had been more than 5 years ago. In these countries it was easiest to adopt the EHES recommendations.

At the end of the EHES pilot, it was encouraging to see that small national adaptations due to cultural differences do not harm standardization of the EHES core measurements. Also countries with existing HES systems can adapt to EHES.

The EHES Manual is one of the corner stones of the European level standardization. Now the 1st version of the EHES Manual is ready. It should be kept up to date for future developments of the measurement devices and procedures, demand of new measurement modules and for extension of the target age group.

National HES manuals which are prepared in the future should go thought external evaluation to ensure that they follow the EHES recommendations, and national adaptations do not compromise the comparability.

Summary of the discussion

The role of additional measurements, especially the need for questions on lifestyles was raised up. For nutrition, the PANEU questionnaire could be used. The development of the EHIS wave II questionnaire, e.g. questions on physical activity, can be followed, but the future of EHIS surveys is still open. The EHES questionnaire was updated a few days before the conference and is available at the EHES web site.

The differences in ethical processes and limitations were raised up, and the way they limit the recruitment processes in some countries. The experiences show that ethics committees need detailed information of the health examination surveys so that they will be able to distinguish health examination sur-

veys from medical intervention studies.

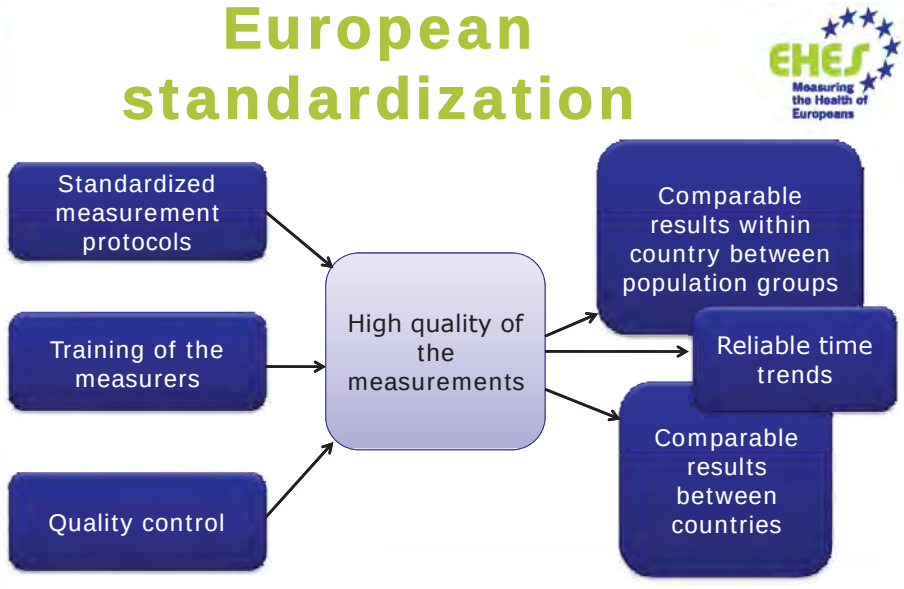
Now when the EHES Manual has been prepared it does not mean that all the work has been done. Measurement devices develop all the time as well as measurement procedures. The EHES Manual needs to be updated for these changes regularly and new, additional measurement modules need to be added.

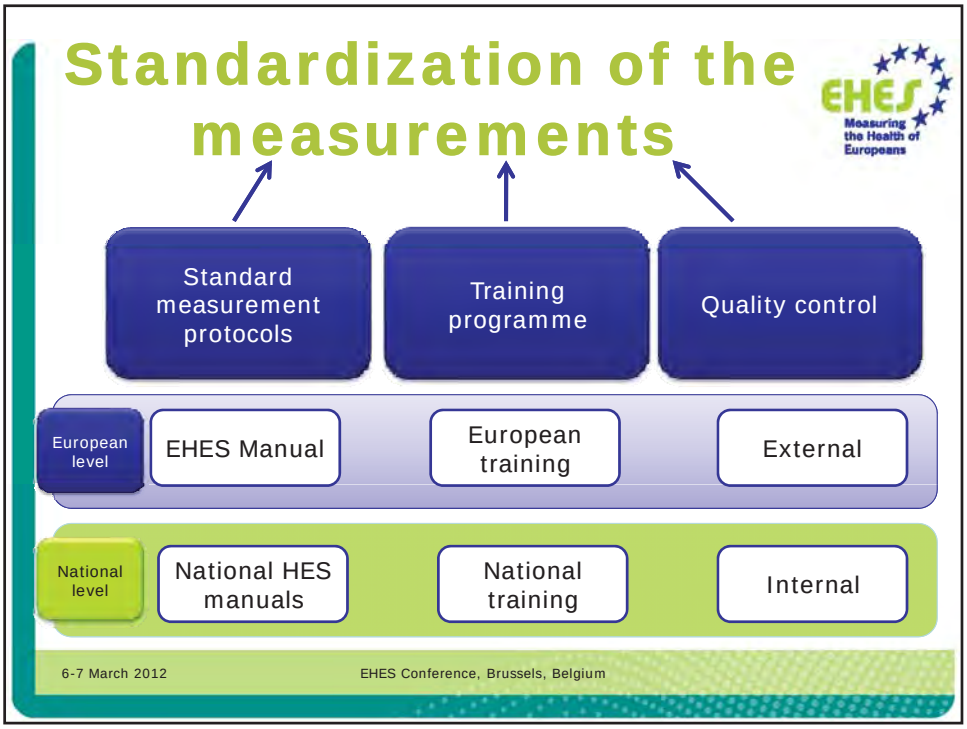
EHES Manual and national HES manuals

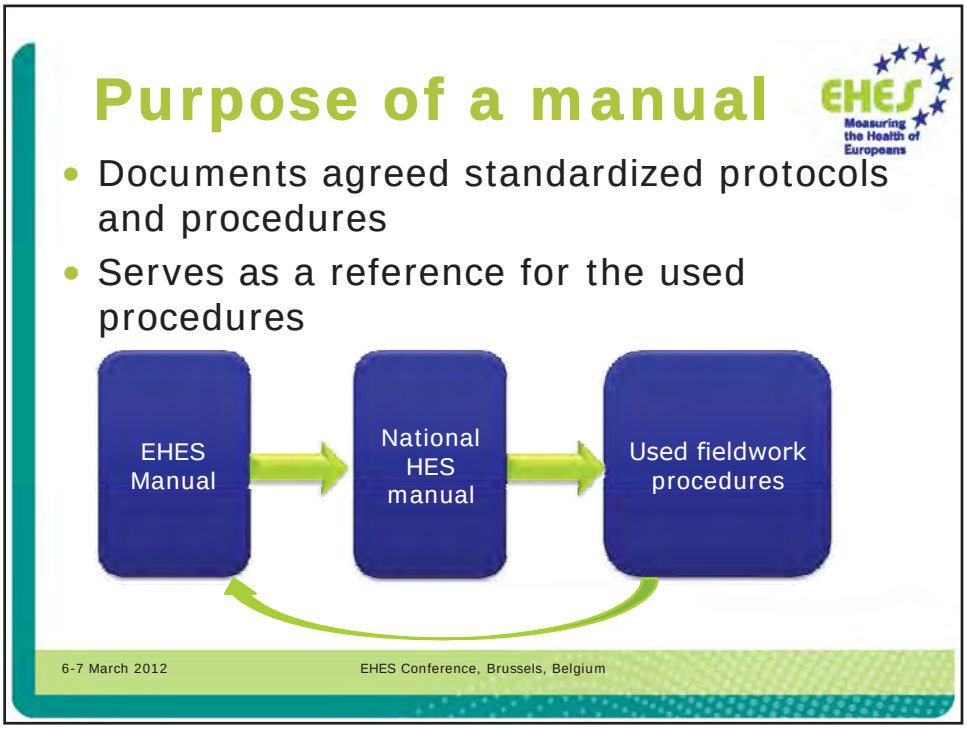
- A tool for standardized national HESs

Hanna Tolonen
EHES Reference Centre
National Institute for Health and Welfare (THL), Finland

European standardization




Standardization of the measurements
Standard measurement protocols
Training programme
Quality control
European level
EHES Manual
European training
External
National level
National HES manuals
National training
Internal
6-7 March 2012
EHES Conference, Brussels, Belgium


Purpose of a manual
Documents agreed standardized protocols and procedures
Serves as a reference for the used procedures
EHES Manual
National HES manual
Used fieldwork procedures
6-7 March 2012
EHES Conference, Brussels, Belgium

EHES Manual

- Available at http://www.ehes.info/manuals/EHES_manual/EHES_manual.htm
- Three parts
  - Part A: Planning and preparing for the national HES
  - Part B: Fieldwork procedures
  - Part C: European level collaboration and co-ordination

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Aim of EHES Manual

- European standardized measurement protocols
- Guidelines and practices for
  - Sampling
  - Ethical and legal issues
  - Selection of the fieldwork staff and examination site
  - Survey organization and logistics
  - Training
  - Recruitment of participants
  - Budgeting
  - Evaluation and reporting

6-7 March 2012 EHES Conference, Brussels, Belgium

National HES manual

- Detailed documentation of the nationally used
  - Survey organization
  - Legal and ethical issues
  - Sampling
  - Fieldwork organization and logistics
  - Measurement procuders
  - Questionnaire(s)

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National manuals with ongoing national HES

- DE, IT, NL and UK/England (4) of the EHES pilot countries had ongoing national HES
  - Had a national HES manual, not possible to change during the ongoing HES
  - Evaluated differences between EHES recommendations and their national HES manual
  - DE and IT also conducted a fieldwork pilot
    - DE tested differences in questionnaire
    - IT added youngest 10-year age group and tested differences in laboratory analysis

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Results – ongoing national HESs (1)

- Measurement protocols for anthropometric measurements and blood pressure were identical to EHES protocols in all 4 surveys
- Blood sample
  - Sample collection (drawing) identical to EHES in all 4 surveys
  - Sample handling varied in UK/England
    - Centrifugation and freezing of the samples difficult in home visits
  - Total and HDL cholesterol measured in all 4 surveys
    - No deviation in the protocols
  - Fasting glucose measured in 3 surveys (DE, NL, IT)
    - In IT, glucose was measured from serum instead of plasma. For pilot, analyzed glucose from both serum and plasma.
  - HbA_{1c} instead of fasting glucose in UK/England and in addition to fasting glucose in DE and NL

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Results – ongoing national HESs (2)

- Questionnaires had more deviations
  - Difficult to change questions without loosing trends
- In future
  - Missing questions can be added
  - Adding missing specifications to existing questions
    - E.g. Do you have or have you ever had any of the following diseases or conditions, diagnosed by a medical doctor?
  - Having duplicate questions, old and new versions side by side

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National manuals in countries with experience

- CZ, FI, NO, and PL (4) of the EHES pilot countries had recently conducted a regional or national HES but did not have ongoing national HES
  - Had a HES manual for previous surveys
  - Evaluated the differences between EHES recommendation and previous HES manuals
  - For pilot survey adapted EHES recommendations but ensured the national trend estimates

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Results – countries with experience (1)

- CZ
  - All core measurements followed the EHES recommendations
  - Questionnaire as EHES recommended with some additional questions
- FI
  - All core measurements followed the EHES recommendations
  - Some questionnaire items deviated, used questions from previous HES
  - Added some n quesewtions

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Results – countries with experience (2)

- NO
  - All core measurements followed the EHES recommendations
  - Questionnaire as EHES recommended
- PL
  - All core measurements followed the EHES recommendations
  - Some questionnaire items deviated, used questions from previous HES

National manuals in countries without previous experience

- EL, MT, PT and SK (4) of the EHES pilot counties had no recent experience on national HES
  - Did not have existing HES manuals
  - Where able to adapt the EHES recommendations

Conclusions

- EHES Manual supports the preparation of standardized national HES manuals
- Small national adaptations due to cultural differences, national legislation and infrastructure do not harm standardized protocols
- Also countries with long HES traditions can follow EHES recommendations
  - Requires more effort, time and money

Recommendations

- EHES Manual is needed to support the European level standardization
- EHES Manual should be kept up to date
  - Developments on the measurement techniques
  - Demand of new measurement / questionnaire modules
  - Extend of target age group (children and elderly)
- National HES manuals should be evaluated by external evaluators (EHES RC) to ensure comparability with EHES recommendations

Importance of training in standardization - EHES Training Programme

Päivikki Koponen
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Abstract

Training is a basic component for quality assurance. The aims of the EHES training program are to: 1) ensure that standard procedures are used for data collection, 2) develop best practices for planning and organizing the surveys, 3) help countries without previous experience to gain the expertise needed to organize the survey, and 4) share experiences among the countries. The EHES training includes three dimensions: 1) European training seminars, 2) outline for national training programmes, and 3) training materials.

Training seminars

During the EHES Pilot Phase, two training seminars were organized and a need for a third seminar was identified.

1. The seminar on planning and preparing for EHES is targeted for those who plan and prepare the national surveys. This seminar aims to support planning national surveys according to the EHES standards, to raise awareness on EHES in all European countries, and to discuss possible national adaptations.
2. The seminar on fieldwork procedures is targeted to those who will train the national fieldwork staff in each country. The seminar aims to promote the use of the EHES training materials, and to ensure that the national training will be organized following the EHES standards. The seminar focuses on the EHES core measurements and other key aspects of fieldwork.
3. The seminar on data analysis, reporting and dissemination of the results is targeted to statisticians, researchers and survey organizers responsible for these issues in the national surveys. This seminar aims to promote comparison of the national results, to develop European reports and to support both national and European dissemination of the results.

Outline for national training programmes

The outline is described in the EHES Manual as a guideline for organizing the national training. It specifies the main topics for the training covering both measurement protocols and other key issues in the fieldwork. Recommended training methods are described including both theory and practice.

Training Materials

The materials have been designed for two target groups, 1) the national survey coordinators and trainers (European training), and 2) the national fieldwork staff (national training). The materials can be used both in self-directed independent study and in training sessions or seminars. The materials illustrate key aspects and do not include all details which can be found in the manuals. They include presentations, videos and knowledge tests. A possibility for web-based contact to those who have developed these materials, to express questions and to share ideas and good practices would be useful.

All material can be used freely for non-commercial training purposes, and they can be translated and adapted to national use. There are training materials for national fieldwork staff on:

- sampling, recruitment and informed consent
- anthropometric measurements
- blood pressure measurement
- blood samples
- questionnaire administration.

The materials for training survey organizers can be used at European and national training for survey organizers and by those planning, preparing, training, coordinating and supervising the national survey team. The material focuses on budgeting, sampling, legal and ethical issues and recruitment.

Pilot experiences on training

There were representatives from 23 countries in the first EHES training seminar. In the second training seminar there were participants from all pilot countries and from three other countries. Feedback from these two training seminars was very positive. The participants valued the opportunity to share experiences. To facilitate future use, training materials have been edited based on discussions on the training seminars and other pilot experiences.

No major problems were experienced on organizing national training for the pilots. Some partners prepared national translations of the EHES training ma-

terial. The length of the training varied from a few hours on one single day to several training sessions during 4-6 days.

The national training in most pilot countries covered all topics listed in the EHES training outline. Shorter training was considered adequate if the field-work staff had previous experience in health surveys. However, several part-ners felt that training for the future surveys should be extended to focus more e.g. on recruiting the participants and obtaining informed consents, and to include more practice. Supervised practice during the first days of data collec-tion was seen important.

Conclusions

Training is needed to understand the need to follow the standard procedures and to obtain practical skills. Experiences during the EHES pilot phase show that training both at the European and at national level are essential elements in quality assurance. If the fieldwork period covers several months both a proper training before the fieldwork and short re-fresher sessions during the fieldwork are needed.

For further details and all materials see the EHES website at http://www.ehes.info/training_programme.htm

Summary of the discussion

The need for European level training seminars also in the future was recog-nized. It is also important to update the standardized training materials in the future. During the EHES pilot, a lot of material has been accumulating to the EHES Extranet, a wiki based, password protected site. Some of this material could be made publicly available and for the countries planning a HES, it would be important to have an access and be able to update this information.

Now when the EHES training material is available at the EHES web site, coun-tries are free to use it and translate to their own languages. It would be good if the translations were sent to the EHES RC, so that they can be placed to the EHES web site.

Importance of training in standardization

-EHES training Programme

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National Institute for Health and Welfare (THL), Finland

Aims of the EHES training programme

- Ensure that standard procedures are used for data collection
- Help countries without previous experience to gain expertise
- Develop best practices
- Share experiences among the countries

6-7 March 2012 EHES Conference, Brussels, Belgium


EHES Training programme
European training seminars
Outline for national training programs
Training materials
National training
Good quality of the measurements
Comparable results between countries
6-7 March 2012
EHES Conference, Brussels, Belgium
3


Training seminars
1st seminar Planning and preparing for EHES
•Support planning national surveys according to EHES standards
•Raise awareness on EHES
•Discuss possible national adaptations
2nd seminar Fieldwork procedures
•Ensure national training following the EHES standards
•Introduce EHES training materials
•Focus on EHES core measurements on other key aspects of fieldwork
3rd seminar Data analysis, reporting and dissemination
•Promote comparison of national results
•Develop European reports
•Support national and European dissemination of the results
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Outline for national training programs

- Lists topics and suggests training methods
  - Background and aims of the survey, sampling, recruitment, informed consent, data protection and ethical issues
    - Knowledge and practical skills to motivate invited persons, and to ensure ethically and legally acceptable data collection
  - Measurement protocols
    - Knowledge and practical skills to follow standards: rationale, techniques, and rules for giving feedback to participants and consulting physicians
  - Other issues, e.g. safety, communication and publicity

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Training materials

- Presentations with pictures and key points
- Videos
- Knowledge tests

Some finalised, others to be finalised by April 2012 – need for further development and updates

A web platform for questions and sharing ideas would facilitate development

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Use of EHES training materials

- Can be used freely for non-commercial training purposes
- Can be translated and adapted for national use
- To be used in training seminars/sessions and self directed learning

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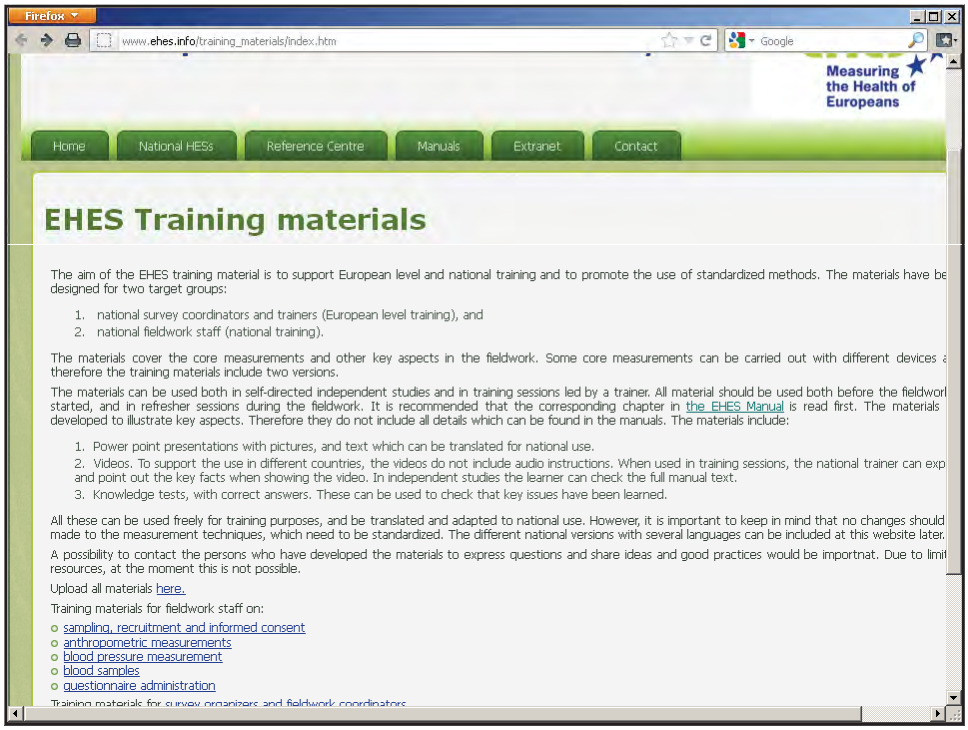

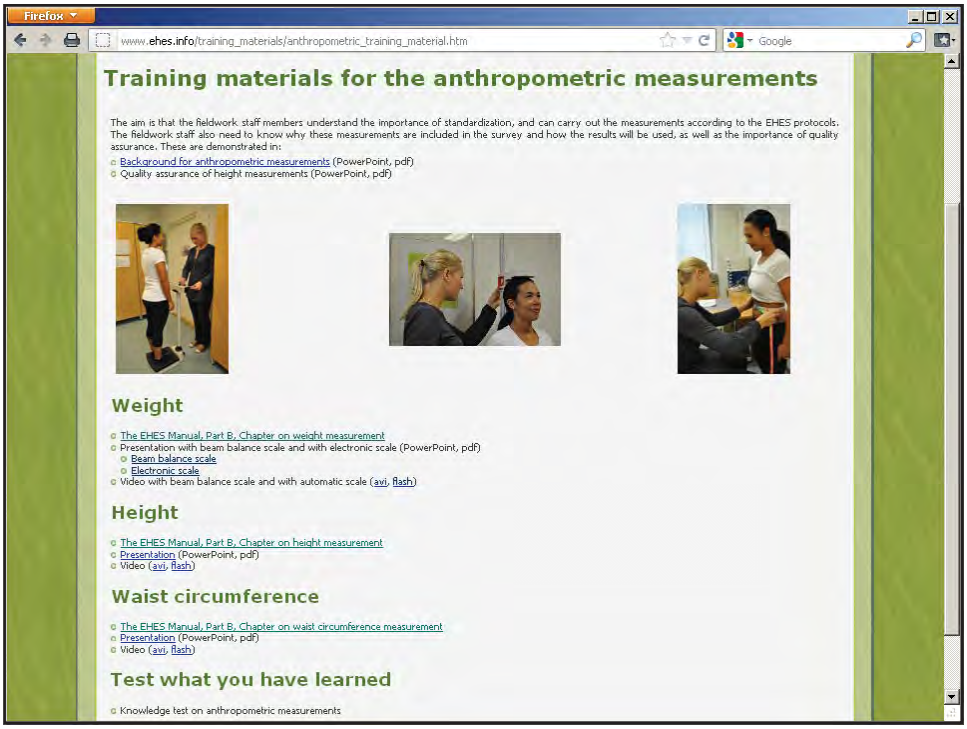
Firefox
www.ehes.info/training_materials/anthropometric_training_material.htm
Google
Training materials for the anthropometric measurements
The aim is that the fieldwork staff members understand the importance of standardization, and can carry out the measurements according to the EHES protocols. The fieldwork staff also need to know why these measurements are included in the survey and how the results will be used, as well as the importance of quality assurance. These are demonstrated in:
Background for anthropometric measurements (PowerPoint, pdf)
Quality assurance of height measurements (PowerPoint, pdf)
Weight
The EHES Manual, Part B, Chapter on weight measurement
Presentation with beam balance scale and with electronic scale (PowerPoint, pdf)
Beam balance scale
Electronic scale
Video with beam balance scale and with automatic scale (avi, flash)
Height
The EHES Manual, Part B, Chapter on height measurement
Presentation (PowerPoint, pdf)
Video (avi, flash)
Waist circumference
The EHES Manual, Part B, Chapter on waist circumference measurement
Presentation (PowerPoint, pdf)
Video (avi, flash)
Test what you have learned
Knowledge test on anthropometric measurements


EHES
Measuring the Health of Europeans
Waist circumference
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Experiences

- Active participation in training seminars and positive feedback: opportunity to share experiences was highly valued
- National training varying in the pilot countries from few hours to several training sessions/4-6 days
- More focus e.g. on motivating invited persons is needed
- More practical training and supervised practice needed during the first days/weeks of fieldwork

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Conclusions

- Training is needed to develop skills and to understand the importance of standardization
- Training has to be well planned and resourced
- Short re-fresher sessions may be needed
- Both European and national training programs are important

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EHES site visits - learning from each other

Katri Kilpeläinen
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Abstract

WHAT IS THE SITE VISIT? EHES Site visits are one element of EHES external quality control. EHES Reference Centre carried out a site visit to each EHES pilot country during its fieldwork phase in 2010-2011. During the site visit, the health examinations were observed with the permission of the participants. The survey procedures were evaluated against the national HES Manuals and the EHES protocol. The site visitors discussed with the local survey organizers and planning team about the field work observations, sample selection, data management, ethical issues, selection, recruitment and training of field work staff, recruitment of the participants, laboratory procedures, and logistics of the survey. The site visits were a learning process both for the national survey organizers and the EHES Reference Centre. The site visit report was prepared to document the observations and discussions.

AIMS:

1. To evaluate a) the survey procedures in the pilot countries and b) how the national pilots followed the EHES standards in different circumstances
2. To provide feedback to the national fieldwork staff and survey organizers on observations
3. To share experiences

WHAT WAS OBSERVED? In general tasks were allocated clearly, the coordination was efficient, staff was well trained and dedicated, the interaction with participants was friendly, teams consisted of many equally important staff members, and the collaboration was good between local professionals and national organizations. Participants valued the feedback on personal results and health promotion. Small deviations from the EHES protocol were noticed.

Most of them related to incorrect positions during the blood pressure measurements, cultural clothing issues and devices that differed between the pilot countries. All measurement devices full-filled the quality criteria.

Circumstances in the fieldwork sites varied between the countries. Pilot HESs were carried out in many kinds of fixed fieldwork sites, mobile clinics and participants homes. Also the composition and professional qualifications of the staff varied a lot. In some countries one nurse took care of everything, but in most countries each participant visited many examination rooms for different measurements. Data management systems varied from computer based programs to paper folders. This had an effect to data protection issues. Innovations in developing logistics programmes were observed e.g. advanced systems to schedule visits and keeping a logbook on contacts. These are examples of best practices that are worth sharing between the countries. After the deviations were observed, we were happy to notice that in many countries the recommended changes were made immediately after the site visit.

CONCLUSION: Site visits are an integral part of the functioning Health Examination Survey System, and important part of the quality assurance of EHES. Observations and feedback discussions helped to see the development areas of national pilots and full size surveys. The key challenges in standardization were related to clothing, checking the correct position of participants, different devices and obtaining acceptable participation rate. Site visits were an important learning process for both the pilot countries and the EHES Reference Centre. Site visits revealed that the comparability of EHES results can be ensured at the population level by standardizing the measurement protocols. Several practical issues in organizing the surveys can help to increase participation and to improve data quality.

Summary of the discussion

Site visits are also needed for future surveys, not only during the EHES Pilot phase. To organize site visits, requires enough qualified personnel at the EHES RC who are willing to travel around Europe. It also requires some financial resources. In the future, in addition to the site visits organized by EHES RC, countries could do site visits to each other to observe the fieldwork with a goal of benchmarking.

EHES Site visits -learning from each other

EHES Final Conference
7.3.2012

Katri Kilpeläinen
Project Coordinator

What is the site visit?

- Element of external quality control
- Observation of health examinations (with written consent from participant)
- Discussions with the survey organizers and fieldwork staff
  - Issues: Fieldwork, training of fieldwork staff, sample selection, recruitment of participant, data management, ethical issues, laboratory procedures, logistics of the survey
- Site visit report

Who, where, when?

- Who: Staff of the EHES Reference Centre
- Where: To each EHES pilot country
- When: One site visit/country during the pilot fieldwork

Why site visit?

- To evaluate
  - a) the survey procedures in the pilot countries
  - b) how the national pilots followed the EHES standards in different circumstances
- To provide feedback to the national fieldwork staff and survey organizers
- To share experiences
- Learning process both for the pilot countries and the EHES Reference Centre

What was observed?

- Clear division of tasks, efficient coordination
- Well trained, dedicated staff
- Composition and professional qualification of the staff
- Friendly interaction with participants
- Service to the participants: focus on health promotion and feedback on personal results
- Good collaboration between local professionals & national organizations

What was observed?

- Small deviations from the EHES protocol
  - Cultural issues related to clothing
  - Positions during the blood pressure measurements.
  - Measurement order
  - In many countries recommended changes were made immediately

- Devices differed between the pilot surveys
  - All devices filled in the quality criteria

What was observed?

- Different fieldwork circumstances
  - Different fieldwork sites, mobile clinics, home visits,
  - One nurse took care of everything or participant visited many examination rooms
  - Data management and data protection issues
  - Innovations in logistics programmes, e.g. scheduling visits and keeping a logbook on contacts
  - Difficulties in obtaining acceptable participation rate



What was the feedback from the pilot countries?

Comment from CZ

"We discussed the sampling, and the response rate, which has been low, and ways to improve it. We also discussed the type of equipments, the calibration and the procedure of the measurements. Some deviations from the protocol were found and will be corrected. This include the transport of the blood samples. The discussions proceeded in a very friendly atmosphere."

- Nada Capkova, Czech Republic

Comment from NL

"Although we trained our fieldworkers and did audits ourselves to ensure all protocols were followed, the EHES auditors still had some useful observations. Especially with the blood pressure measurements, there were various observations about the sitting position of the subject. We have discussed these remarks with our fieldworkers, and in that way the standardization of our fieldwork is further improved."

- Monique Verschuren, the Netherlands

Conclusions

- Integral part of the functioning Health Examination Survey System
- Important part of the quality assurance of EHES
- Observations and feedback discussions helped to identify development needs of HES
- Learning process for all
- Comparability of the EHES results can be assured at the population level by standardization and collaboration at EU level

Standardization and comparability of EHES Pilot core measurements: serum total and HDL cholesterol and plasma glucose

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Abstract

Background

Laboratories engaged in clinical chemistry are expected to verify their systematic error (accuracy, bias) in external quality assessment (EQA) programs. Limits for accuracy sufficient for diagnostic purposes are usually much wider compared to those required for monitoring trends and differences in blood lipids and other blood components of populations. Serum total and HDL cholesterol are used widely in cardiovascular risk assessment and plasma glucose for identifying subjects at risk for type 2 diabetes which is an ever increasing illness throughout Europe. The accuracy of these core measurements is to a great extent influenced by the use of different methods, reagents and instrumentation in addition to pre-analytical factors.

Objectives

The aim was to standardise serum total and HDL cholesterol and plasma glucose measurements of laboratories participating in the EHES Pilot. One of the purposes of health examinations is to find out changes in time and within populations.

Methods

Serum and plasma samples were prepared at the EHES Reference Laboratory and given target values for the lipids traceable to the Center for Disease Con-

trol and Prevention (CDC, Atlanta) values. Values for glucose were traceable to National Institute of Standardization and Technology (NIST, Gaithersburg) Certified Reference Materials. Three triads of frozen coded serum or plasma samples (3 Rounds, 9 duplicate samples) were transported in dry ice to nine participating laboratories: The Netherlands, Norway, Poland, England, Slovakia, Italy, Malta, Germany and Finland.

Study design

In each Round, 3 different samples were analyzed in duplicate on 2 consecutive weeks (4 results per sample). Each laboratory received feedback on their relative bias and suggestions for possible improvement. The 2nd Round was intended for displaying improvement and the 3rd Round for assay together with pilot samples. Results for Round 1 are presented.

Results

All laboratories used the CHOD-PAP enzymatic method for total cholesterol. The precision of the cholesterol measurements were within Goal limits (±2%) in 8 of 9 laboratories. 81% of individual results were within Goal (3%) and 100% within the Acceptable (5%) bias limits. The mean bias of 8 out of 9 laboratories was within the 3% Goal bias.

For HDL cholesterol all laboratories used a homogenous method. The precision of the HDL cholesterol measurements were all within Goal limits (2%) in 4 laboratories, within Acceptable limits (±3%) in 2 and in 3 laboratories at least one result exceeded 3%. 84% of individual results were within Goal bias limits (5%). Only one result of 108 exceeded the Acceptable bias limit (10%). The mean bias of all laboratories was 2.0%(-0.5 – 2.5% 95% CI).
For plasma glucose measurements the laboratories used enzymatic methods based on hexokinase. The precision was within the Goal limit (1%) in 3 laboratories, within Acceptable limit (2%) in 4 and over 2% in one laboratory.

For one reference sample having a pathological concentration, 2 laboratories failed to reach the bias Acceptance limit (8%) of the target value. Therefore, the mean bias for all 3 samples were calculated relative to the mean of all laboratories. 92% of individual sample means were within Goal bias (4%) and none exceeded the Acceptable (8%) limit. The mean bias was 0.06% (-1.3 – 1.4%, 95% CI) and all laboratory means were within the EHES Goal limit.

Conclusions

- The performance of the nine laboratories was better than anticipated from EQA experience and generally seven laboratories showed excellent performance.

- Bias results allow detection of changes exceeding 2% for total cholesterol, 3% for HDL cholesterol and plasma glucose with time or between populations.
- In addition to present initial short term standardization, assessment of systematic error is recommended during entire span of survey sample analysis.

Summary of the discussion

The need for a European reference laboratory was supported. To assure data quality, 1-2 % of the national samples should be analyzed by a reference laboratory. This makes about 100 samples/each national laboratory/survey.

Standardisation and comparability of EHES Pilot core measurements:

Serum total and HDL cholesterol and plasma glucose

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6-7 March 2012 EHES Conference, Brussels, Belgium

All measurements include errors

*measurement uncertainty

*Systematic error (bias%)

*deviation from true value

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Laboratories analyzing population survey samples

- Governmental
- Municipal
- University hospitals
- Regional hospitals
- Commercial

Measurement errors can be controlled

*level of quality criteria

*quality awareness

*extra work & cost

Worst-case scenario: HDL cholesterol

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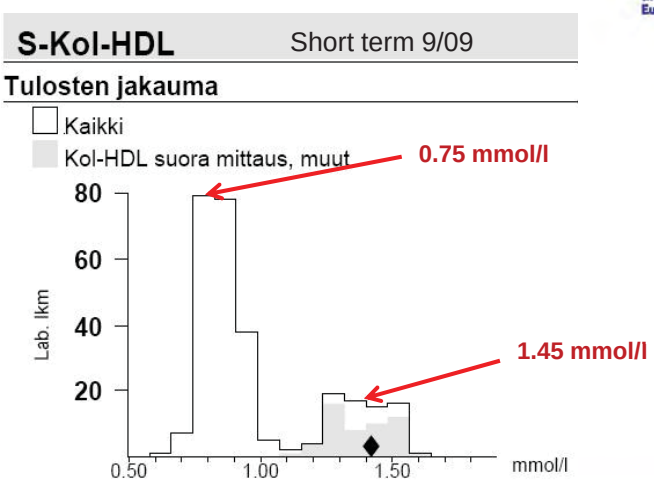
HDL-cholesterol EQA Labquality Finland



07.03.2012 EHES Conference, Brussels, Belgium 6

Misclassification of people at risk for CVD or diabetes due to large systematic error

Cut-off values for core measurements

Total cholesterol	**< 5.0 mmol/l**
HDL cholesterol	**> 1.0 mmol/l**
Glucose	**< 6.0 mmol/l**
	European Society of Cardiology

Rationale for laboratory measurement standardization

- Classification according to cut-off requires accurate measurements
- National EQA program bias limits usually too wide
- Diagnostic vs. epidemiologic purposes
- Sample target values same for all laboratories

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Design of standardization program

- Serum and plasma samples were prepared at the EHES Reference Laboratory
- Target values for **total cholesterol** and **HDL cholesterol** traceable to CDC reference methods.
- Target values for **glucose** traceable to NIST Certified Reference Materials
- Three triads of frozen coded serum or plasma samples
- (3 Rounds, 3 samples per Round, duplicate samples to be analyzed)
- Transport on dry ice to laboratories engaged in EHES Pilot 2010-11

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Participating laboratories in EHES Pilot 2010-2011

The Netherlands
Slovakia
Norway
Italy
Poland
Malta
England
Greece
Germany
Finland

Purpose of the 3 Rounds

Round 1: 3 different samples were analyzed in duplicate on 2 consecutive weeks (4 results per sample).
•Each laboratory received feedback on their relative bias and suggestions for possible improvement.

Round 2: intended for displaying improvement
•Feedback

Round 3: intended for assay together with pilot samples.

Recommended goals for bias and precision of methods

Core analytes	Bias (%) Goal	Bias (%) Acceptable	Precision (CV%) Acceptable
Total cholesterol	3	5	2
HDL cholesterol	5	10	3
Plasma glucose	4	8	2

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Results of standardization
Round 1

Total cholesterol

HDL cholesterol

Glucose

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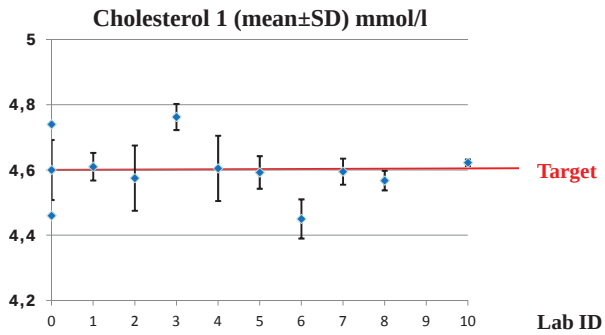
Total cholesterol

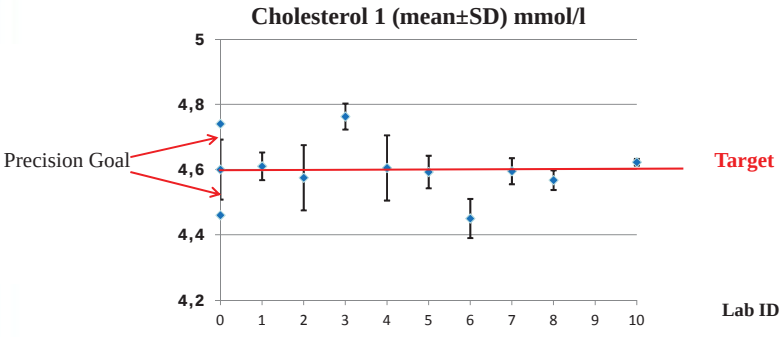
Raw data



2 analyses on 2 consecutive weeks, n=4

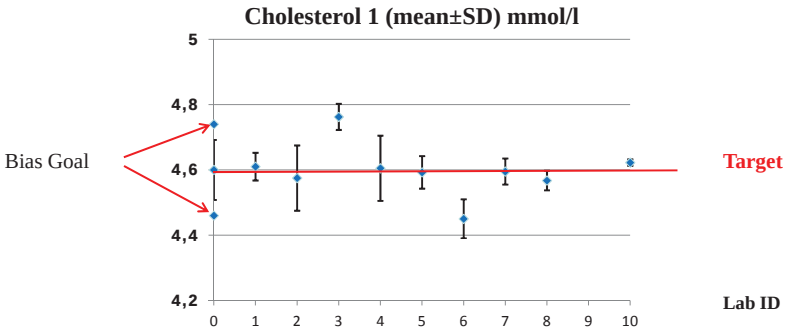
Total cholesterol

Raw data



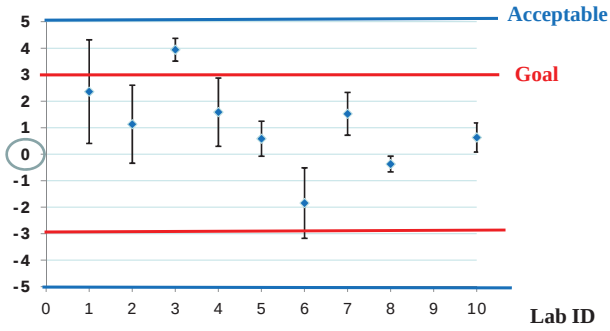
Total cholesterol

Raw data



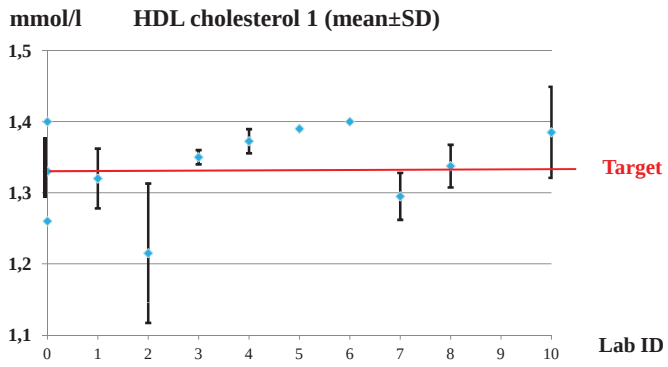
Total cholesterol

Bias % mean±SD



Mean bias 1.1% (0-2.1%, 95% CI)
Each mean represents 3 samples, 12 results

HDL cholesterol
Raw data



2 analyses on 2 consecutive weeks, n=4

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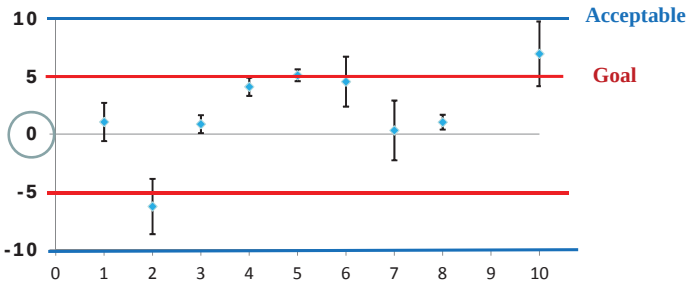
HDL cholesterol
Bias % mean±SD



Mean bias 2.0% (-0.5 - 2.5%, 95% CI)

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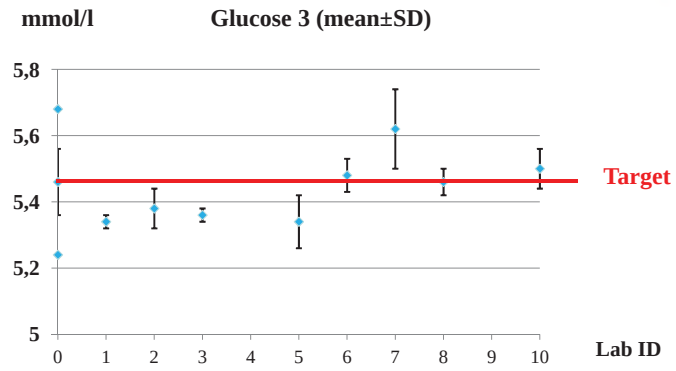
Plasma glucose
Raw data



2 analyses on 2 consecutive weeks, n=4

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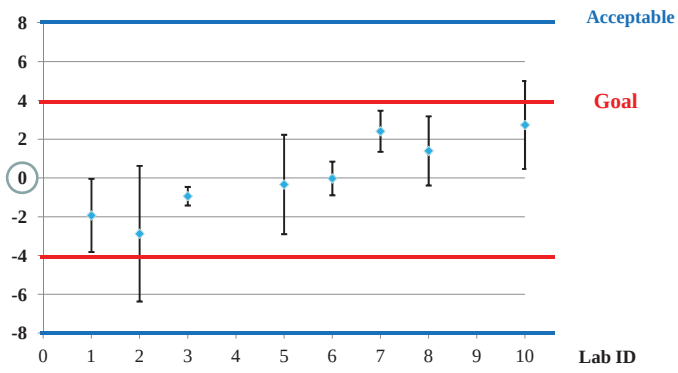
Plasma glucose
Bias % mean±SD



Mean bias 0.06% (-1.3 – 1.4%, 95% CI)

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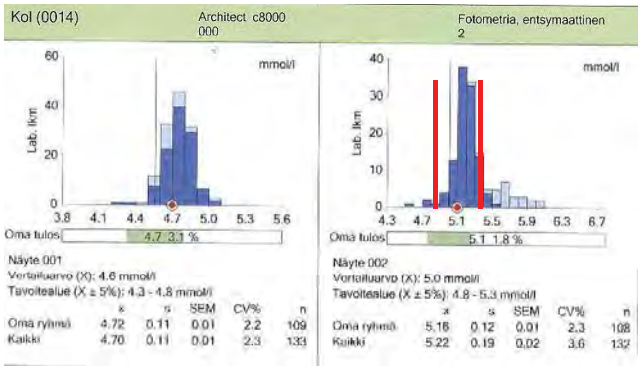
Total cholesterol EQA Labquality Finland



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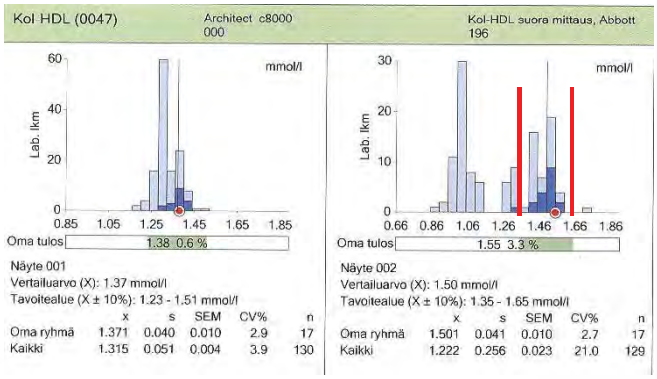
HDL cholesterol EQA Labquality Finland



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Conclusions

- The performance of the laboratories was generally good.
- Bias results allow detection of changes exceeding 2% for total cholesterol, 3% for HDL cholesterol and plasma glucose with time or between populations.
- In addition to present initial short term standardization, assessment of systematic error covering entire survey is recommended.
- To ensure comparability of measurements in European surveys, a Reference Laboratory is needed.

Evaluation in EHES

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Abstract

To ensure a high quality of the national HES and its outcomes, both internal evaluation by national HES organizers and external evaluation by outside organization should be conducted. Both the internal and external evaluation should cover planning of the HES, training of the personnel, pilot fieldwork, and the fieldwork of the full-size HES and outcomes of the HES.

The national level evaluation of the pilot fieldwork is essential. If done well and the results are utilized, it can increase the quality of the survey and also save money during the full-size HES. Pilot fieldwork should be conducted in real survey participants, and include all the phases of the full-size HES, also logistics and data handling. The observations made during the pilot should be documented and analyzed. It should be assessed, if encountered problems could be solved by writing more detailed instructions and paying more attention to the issues during the training, or was the problem something that requires completely different approach. Evaluation should always lead to an updated version of the national HES manual.

During the fieldwork, the team leader should monitor the performance of all team members daily. This is possible when the team leader is working in the same examination site with his/her team. When the examinations are conducted at the participant's home, the monitoring can be less frequent.

Also the fieldwork coordinator should made regular audit visits to each fieldwork team. Immediate feedback to the fieldwork team members is important. It should not be forgotten to provide also positive feedback. When something is not going as instructed, the feedback should be given in a constructive way and corrective actions should be taken.

During the EHES pilot, each pilot country prepared an evaluation report about the entire survey process from planning, fieldwork to reporting. They listed what worked well, what problems were encountered and how these were or could be solved and what was learned for the future full-size HES.

In these evaluation reports, countries raised up issues on difficulties in recruiting survey participants, importance of training of the fieldwork staff, commitment of personnel doing the survey, importance of good sampling frames

which have impact to recruitment of participants, availability and calibration of measurement equipment, requirements for examination places and sufficiency of the planned budget.

The European level evaluation in EHES includes evaluation of the used survey methods, availability of the data items, representativeness of the samples and obtained data, comparability of the used methods and questions with EHES recommendations and the availability of defined health indicators. These evaluations are based on national HES manuals, individual level HES data on measurements and questionnaire items, external laboratory quality assessment data, site visits reports and any other material that has accumulated during the survey.

Evaluation reports can support the interpretation of the results by providing information about the data collection methods and quality of the data. They also facilitate sharing experiences by learning from each other.

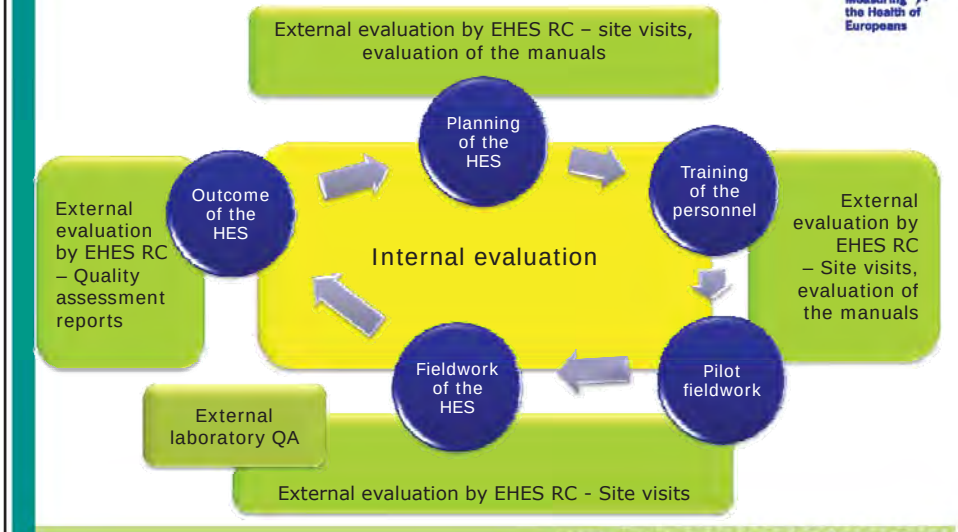
Summary of the discussion

An overall evaluation report about the EHES pilot project will be prepared and published. At the end of the pilot phase, the countries participating in the pilot prepared national evaluation reports. It would be valuable for those planning national HESs if these reports could be published.

Evaluation in the EHES

Hanna Tolonen
EHES Reference Centre
National Institute for Health and Welfare (THL), Finland

Evaluation in EHES



6-7 March 2012 EHES Conference, Brussels, Belgium

National evaluation – pilot fieldwork

- Pilot fieldwork
  - Testing the feasibility of the agreed protocols and procedures
  - Documenting observations – what worked as planned, where problems were encountered
  - Adapting the protocol and procedures based on feedback from the pilot

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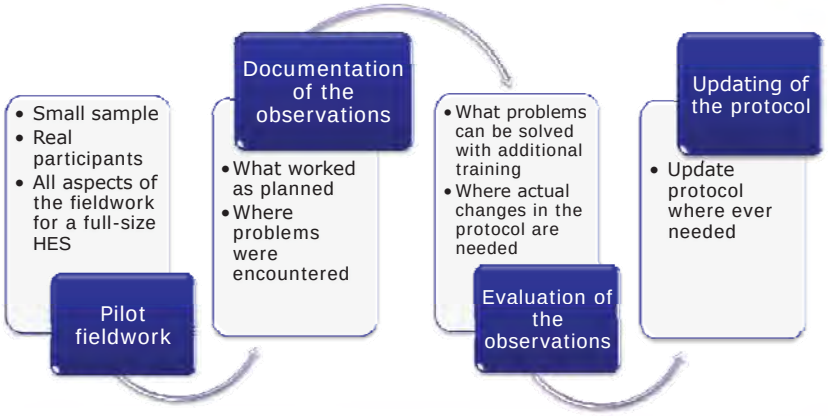
National evaluation – pilot fieldwork



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National evaluation – experiences from pilots

- Difficulties in recruitment of participants
- Importance of training
- Commitment of personnel
- Importance of good sampling frame
- Type of measurement equipment and their calibration procedures
- Requirements for examination places
- Sufficient budget

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National evaluation – monitoring of the fieldwork

- During the fieldwork
  - Team leaders should monitor performance of all team members daily
  - Fieldwork coordinator should audit each fieldwork team regularly
- Immediate feedback
- Corrective actions if needed

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National evaluation reports

- Prepared by all EHES pilot countries
- Evaluated entire pilot process from planning through fieldwork to reporting
- Listed
  - What worked well
  - Where problems were encountered
  - Lessons learned

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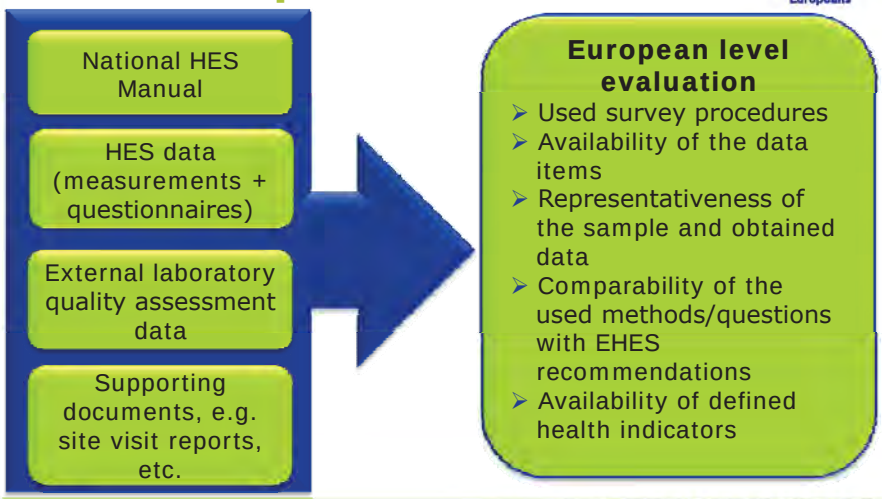
European level evaluation - process



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Example 1 of European level evaluation

Pilot area	Identical systolic bp measurements	Identical diastolic bp measurements
A	0	0.6%
B	0.3%	1.0%
C	5.2%	11.2%
D	1.3%	2.5%
E	3.3%	4.3%
F	0.5%	0.9%
G	1.0%	2.1%
H	0%	1.0%
I	0.5%	1.0%
J	0%	0%
K	0%	1.4%
L	44.4%	45.3%

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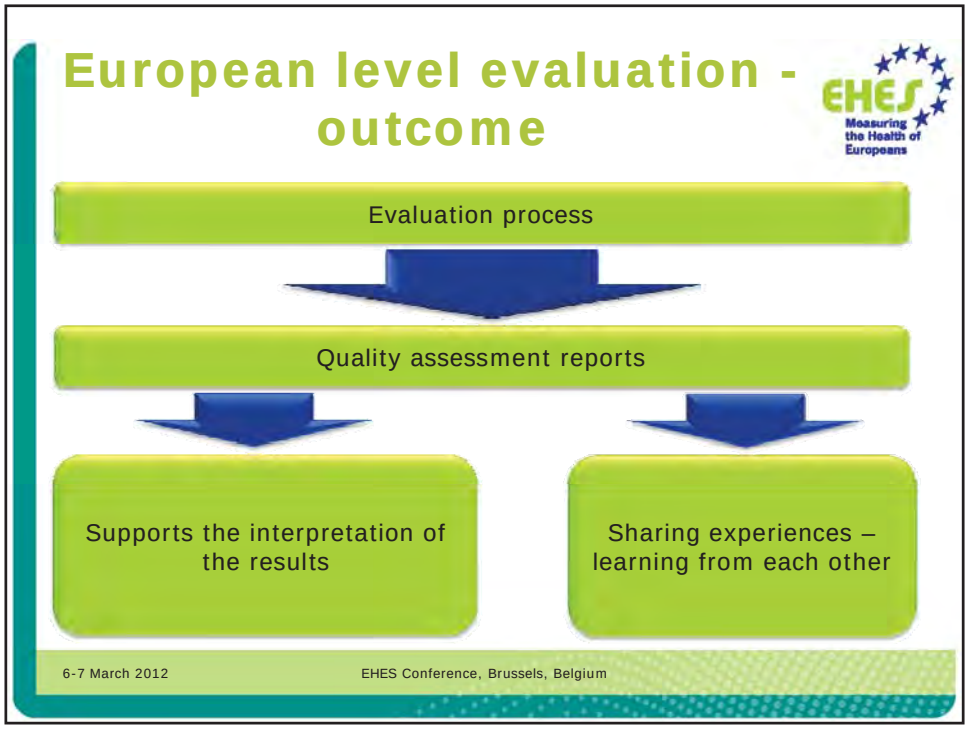
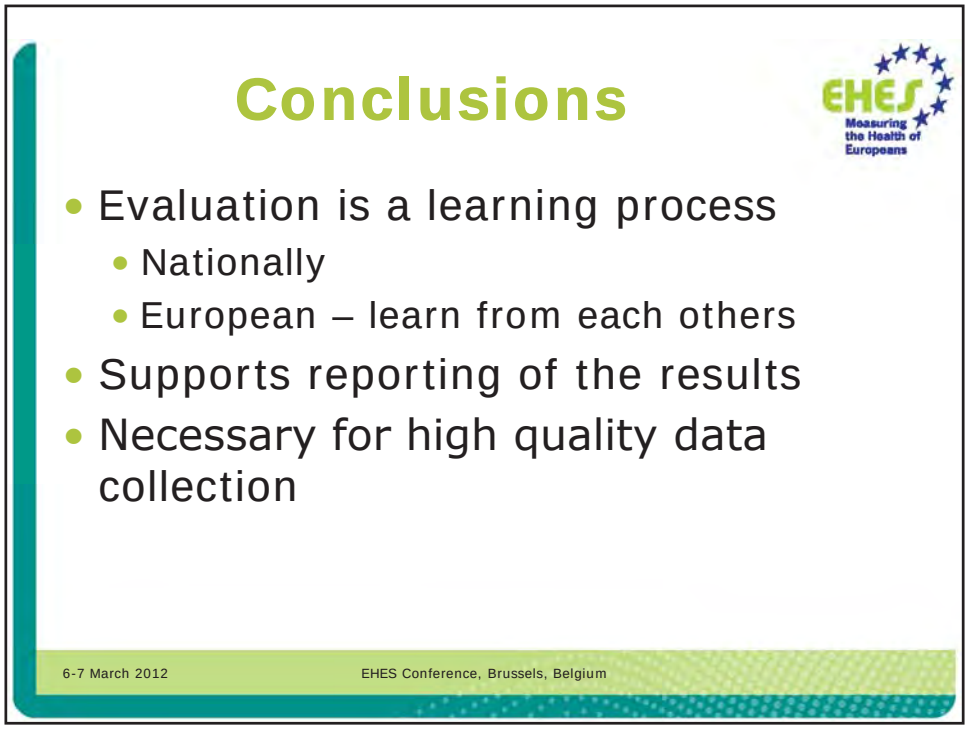
Example 2 of European level evaluation

Pilot area	Main sampling frame	Coverage
A	National register of permanent residents	All residents
B	Central population registry of permanent residents	All residents
C	Registry of local population	All
D	Census	Private households
E	Registry of local residents	All residents
F	Central population register	All
G	Population register	All citizens
H	Central population register	All
I	National register	All residents
J	National Health Service List	All registered under the national health system
K	Population register	All
L	Postal address lists	All private households


European level evaluation - outcome
Measuring the Health of Europeans
Evaluation process
Quality assessment reports
Supports the interpretation of the results
Sharing experiences – learning from each other
6-7 March 2012
EHES Conference, Brussels, Belgium


Conclusions
Measuring the Health of Europeans
Evaluation is a learning process
Nationally
European – learn from each others
Supports reporting of the results
Necessary for high quality data collection
6-7 March 2012
EHES Conference, Brussels, Belgium

Recruitment - sharing experiences

Sanna Ahonen
National Institute for Health and Welfare, Helsinki, Finland

Abstract

Background: Successful recruitment is essential to ensure valid and reliable results. The importance of recruitment has been highlighted during the EHES pilot project. There were challenges such as receiving good quality sampling frames with valid contact information and limitations in the recruitment process set by legislation. A major challenge is how to motivate participation and funding also sets its own limitations to recruitment. All counties have shared their experiences and therefore it is possible to learn from each other. New possibilities should be explored, but the recruitment must still be in line with the legislation, cultural norms of the country and the survey budged.

Participation rates in the pilot surveys varied from 23% to 63% and most of them were between 40-55%.

Important phases of the recruitment process: The first step of the recruitment process is to contact the selected persons and schedule appointment visits. As experienced by many countries, a lot of people did not show up to the examinations. Some countries discovered that the best way to ensure participation was to make confirmation calls (e.g. Italy, Malta and Portugal). Confirmation calls also gave a chance to ask non-participation questions. Confirmation is important but not always possible, since some persons are difficult to reach. Recruitment by home visits should be considered if the person is not reached otherwise. Home visits also give a change to carry out some measurements during the visit. In the Netherlands, home visits were more effective than phone calls when truing to reaching people who did not show up to examinations. To decrease the amount of forgotten appointments, an appointment reminder can be used. The reminder can be a phone call, text message, letter or e-mail, depending on what contact information is available. In the Finnish pilot survey, a text message reminder was tested and it increased the participation among the youngest persons. The full-size HES in Finland is

now using a text message reminder and a text message notification which is sent prior to the invitation.

Motivating participation: Several methods are useful when increasing motivation to participate. Due to the popularity of direct marketing, it is hard to distinguish the survey invitation letter from direct marketing letters. It may help if the invitation is sent by a well known and respected organization. In Portugal the invitation was sent by the local health care center and the calls to confirm appointments were also made by the health care center. Personal contact gives a chance to convince participants and a chance to find the best appointment time. Flexible examination times are important, and evening and weekend hours should also be available. For example, full flexibility in setting appointments seemed to increase participation in Greece. Home examinations can be offered to people who are not able or not willing to travel to the examination site. Many people are motivated to receive new information about their health. Incentives have been used in eight of the pilot countries in order to motivate participation. Raising the value of the voucher (together with home visits) had a positive effect on participation in the Netherlands. However, raising the value of the voucher had no effect on participation in Czech Republic. Although incentives may help recruit people, it is not always possible due to legislation, culture norms or funding. Different channels of media are important when raising awareness about health surveys. Interviews in newspapers, TV and radio were used in seven pilot countries. Before the examinations, especially the local media have been used. Since young men are usually hard to recruit, social media could be one channel for disseminating information in the future.

Conclusions: Recruitment of participants needs a lot of dedicated work to be successful. Several recruitment methods are available and each country should use the methods that best suit their country. Confirming appointments is an important step and home visits often help increasing the participation rate. The selected persons also need motivation; a plain invitation letter is usually not enough. Better quality and up to date sampling frames would help reaching the selected persons in the future and would likely have a positive impact on the participation rates. Funding sets its limitations to recruitment, but well prepared recruitment is also cost effective. Strict limitations set by the legislation and ethical committees should be further discussed, if they clearly influence the recruitment process. Health policies need reliable information from health examination surveys and good quality surveys can only be made with successful recruitment.

Summary of the discussion

Successful recruitment of the survey participants was considered as a com-

mon challenge in all countries and needs much attention in future surveys. The usefulness of media campaigns for recruitment among random population samples, not volunteers, was raised up. However by raising the public awareness about the goals and usefulness of the health survey may help in motivating participation when persons get the invitation. People should have a feeling that getting an invitation to the HES is like winning in a lottery.

Recruitment of migrants may need specific approaches. Different language versions of the survey materials and questionnaires may be needed.

EHES Measuring the Health of Europeans

Recruitment
Sharing experiences

EHES Final Conference
7.3.2012
Sanna Ahonen, THL

Background

EHES Measuring the Health of Europeans

- Successful recruitment is essential to obtain high participation → valid and reliable results
- **The importance of recruitment has been highlighted** during the EHES pilot project
  - Biggest issues were how to reach and motivate participants
  - Limitations set by legislation and survey budged
- Countries have shared experiences
  - **Gives a possibility to learn from each other**
  - Methods that work in one country do not always work in another

Participation rates in EHES pilot surveys

- The data is still under checking

Country	Sample size N	Participants N (RR %)
A	400	165 (47%)
B	250	157 (63%)
C	761	287 (41%)
D	345	116 (36%)
E	786	393 (50%)
F	400	221 (56%)
G	3200	1445 (45%)
H	1311	305 (23%)
I	490	206 (42%)
J	600	219 (41%)
K	250	138 (55%)
L	1985	1100 (57%)

$$RR = \frac{Participants}{Eligible + Unresolved}$$

Inviting participants
Confirm appointments

- An important step – to make sure that **invited persons are really coming**
  - As experienced by pilot countries, many invited persons did not show up
- **More resources** should be allocated towards confirming appointments
- The best way to ensure appointments in many countries were **confirmation calls** (e.g. Italy, Malta, Portugal)
  - Increased participation in Portugal
    - ➢ Gives a chance to explain the meaning of the survey
  - Calling at different times of the day was successful in Malta

Inviting participants - Challenges

The biggest challenges in many countries:

- Invalid and missing phone numbers and addresses
- People not answering phone calls

- **Home visit recruitment** gives an additional chance to contact people
  - More effective than phone calls in Netherlands
  - Allows also carrying out some measurements
  - Visiting at several occasions and different times of day and week (e.g. England)
- Home visits are not accepted/not possible in all countries

Reminder before appointment

- A few pilot surveys used reminders prior to the appointment (e.g. Malta, Germany)
- **Text message reminders** were piloted in Finland
  - They increased participation among young persons
  - Now in use in Finrisk, and also **text message pre-notification** prior to invitation

- The reminder can be a phone call, text message, e-mail or letter (depending on available contact information)

Motivating participation
- when inviting participants

- **Invitation letter**
  - Important to distinguish invitation letters from direct marketing
  - Invitation could be sent by a **respected and well known organization**
    - In Portugal by the Health Care Centre, also confirmation calls
- **Personal contact** is usually very effective
  - In Italy the survey personnel's ability to convince participants influenced participation

Motivating through flexibility

- **Flexible examination times**
  - Also evenings and weekend times
  - Working age people often prefer appointment times at 8 am, or right after work, elderly people in the morning
  - E.g. Full flexibility worked well in Greece, while Italian young working men appreciated Saturday morning examination hours
- **Home visits**
  - Increases the participation of people with e.g. limitations in functional capacity
  - Better accepted in countries that are used to home visits (e.g. England)

Motivating with incentives and through media

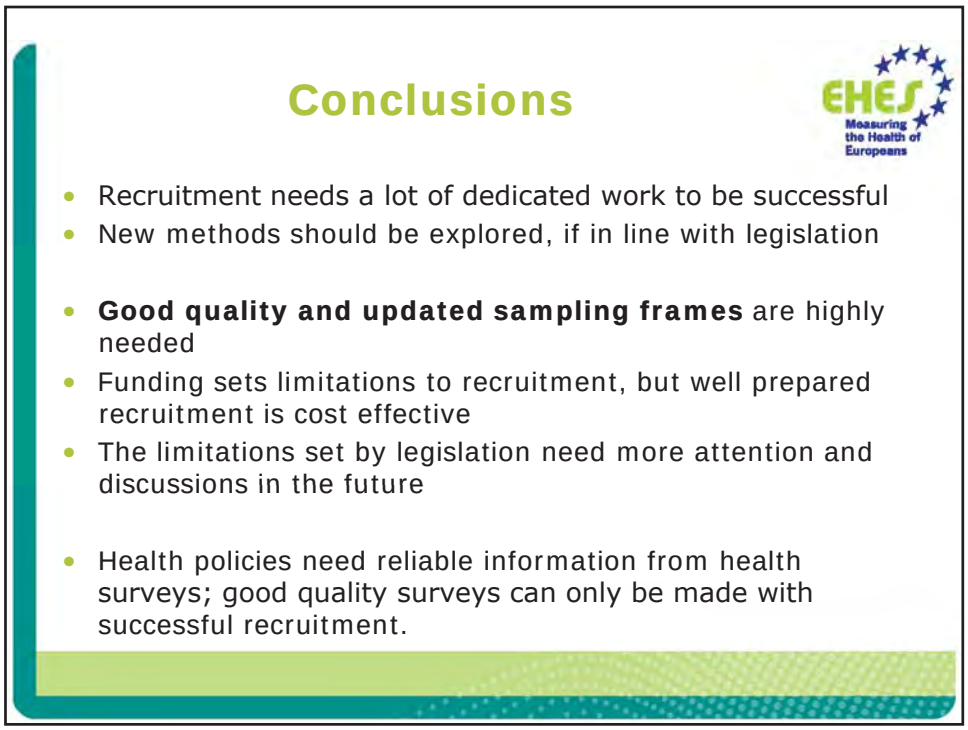
- **Interesting new measurements** may work as incentives
- **Incentives** (vouchers, gifts) used in eight pilot countries
  - Netherlands increased participation by raising the incentive up to 50€ (and starting home visits)
  - Raising the incentive did not help in Czech Republic
  - Unconditional incentives (sent with invitation) in England

- **Media**
  - Interviews in newspapers, radio and TV effectively used in seven pilot countries, especially local media
  - Promoting the survey via posters in public places

Raising awareness through media

- **Well planned media campaigns**
  - Influence attitudes and help creating the right image
  - All survey materials were carefully designed e.g. in Germany and Netherlands

- **New media channels**
  - Since young persons are hard to recruit, social media could be one channel in the future

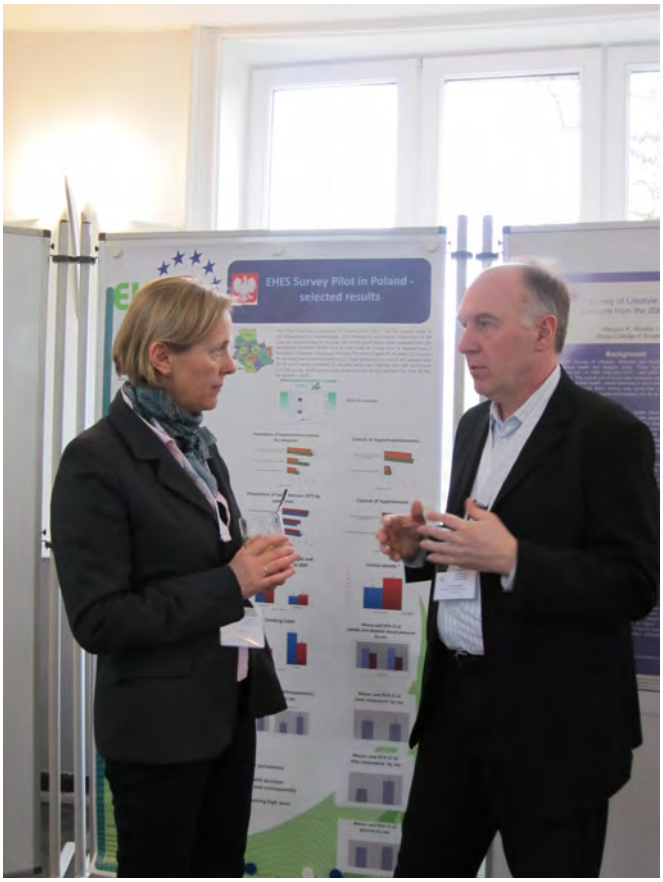

Conclusions
EHES
Measuring the Health of Europeans
Recruitment needs a lot of dedicated work to be successful
New methods should be explored, if in line with legislation
Good quality and updated sampling frames are highly needed
Funding sets limitations to recruitment, but well prepared recruitment is cost effective
The limitations set by legislation need more attention and discussions in the future
Health policies need reliable information from health surveys; good quality surveys can only be made with successful recruitment.

Summary of the Conference

Kari Kuulasmaa
National Institute for Health and Welfare, Helsinki, Finland

The future of full size EHES will depend on commitment of the national ministries and other stakeholders, and on visible support of the countries at the political level in the EU. The EHES Pilot Project has shown that standardization can be achieved and many tools and materials have been developed.

Posters by EHES Reference Centre



Johan Heldal and Susie Jentoft for the EHES Reference Centre

Survey sampling for EHES: How should it be done?

Who are we studying in EHES?

All adults in the ages of 25-64 currently residing in European countries make up the target population for EHES. We ideally want to include everyone that lives in private households as well as those living in institutions.

Why sample surveys?

As we can not survey and measure every single person in the populations, we have to select samples to represent the target population in each country. These samples should be chosen in a way which allows health indicators to be calculated and generalised for the population as a whole. Selecting participants randomly with a statistical sampling design makes this possible.

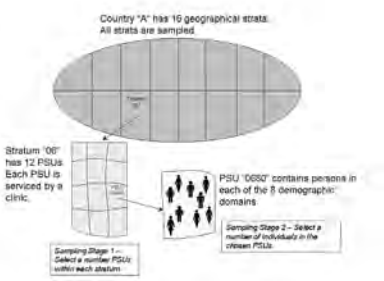
How to sample for EHES?

Selecting a random sample requires a list of individuals, households or addresses to draw from. This is called a *sampling frame*. The ideal sampling frame should cover the whole target population and needs to be up-to-date.

Geographical clustering of participants is a useful way to save resources through reduced travelling and clinical set-up expenses. This can be achieved through sampling in several *stages* and is recommended for most countries in EHES. We call these clusters *Primary Sampling Units* or PSUs. Every country should be divided into such non-overlapping PSUs that together cover the entire population. A few of these PSUs are selected in Stage 1 of sampling. *Stratifying* the PSUs by region or other available variables is recommended and allows better precision of national and sub-national estimates.

Selection of PSUs at Stage 1 should be done with *Probability Proportional to Size* sampling. This means that each PSU has a probability of being selected which is proportional to the number of people living in it. The EHES Reference Centre can provide support for this step and has developed software called *EHESsampling* to perform this type of sampling.

Individuals, households or addresses are selected within each of the selected PSUs in Stage 2 sampling.



The age and sex of participants is of particular interest in EHES as health indicators are generally very dependent on these variables. Therefore, the ideal sample needs to contain an adequate proportion of males and females and a minimum number in each 10-year age group (25-34, 35-44, 45-54. 55-64). These age-sex groups are what we refer to as *domains*. If the sampling frame contains domain information, we recommend using this to stratify the sample in Stage 2. This will ensure adequate numbers in each domain for good quality estimates.

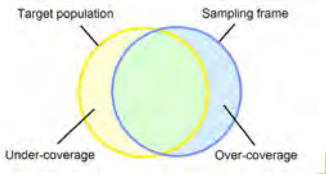
The minimum recommended national sample size is 4000 with *at least* 500 in each of the age-sex domains. These recommendations are based on an anticipated participation rate of 70 %. Experience from the pilots and full size surveys carried out so far has indicated this is too optimistic. The recommended sample size refers to the number *invited* to the survey, *not* the number who participate.

Sampling achievements

In the pilot studies, much experience was gained in Stage 2 sampling (selecting individuals). All pilot countries were able to establish a sampling frame from which to draw the random sample from. Most countries selecting individuals at Stage 2 were able to sample within the age-sex domains as recommended. Stage 1 sampling was only done in the countries that carried out full size surveys. The target age range (25 – 64 years) was covered in all countries.

Challenges faced in national sampling

The sampling designs differed among countries, including 1-stage and multi-stage designs. Sampling frames varied greatly in quality, often access to a recently updated list was not possible. This lead to problems relating to over- and under-coverage.



The most difficult part of the sampling process appears to be the selection of the PSUs in Stage 1. In the pilot phase, this is not of great concern, however full-sized surveys in the future need to consider new approaches where random sampling of PSUs can be done. This is important to ensure that samples can be generalised to the population. However, limited resources and financial support along with political restrictions mean that random sampling in Stage 1 is not always feasible.

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The EHES Pilot project has received funding from the European Commission/DG Sanco. The views expressed here are those of the authors and they do not represent Commission's official position.

Päivikki Koponen, Hanna Tolonen, Johanna Mäki-Opas for the EHES Reference Centre

Comparability of anthropometric measurements

Background

Anthropometric measurements provide objective data on overweight and obesity. These measurements are simple and do not take much time. However, variation in measurement procedures and devices can cause bias. Detailed protocols for the measurements have been described in the EHES Manuals and they are illustrated in the training materials. The accuracy of the measurements is essential for the comparability of the population level results.

Picture 1. Differences in measuring waist circumference

Measurement devices in the pilot surveys

Weight devices (number of pilot surveys):
- Balanced beam scales (3)
- Electronic scales (7)
- Bioimpedance devices (2).

Height devices (number of pilot surveys)
- Portable stadiometer (6)
- Height rule attached to weight scale (3)
- Fixed stadiometer (2)
- Automated device (1).

Waist circumference was measured with non-elastic tapes.

Training and site visits

All pilot partners participated in the training seminars organized by the EHES Reference Centre. All partners provided training on anthropometric measurement procedures locally for the fieldwork staff.

During the site visits, most of the identified problems were in waist circumference measurements. The correct position of the tape was carefully palpated and checked only 5 in pilot surveys.

Measurement procedures in the pilot

Summary of the used procedures n the 12 EHES pilot surveys:
- For weight measurement, in 3 pilot surveys all or almost all participants were on their underwear during the measurement. In other surveys participants were only asked to take off heaviest garments and to empty their pockets. In 4 surveys about 20-60 % of the participants didn't want to undress.
- Waist circumference measurements were taken over clothing in 2 pilot surveys, in 5 surveys 1-7 % of participants didn't reveal their waist area. In other pilot surveys, all measurements were taken on bare skin as instructed in the EHES Manual.

Picture 2. Calibration of the devices

Picture 3. Measurement devices used in the EHES pilot surveys

Results

Data was received from the pilot surveys on all anthropometric measurements for almost all participants. Only 1 % of the participants had missing data for anthropometric measurements. The most common reason reported for missing data was participant's refusal. For few participants the measurements could not be conducted since the participant wasn't able to stand, or e.g. their weight exceeded the upper limit of the scale.

Conclusions

Evaluation of the measurement protocols in the EHES pilot survey manuals, observations during the site visits and collected data revealed that the measurement protocols can be standardized.

The main concern are the devices. Portable, accurate devices are difficult to find and they are expensive. The measurements and undressing are well accepted by most participants. Waist measurements seem to be most challenging.

Training and quality assurance is the key to the comparability of the results at the population level.

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The EHES Pilot project has received funding from the European Commission/DG Sanco. The views expressed here are those of the authors and they do not represent Commission's official position.

Hanna Tolonen and Päivikki Koponen for the EHES Reference Centre

Comparability of population level blood pressure results

Background

Blood pressure is a known major risk factor for cardiovascular diseases. Already a reduction of 3-5 mmHg can decrease a risk of stroke by 15% and risk of coronary heart disease by 10%.

To monitor reliably changes and differences of this magnitude, accurate measurement results are required. This can be obtained through standardized measurement protocols and training.

Table 1. Average effect of pre and during the measurement conditions and procedures to the blood pressure levels (based on literature)

Condition/ procedure	Systolic bp (mmHg)	Diastolic bp (mmHg)
Full bladder	⇑ 10-15 mmHg	⇑ 10 mmHg
Not resting 3 to 5 minutes before measurement	⇑ 10-20 mmHg	⇑ 14 mmHg
Back / feet unsupported	⇑ 5-15 mmHg	⇑ 6 mmHg
Supine posture instead of sitting posture	⇑ 3-10 mmHg	⇓ 1-5 mmHg
Legs crossed	⇑ 5-8 mmHg	⇑ 3-5 mmHg
Participant talks during the measurement	⇑ 10-15 mmHg	⇑ 6-10 mmHg
Arm below heart level	⇑ 10 mmHg	⇑ 10 mmHg
Physical exercise before measurement	⇑ 22 mmHg	⇑ 7-8 mmHg
Left arm instead of right arm	⇓ 1-3 mmHg	⇑ 1 mmHg
Arm unsupported during the measurement	⇑ 1-7 mmHg	⇑ 5-11 mmHg
Cuff too small	⇑ 3-12 mmHg	⇑ 2-8 mmHg
Cuff too large	⇓ 10-30 mmHg	⇓ 10-30 mmHg
Cuff over clothing	⇓ Up to 5 mmHg	

Traditionally, blood pressure has been measured with mercury sphygmomanometers. Recently, the use of automated devices has increased in health surveys. There is evidence about the difference in the accuracy of automated blood pressure measurement devices. Also several other factors can affect the blood pressure levels (Table 1.).

Devices

Figure 1. Blood pressure measurement devices used the EHES pilot surveys

In the EHES pilot surveys, in 3 countries mercury sphygmomanometers were used and in 9 countries automate devices with 6 different models (Figure 1.). All the automated devices had passed clinical validation.

Measurement procedures

The EHES Manual defines the standard measurement protocol for the blood pressure measurements both with mercury sphygmomanometer and automated devices. All EHES pilot countries have adapted this protocol to their HES manuals without major modifications.

Summary of the used procedures in 12 EHES pilot countries:

- All measured blood pressure in sitting posture from right arm.
- 11 measured arm circumference before selection of the used cuff size.
- 7 had 3 cuff sizes, 3 had two cuff sizes and 2 had only 1 cuff size available.
- All made 3 measurements.

During the site visits, small deviations in the measurement protocols were observed: not having adequate support of the back and feet during the measurement , feet crossed or participants talking during the measurement.

Availability and quality of data in pilot surveys

For those who participated to the examination, blood pressure measurement is available for 99%-100%. The proportion of identical measurements varies 0%-5% for systolic and 0%-11% for diastolic blood pressure. In one country, the proportion of identical measurements is significantly higher.

Conclusions

Evaluation of the measurement protocols in the EHES pilot survey manuals, observations during the site visits and collected data show that the measurement protocols are comparable.

The biggest concern are different blood pressure measurement devices. Even though the automated devices have passed the clinical validation, the validation protocols allow rather large variation . More detailed validations for the population monitoring purposes would be needed.

EHES pilot demonstrated that with standardized measurement protocol, prober training and monitoring, blood pressure can be measured in comparable way at the population level.

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The EHES Pilot project has received funding from the European Commission/DG Sanco. The views expressed here are those of the authors and they do not represent Commission's official position.

Hanna Tolonen and Georg Alfthan for the EHES Reference Centre

Standardization of pre-analytical procedures for blood sample collection

Background

Serum cholesterol is a known major risk factor for cardiovascular diseases. Already a reduction of 0.6 mmol/l (10%) can lower the risk of ischemic heart disease at age 40 by 50% and at age 70 by 20%.

To monitor reliably changes and differences of this magnitude, accurate measurements are required. This can be obtained through standardized measurement protocols and training.

Table 1. Average effect of pre-analytical procedures on lipids (based on literature)

Pre-analytical issues		Magnitude of effect	EHES Recommendation
Serum vs. plasma		Plasma up to 5% ⇓	Serum
Sitting vs. supine		Supine up to 6% ⇓	Sitting
Prolonged use of tourniquet		Prolonged use up to 15% ⇑	Max 1 minute
Seasonal variation		During winter 3-5% ⇑	Survey all year around
Strenuous exercise		Up to 6% ⇑	To be avoided
Centrifugation		Not that sensitive	30-60 minutes from sample collection
Storage temperature	Before centrifugation		20-22 °C
	After centrifugation if not analyzed immediately		At least -20 °C

Table 2. Average effect of pre-analytical procedures on glucose levels (based on literature)

Pre-analytical issues		Magnitude of effect	EHES Recommendation
Fasting time			8-14 hours
Serum vs. plasma		Plasma 10-15% ⇑	Plasma
Preservative		Other agents than fluoride-citrate, 5% ⇓ per each 30 minutes before separation of red cells	Fluoride-citrate
Centrifugation			30-60 minutes from sample collection
Storage temperature	Before centrifugation		20-22 °C
	After centrifugation if not analyzed immediately		At least -20 °C

Pre-analytic procedures

The EHES Manual defines the standard protocol for blood sample collection. Tables 1. and 2. describe known effects of some pre-analytical factors. All EHES pilot countries have adapted this protocol to their HES manuals without major modifications.

Summary of the procedures in 12 EHES pilot countries:

- In all surveys
  - blood samples were drawn in sitting posture; and
  - total and HDL cholesterol were measured from serum.
- In 9 out of 11 surveys where glucose was measured, the participants were instructed to fast 8 hours.

In 3 surveys, the centrifugation of the blood samples was delayed from the recommended 30-60 minutes.

During the site visits, small deviations in the blood sample collection and handling protocols were observed: e.g. the tourniquet was occasionally used longer than 1 minute.

Availability and quality of data in pilot surveys

Blood samples were collected in most surveys from 97%-100% of participants. In two surveys, the proportion of missing blood samples was between 25%-32%. Total and HDL-cholesterol were measured for all who had given the blood sample. Glucose was measured in 11 surveys. For glucose, the proportion of missing data is higher, 1%-55%. This is explained by the requirement of fasting before glucose measurement. In 4 surveys, also HbA1c was measured.

Conclusions

Standardization of the sample collection and handling was successful in the EHES pilot surveys. For glucose measurement, the requirement of 8 hours fasting is challenging. In most surveys, the fasting samples were collected only from those who came to the examination in the morning. This is often the feasible solution. In future, use of Hb1Ac instead of fasting glucose for the determination of diabetes is considered. HbA1c does not require fasting but currently is more expensive to analyze.

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The EHES Pilot project has received funding from the European Commission/DG Sanco. The views expressed here are those of the authors and they do not represent Commission's official position.

Georg Alfthan, Jouko Sundvall, Hanna Tolonen for the EHES Reference Centre

EHES Pilot Laboratory Standardization

Total cholesterol

Background

Laboratories engaged in clinical chemistry are expected to verify their systematic error (accuracy) in external quality assessment (EQA) programs. Limits for accuracy sufficient for diagnostic purposes are usually much wider compared to those required for monitoring trends and differences in blood lipids of populations. The accuracy of lipid assays are to a great extent influenced by the use of different methods, reagents and instrumentation in addition to pre-analytical factors.

Objectives

Our aim was to standardize plasma total cholesterol measurements of laboratories participating in the EHES Pilot.

Methods

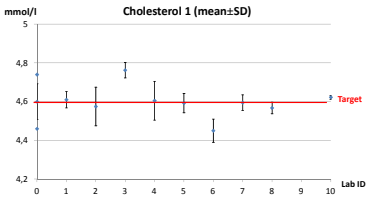
Serum and plasma samples were prepared at the EHES Reference Laboratory and given target values for lipids traceable to CDC, Atlanta values. Three triads of frozen coded serum or plasma samples (3 Rounds, 9 duplicate samples) were transported in dry ice to nine participating laboratories: The Netherlands, Norway, Poland, England, Slovakia, Italy, Malta, Greece, Germany and Finland.

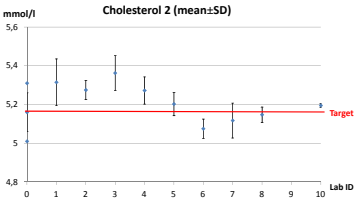
Study design

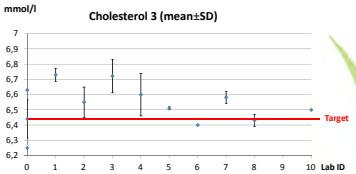
In each Round , 3 different samples were analyzed in duplicate on 2 consecutive weeks. Each laboratory received feedback on their relative bias and suggestions for possible improvement. The 2nd Round was intended for displaying improvement and the 3rd Round for assay together with pilot samples.

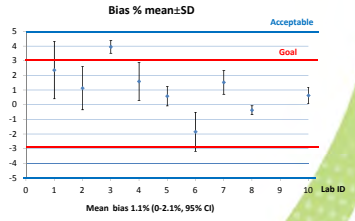
Results

The **precision** of the cholesterol measurements were within Goal limits (±2 %) in 8 of 9 laboratories. Mean (±SD) raw data for Round 1 are shown for 3 different samples (Cholesterol 1, 2, and 3). The **red line** denotes the target value. All laboratories used the CHOD-PAP enzymatic method. The mean **bias** (±SD) relative to the target value is shown. The **red line** denotes the EHES Goal bias (±3%) and **blue line** the Acceptable bias (±5%). 81% of individual results were within 3% and 100% within the 5% limit. The mean bias of 8 out of 9 laboratories was within the 3% Goal bias.









Conclusions

- The performance of nine laboratories was better than anticipated from EQA experience.
- Bias results allow detection of changes exceeding 2% with time or between populations.
- In addition to present initial short term standardization, assessment of systematic error covering entire survey is recommended.

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Georg Alfthan, Jouko Sundvall, Hanna Tolonen for the EHES Reference Centre

EHES Pilot Laboratory Standardization

HDL cholesterol

Background

Laboratories engaged in clinical chemistry are expected to verify their systematic error (accuracy) in external quality assessment (EQA) programs. Limits for accuracy sufficient for diagnostic purposes are usually much wider compared to those required for monitoring trends and differences in blood lipids of populations. The accuracy of lipid assays are to a great extent influenced by the use of different methods, reagents and instrumentation in addition to pre-analytical factors.

Objectives

Our aim was to standardize plasma HDL cholesterol measurements of laboratories participating in the EHES Pilot.

Methods

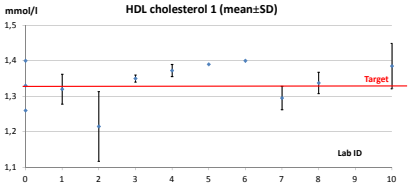
Serum and plasma samples were prepared at the EHES Reference Laboratory and given target values for HDL cholesterol traceable to CDC, Atlanta values. Three triads of frozen coded serum or plasma samples (3 Rounds, 9 duplicate samples) were transported in dry ice to nine participating laboratories: The Netherlands, Norway, Poland, England, Slovakia, Italy, Malta, Greece, Germany and Finland.

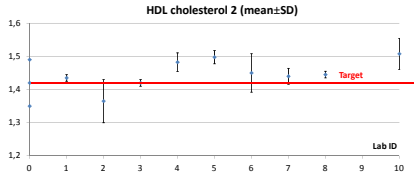
Study design

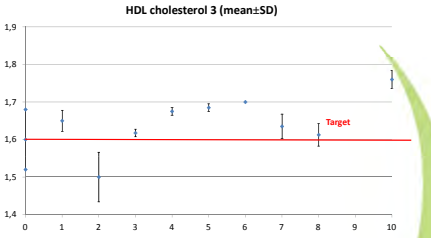
In each Round, 3 different samples were analyzed in duplicate on 2 consecutive weeks. Each laboratory received feedback on their relative bias and suggestions for possible improvement. The 2nd Round was intended for displaying improvement and the 3rd Round for assay together with pilot samples. Round 1 results are reported.

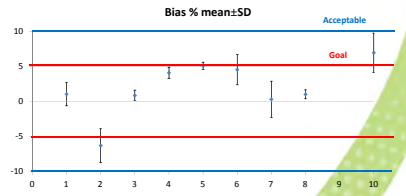
Results

Mean (±SD) raw data are shown for the 3 samples, HDL 1, 2 and 3. All laboratories used a homogenous method. The **precision** of the HDC-cholesterol measurements were all within Goal limits (2%) in 4 laboratories, within Acceptance limits (±3%) in 2 and in 3 laboratories at least one result exceeded 3%. The **red line** denotes the target value. The mean (±SD) **bias** relative to the target value is shown in the Figure. The **red line** denotes the EHES Goal bias (±5%) and **blue line** the Acceptable bias (±10%). 84% of individual results were within 5%. Only one result of 108 exceeded 10%. The mean bias of all laboratories was 2.0%(-0.5 – 2.5% 95% CI).









Conclusions

- The performance of 7 labs was excellent and of 2 good
- Bias results allow detection of changes exceeding 3% with time or between populations
- Goal exceeding bias may be due to imprecise calibrator value and poor precision

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EHES Pilot Laboratory Standardization

Plasma glucose

Background

Type 2 diabetes is an ever increasing illness throughout Europe. One of the purposes of health examinations is to find out changes in the incidence of diabetes, but also identify subjects unaware of their condition. Fasting plasma glucose is currently the preferred biomarker. Limits for accuracy sufficient for diagnostic purposes are usually much wider compared to those required for monitoring trends and differences in plasma glucose of populations. The accuracy (systematic error) of glucose assays is influenced by the use of different methods, reagents and instrumentation, but especially by pre-analytical factors.

Objectives

Our aim was to standardize plasma glucose measurements of laboratories participating in the EHES Pilot.

Methods

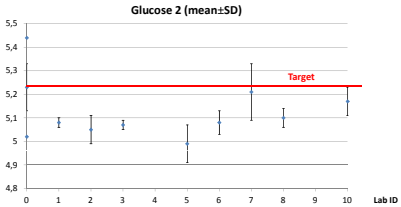
Serum and plasma samples were prepared at the EHES Reference Laboratory and given target values for glucose traceable to NIST Certified Reference Materials. Three triads of frozen coded serum or plasma samples (3 Rounds, 9 duplicate samples) were transported in dry ice to eight participating laboratories: The Netherlands, Norway, Poland, Slovakia, Italy, Malta, Greece, Germany and Finland.

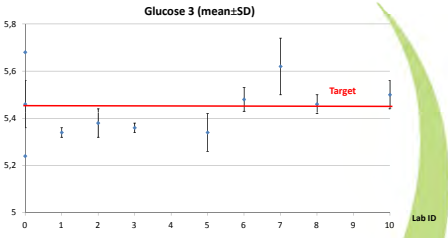
Study design

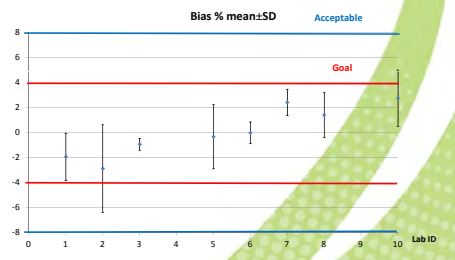
In each Round, 3 different samples were analyzed in duplicate on 2 consecutive weeks. Each laboratory received feedback on their relative bias and suggestions for possible improvement. The 2nd Round was intended for displaying improvement and the 3rd Round for assay together with pilot samples. Results for Round 1 are shown.

Results

The **precision** for samples 1, 2 and 3 was within the Goal limit (1%) in 3 laboratories, within Acceptance limit (2%) in 4 and over 2% in one laboratory. For glucose 1 having a pathological concentration, 2 laboratories failed to reach the **bias** Acceptance limit (8%) of the target value. Therefore the mean (±SD) bias for all 3 samples are calculated relative to the mean of all laboratories. All laboratories used an enzymatic method based on hexokinase. The **red line** denotes the EHES Goal bias (±4%) and **blue line** the Acceptable bias (±8%). 92% of individual sample means were within 4% and none exceeded the 8% limit. The mean bias was 0.06% (-1.3 – 1.4%, 95% CI) and all laboratory means were within the EHES Goal limit.







Conclusions

- The performance of the laboratories was excellent.
- Bias results allow detection of changes exceeding 3% with time or between populations.
- Small imprecision at pathological levels will not affect diagnostic power.

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Päivikki Koponen and Hanna Tolonen for the EHES Reference Centre

EHES Training Materials

Aims

The training materials support the use of standard measurement procedures and other survey protocols. The materials have been prepared to illustrate key issues covered in the EHES Manuals. The materials are targeted to:

1) national survey coordinators and trainers (European level training), and
2) the national fieldwork staff (national training).

Use

- Can be used freely for non-commercial training purposes.
- Can be translated and adapted to national use.

Types

The EHES training material includes:

- Presentations
- Videos
- Knowledge tests

Need for an on-line platform for questions and discussion, as well as to share ideas and good practices, has been identified.

Topics covered

Materials for survey organizers and fieldwork staff includes:

- Budgeting
- Sampling
- Legal and ethical issues
- Recruitment

Materials for fieldwork staff include:

- Sampling
- Recruitment
- Obtaining informed consent
- Anthropometric measurements
  - Height
  - Weight
  - Waist circumference
- Blood pressure measurement
- Collecting and processing blood samples
- Questionnaire administration

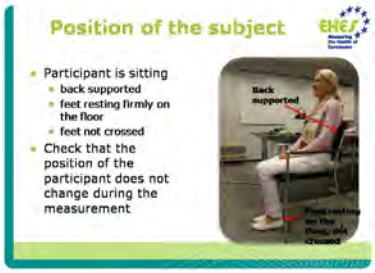

Figure 1. Example of training material on blood pressure measurement

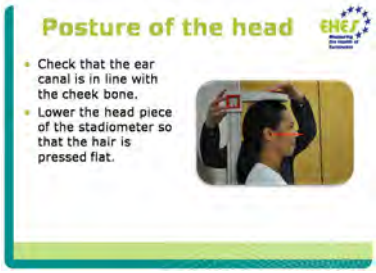

Figure 2. Example of training material on height measurement

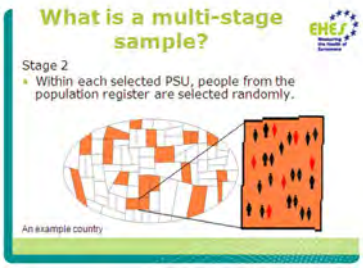

Figure 3. Example of training material on sampling

Figure 4. Example of training video on blood sample collection

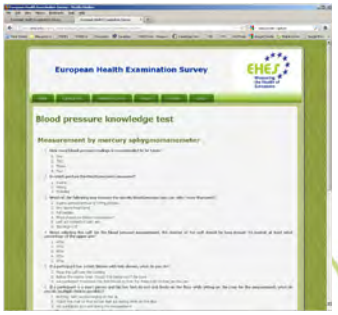

Figure 5. Example of knowledge test

Training materials are available at http://www.ehes.info

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Kari Kuulasmaa and Hanna Tolonen for the EHES Reference Centre

EHES data sharing and publication policy

Background

- The EHES data are collected, analyzed and reported nationally.
- The data should be shared with the EHES Reference Centre (RC) for quality evaluation and European level reporting.
- The EHES data has a major potential for further research both nationally and internationally.
- EHES Pilot Project drafted such principles and rules for data sharing. These can be adapted to the forthcoming structures of EHES.

Draft for the future: EHES data sharing rules and publication policy

General statement

The data sharing policy is designed to encourage the use of the data widely for public health benefit. It stresses the importance to maintain the legitimate interests of the parties who collected the data and the confidentiality of the survey participants.

Ownership and national use of the data

The ownership of the data from each country stays within the country.

The countries are encouraged to use their data widely for public health benefit. However, all use of the data must be ethically acceptable and follow national and international rules and principles of data confidentiality and protection.

A Data Transfer Agreement (DTA) will be signed before the transfer of the data from the country (Data Provider) to the EHES RC.

Data security and confidentiality

The shared data must not include information which would enable the identification of the person.

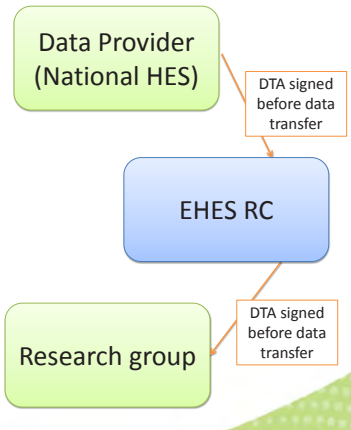
The EHES RC has the responsibility for the security and confidentiality of the transferred data.

Use of data in EHES RC

EHES RC can use the EHES Data for:

- Assessment and documentation of the quality and country-specific characteristics of the data
- European level reporting of health indicators
- Evaluation and development of survey methods

These analysis should be conducted and the results published without delay after the data are available.



Additional analysis and research using the data

Proposals are invited from research groups for the analysis of specific research questions using the EHES Data.

Each data provider decides whether or not to be included in the analysis.

If the analysis requires transfer of individual level data to outside the EHES RC, a Data Transfer Agreement (DTA) will be signed between the EHES RC and the receiving organization.

Review of results before publication

All results shall be reviewed and approved by the Data Providers prior to publication.

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Ari Haukijärvi for the EHES Reference Centre

Data management in EHES

Background

Purpose

A well-organized data management need to be considered an essential part of health examination survey (HES). The purpose of data management is to ensure the data will be available for analyses, and that the available data are *complete*, *correct*, *verifiable*, and *secure*.

National HESs

Survey data collection

- Coordinated by the survey organizer
- Gathered by the fieldwork teams
- Includes data on
  - sampling and recruitment
  - interview questionnaire
  - physical measurements
  - laboratory tests and samples

National HES database

Each country establishes a database for the national survey data. The database serves as the central data repository for

- sampling data on each survey respondent
- individual level data on the questionnaires and HES measurements
- information on the quality of the data

EHES Reference Centre

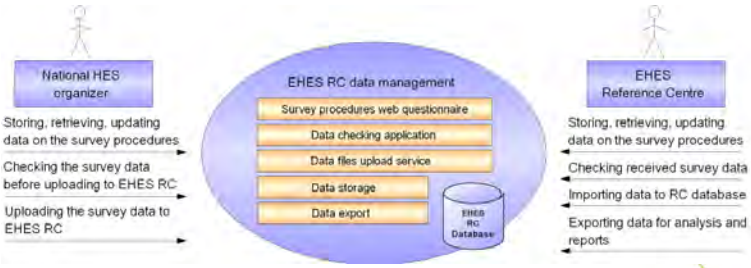
The EHES Reference Centre (RC) has a centralized database for national data on

- survey procedures
- sampling
- eligibility
- anonymous individual level data on the survey measurements

Data communication between countries and the Reference Centre

The communication of data from EHES countries to the EHES Reference Centre is depicted in the picture below as *use cases* of EHES Reference Centre data management services and tools. These concern

- storing and updating data on the survey procedures ,
- checking of the survey data before uploading the data to the Reference Centre and
- uploading the survey data to the Reference Centre.



Survey procedures

Entering data on national survey procedures to the database in the Reference Centre allows

- comparison of the survey procedures in different manuals and
- comparison between national manuals and site visit observations.

The survey procedures web questionnaire is a tool for the members of the EHES team to fill-in information about the following topics of the national HESs:

- The period of the survey
- Fieldwork staff (members and training)
- Target population and sampling
- Recruitment
- Communication (plan and using mass media)
- Data management
- Order of the measurements and timing of the survey
- Questionnaire administration
- Details on height, weight, waist and blood pressure measurements
- Blood sample collection
- Preparation of plasma/serum samples
- Non-responder data collection
- Quality control

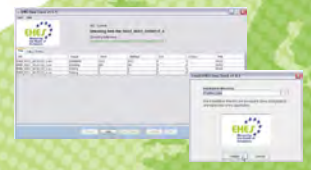
Survey data transfer

The principles and rules for the transfer of survey data from countries to the EHES Reference Centre are described in Part C of the EHES Manual.

The process includes:

a) The specification of data items to be transferred (at EHES Extranet)
b) Preparation of data files in the countries
c) Checking data files in the countries
d) Uploading data files to the RC
e) Checking the received data in the RC
f) Data import to the RC database
g) Data export e.g. for QA reports and analysis datasets

The Reference Centre provides an application to check the data before uploading data to the Reference Centre. The application complies with the specification of data items (at EHES Extranet) and allows checking of the data variables locally.



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Tarja Tuovinen, Hanna Tolonen and Kari Kuulasmaa for the EHES Reference Centre

Dissemination of EHES results

Background

Policy makers both nationally and in the European level need reliable health information to support their decisions. It is important that available information is recently collected.

Therefore, rapid reporting of the Health Examination Survey (HES) data both nationally and at the European level is essential.

Indicators

The EHES Manual defines a set of key health indicators which can be calculated from the EHES data.

Indicators are defined for:
- blood pressure
- diabetes
- obesity
- cholesterol levels
- health awareness and medication
- smoking

Indicators are calculated taking sampling procedures into account.

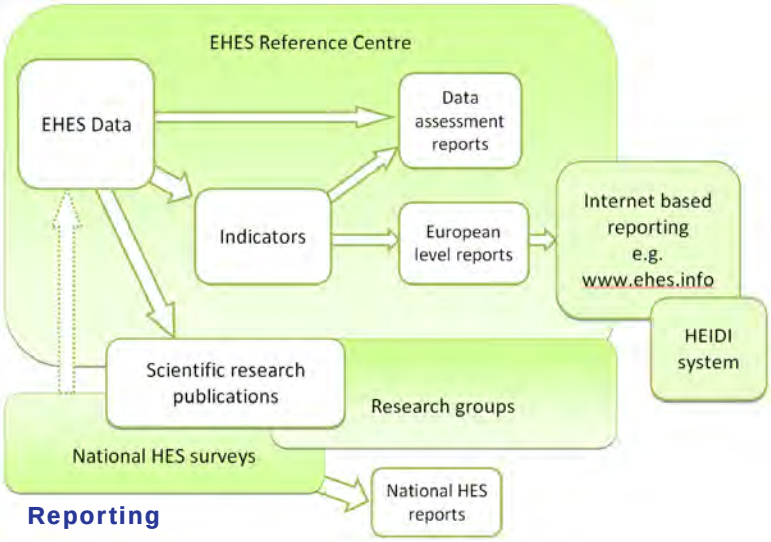
Data assessment

Most of the quality control of the survey data is carried out by the national survey team.

The EHES Reference Centre (RC) coordinates and carries out external data assessment in EHES.

The EHES Data is evaluated and documented by RC for:
- deviations from EHES survey protocol and evaluation of survey methods,
- quality of the data achieved in the survey,
- country-specific characteristics of the data.

The data assessment report is an essential prerequisite for the data analysis and correct interpretation of the EHES Data.



Reporting

The countries report nationally their own HES data and are engouraged to use their data widely for public benefit.

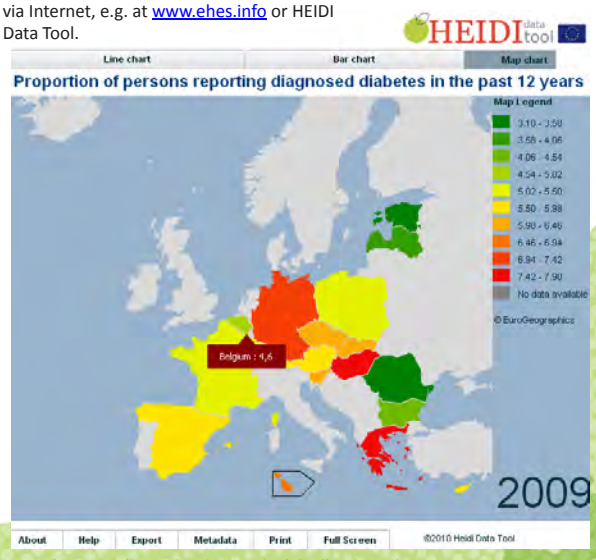
In the European level indicators are reported by
- country
- sex
- age group
- socio-economic categories.

Reports prepared by EHES RC are published via Internet, e.g. at www.ehes.info or HEIDI Data Tool.

HEIDI - Health in Europe: Information and Data Interface
HEIDI is maintained by European Commission, DG Health and Consumers.

The Heidi data tool is an interactive application to present relevant and comparable information on health at European level.

National and European level data are analyzed more thoroughly by research groups established for specific research questions.



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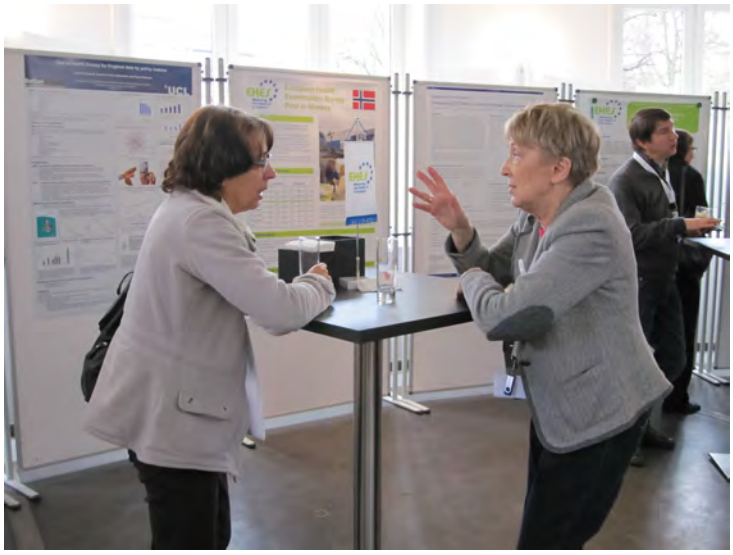


Posters by EHES Pilot Countries

The importance of health examination as a part of population health surveys

Results from the Czech pilot study EHES

National Institute of Public Health, The Czech Republic

Facts about Czech Republic

Capital:	Prague
Official language:	Czech
Nationality:	Czechs 95%, Others 5%
Government:	Parliamentary republic
Area:	78 866 km^2
Population (2011):	10,5 millions
EU member:	since May 2004

EHES Pilot in Czech Republic

- Organized by National Institute of Public Health in Prague,
- October 2010 - April 2011,
- Cities Prague and Hradec Kralove,
- A sample size of 400 persons in total invited,
- 100 males and 100 females in each city,
- Target population aged 25-64 years,
- Response rate 52%.

Why is HES needed

- The most reliable data source,
- To predict possible future trends,
- To validate of inaccurate self-reported results,
- To detect undiagnosed cases e.g. elevated blood pressure (often indicating hypertension), hyperlipidemia, etc.
- For health reports as a background for health policies and health prevention activities.

Full-size EHES in Czech Republic is planned for 2014 along with EHIS (European Health Interview Survey)

EHES – European Health Examination Survey

- European level initiative
- Integrated sustainable national data collection system
- Effort to harmonize and standardize examinations
- International comparability and high quality of the data
- The Czech Republic, Finland, Germany, Greece, Italy, Malta, the Netherlands, Norway, Poland, Portugal, Slovakia, Spain and UK/England)

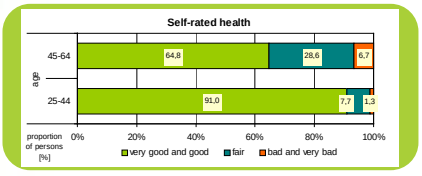
Questionnaire
(EHIS version - „European Health interview survey"):

- Health status
- Lifestyle
- Socio-economic factors

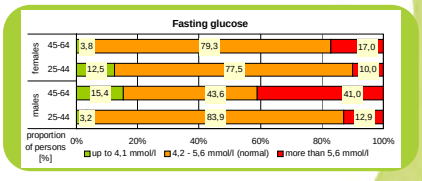
Core measurements:

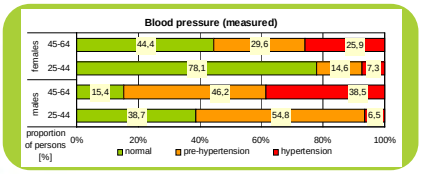
- Blood pressure,
- Height, weight, waist circumference,
- Total and HDL-cholesterol and fasting glucose .

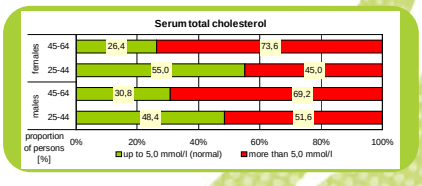
The results from health examination survey

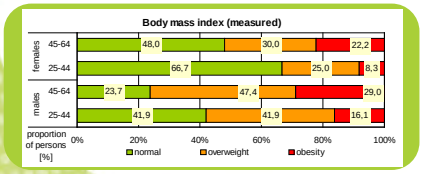


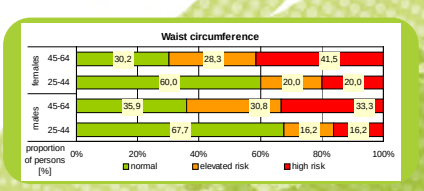
- 75 % of respondents evaluated their health as good or very good.
- The prevalence of **elevated blood pressure** (above 140/90 mmHg) was 29 % among males and 17 % among females. Hypertension awareness was only 46 % at males and 56 % at females.
- Among 20 % of respondents was found level of **fasting glucose** above 5,6 mmol/l, but only 12 % of them was diagnosed to have diabetes.
- 66 % of respondents had **elevated blood cholesterol** (more then 5mmol/l). Hypercholesterolemia awareness was only 24 %.
- Higher proportion of **overweight and obese** was found in male's population, among 45-64 years old males there were 75 % of such persons. On the other hand an **abdominal obesity** was more prevalent among females; 32 % of them were according waist circumferences in high CVD risk.











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EHES Pilot was funded by European Commission/DG Sanco.

FORTY YEARS OF EXPERIENCE IN HEALTH EXAMINATION SURVEYS IN FINLAND

Männistö S, Borodulin K, Juolevi A, Grönholm M, Saarikoski L, Sundvall J, Lund L, Levälahti E, Tolonen H, Peltonen M, Laatikainen T, Vartiainen E (= EHES Pilot Research Group[1]).
[1]National Institute for Health and Welfare, Helsinki, Finland

HISTORY

In the 1960s, Finnish men had the highest international records in CHD mortality. Consequently, a community-based intervention programme, as a national pilot, was launched in North Karelia in 1972 to reduce the burden of high CHD morbidity and mortality. Since then cross-sectional population surveys have been carried out at five-year intervals. These surveys have recently been extended to a national risk factor monitoring system, the National FINRISK Studies, to serve public health policy and prevention planning.

NATIONAL FINRISK STUDIES

This health monitoring system has included six large study areas (Fig 1). The random sample of the adult population aged 25 to 64 (later 74) years has been stratified by sex, 10-year age groups and area, and has included 6000-13500 subjects. The response rates have varied from 67% to 95% (Vartiainen E et al. 2009).

Participants have received an invitation letter to a health examination with a questionnaire on, e.g., health status, health behaviour and use of health services. At the study site, trained nurses have measured anthropometric factors and blood pressure, and drawn blood samples. In all, 30% of participants have been included in the National Findiet Studies (1300-2900 subjects per study).

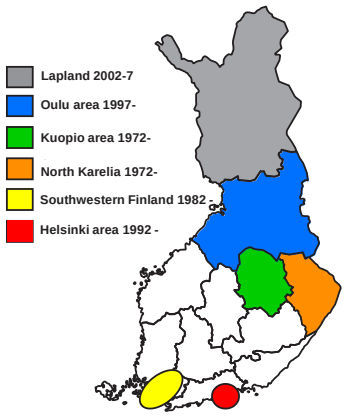

Figure 1. FINRISK study areas.

KEY RESULTS

Since the 1970s, CVD mortality rate has decreased 80% in Finland. About 75% of the observed decline in CVD mortality in middle-aged men can be explained by decline in blood pressure, cholesterol and smoking (Fig 2). Obesity has increased substantially, and is a major public health concern (Fig 3).

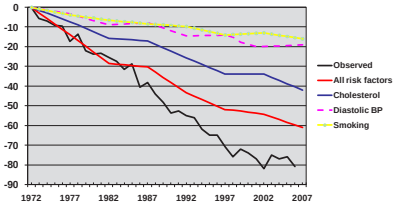

Figure 2. Observed and predicted decline in CHD mortality in men (Vartiainen et al. 2009).

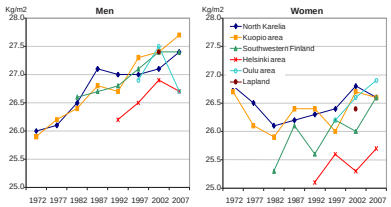

Figure 3. Obesity trends by body mass index in Finland (Vartiainen et al. 2009).

EHES PILOT STUDY

The aim of the FINRISK 2012 pilot study, called Kuusamo Health Study, was to assess health status, health behaviour and chronic disease risk factors among a random sample of 250 inhabitants aged 25-74 years in the town of Kuusamo. Participation rate was 66%. Women participated more often than men (56% vs. 44%, respectively). The study was carried out between May 5 and June 10, 2011. The pilot study included a questionnaire and a health examination.

The challenge of the pilot study was to combine the Finnish survey tradition with some EHES demands to maintain our long-term trends, as well as maintain an acceptable participation rate.

The average values were somewhat elevated for blood pressure and blood lipids when compared to recommendations. The values, however, are close to the Finnish averages from the FINRISK 2007 Study. Elevated systolic blood pressure (≥130mmHg) was measured in 63% of men and 54% of women. The prevalence of obesity was high, but not different from the other Finns.

FINRISKI 2012

The latest FINRISK Study is being carried out in five study areas from January to April, 2012. The random sample includes 10000 participants. The field staff includes 25 trained study nurses and 10 dietary interviewers. Additional to the basic study we have the following sub-studies: dietary survey, study of non-responsiveness, cold-hot climate exposure, physical activity study, cell line collection and 24-h urine samples.

ADVANTAGES

- This risk factor and dietary monitoring system has been a very important tool in the prevention of chronic diseases in Finland over the years.
- The information obtained has been utilized for health and dietary prevention planning and monitoring, policy and health communication in the media.
- The studies have given a basis for many health and dietary recommendations and tools for health practitioners, e.g., Current Care Guidelines, National Dietary Recommendations and web-based risk factor calculators.
- International consultation on the practice of health examinations, e.g., annual researcher seminars.
- The cohorts has been followed-up using the national health registers.
- The data allow identification of risk groups related to health prevention or under-users of health services.
- Novel biomarkers, genome-wide association and sequencing studies.
- National and international co-operation studies.
- Over 500 research papers published (including numerous theses).

Terveyden ja hyvinvoinnin laitos • Institutet för hälsa och välfärd • National Institute for Health and Welfare

Intergrating EHES Pilot in a running national full-size health examination survey

Experiences from Germany

Goesswald A, Kamtsiuris P, Lange C, Thamm M, Scheidt-Nave C, Doelle R, Kurth BM, Robert Koch Institute, Department for Epidemiology and Health Reporting, Berlin

Background

The Department for Epidemiology and Health Reporting of the Robert Koch Institute in Berlin has long–standing experience in the administration of examination and interview surveys since the 1980´s and has been interested in improving and standardising survey methods since then. Comparability of data on the European level has become an aspect of increasing importance in our survey concepts. Therefore we have been involved in the projects Feasibility of the European Health Examination Survey (FEHES) and European Health Interview Survey (EHIS) since several years. Recommendations of the FEHES project have been considered when planning the German Health Interview and Examination Survey for Adults (DEGS) in 2007.

When EHES Joint Action was launched in 2009, DEGS was already running since November 2008. So it was our challenge to integrate EHES Pilot in our running full size national HES.

Comparing study designs DEGS and EHES

EHES Pilot study manual was compared in detail with the DEGS study design. They corresponded well in many basic issues (including sampling, legal and ethical approaches), but revealed substantial differences in questionnaire items and wording.

	DEGS
Anthropometrics	☑
Blood pressure	☑
Totalcholesterin	☑
HDL / LDL	☑
Plasma glucose	Serum glucose
EHES core questionnaire	same topics, different wording

Study design DEGS

DEGS is a health interview and examination survey which was carried out from Nov. 2008 until Nov. 2011 in a total of 180 cities and municipalities all over Germany . Its aim is to collect representative data on the health status, health-related behaviour, healthcare and living conditions of adults residing in Germany who are aged 18 and over. The study design comprises computer assisted personal interviews, self administered questionnaires, measurements of anthropometrics, blood pressure, physical and mental functioning as well as blood and urine analyses. The data will provide information on the most widespread diseases, health risk factors and healthcare problems.

DEGS study population
- examined: 7239
- interviewed: 7750

18 – 79 years old
180 cities and municipalities
study duration: 2008 - 2011

2 field teams:
physician, nurse,
lab assistent, receptionist

Integrating EHES Pilot in DEGS

- A sub-sample of 8 out of 180 municipalities was chosen. Duration 6th of June until 9th of July 2011.
- Study personnel was trained.
- Additional information and informed consent form for EHES pilot was provided to sampled subjects.
- EHES core questionnaire was applied additionally to DEGS questioning.
- Plasma glucose measurement was performed additionally to serum glucose measurement.

Results

DEGS participants were mostly willing to take on the additional burden of EHES Pilot Study (eligible 707, DEGS participants 338, EHES participants 287). Additional laboratory measurements of plasma glucose were accomplished with fairly low expenditure. Differences between EHES and DEGS questionnaires could only be handled by applying an additional questionnaire. This led to double questioning of certain topics in different wordings.

Conclusion

EHES Pilot study could be integrated in our running full size HES with an acceptable work load for field management and field teams. EHES Pilot measurements correspond well to national standards.

Agreements on EHES core questionnaire will have to be met before starting full size EHES, results of the European Health Interview Survey project should be considered.

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The EHES Pilot project has received funding from the European Commission/DG Sanco.
The views expressed here are those of the authors and they do not represent Commission's official position.

The Greek Pilot Health Examination Survey: Experience and Prospects

INTRODUCTION

The Greek pilot Health Examination Survey (HES) was undertaken in the context of the EC supported "European Health Examination Survey - EHES Pilot" project, coordinated by the National Institute for Health and Welfare in Helsinki, Finland, the EHES Reference Center (RC) (www.ehes.info/). The EHES aims to collect nationally representative, high quality health data comparable among countries.

The Greek pilot HES was implemented by the Hellenic Health Foundation (HHF) and the data collection was carried out from November 2010 to July 2011 in Athens and the greater Athens region. The HHF collaborated with the Hellenic Center for Diseases Control and Prevention (HCDCP) (www.keelpno.gr) of the Hellenic Ministry of Health and Social Solidarity (MOH), particularly in relation to select and actively involve the Health Centers, which operated as survey examination focal points. Depending on the participants' availability and proximity to the study center, some interviews were conducted at the HHF's premises or at house calls.

METHODOLOGY

A representative sample of Greek residents from the corresponding regions was provided to the HHF by the Hellenic Statistical Authority (EL.STAT; www.statistics.gr), based on the Census of 2001, the one valid at the time of sample selection. The criteria used for stratification were gender and four 10-year age groups (25-34, 35-44, 45-54, 55-64). The sample was selected from specific municipalities of Attica in a way to allow easy accessibility to the corresponding Health Centers.

The planning phase included not only the selection of the study sample but also, the preparation of the questionnaires and measurement procedures, drafting of the manual and planning of the fieldwork.

THE FIELDWORK

An **invitation letter** was sent to every potential participant including a brochure with relevant information. A **phone call** (about one week after the letters were posted) was made to set an appointment for the examination.

Data collection included:
- Measurement of arterial blood pressure
- Anthropometric measurements (weight, height and waist circumference)
- Blood samples drawing
- Interviewer-administered questionnaire

An in-house appointment scheduling software and a collaborative platform (wiki) were developed to:
- assist the appointment scheduling
- coordinate the fieldworkers
- share resources and
- exchange documents and recommendations

People selected to the sample	**345**
Non eligible	**19**
Not contacted (unresolved)	**88**
Eligible	**238**
Refused to participate	122
Study participants	116

Participation rate (participants / eligible + unresolved): 116/326 = **35.6%**
Co-operation rate (participants / eligible): 116/238 = **48.7%**
Refusal rate (refused / eligible + unresolved): 122/326 = **37.4%**
Contact rate (eligible / eligible + unresolved): 238/326 = **73.0%**

NON RESPONDERS

In total, 122 individuals refused to participate, among which 61 agreed to reply to a short, telephone-administered questionnaire.

No significant differences were observed between the responders and non-responders' mean age and weight, but non-responders were taller on average than responders.

There were no differences in the distribution of individuals across sex, age, current smoking status and perceived health, however, the level of education appeared to differ among the two groups of individuals (p=0.023).

RESULTS

The age distribution differed between male and female participants: a substantially higher proportion of women were aged 45-54y, while more men than women belonged to the 25-34y group. More than 50% of individuals had completed either the upper secondary or the 1st stage tertiary education. Sixty-six percent of the individuals were found to be overweight or obese, among which 47% were obese. Systolic and diastolic blood pressure was calculated as the average of three consecutive measurements and the hypertensive cases were then identified. The prevalence of hypertension was higher in men (28%) than in women (17.5%) (Table 1).

From the participants, 104 individuals agreed to provide blood samples. Among these only 10% were under medication to lower elevated cholesterol levels. From the remaining 93 non-treated adults, the mean serum total and HDL cholesterol were 213 and 56mg/dL respectively (Figure 1). However, 55 of them (59%) had total cholesterol >200mg/dL while the percentage of those with HDL <45mg/dL was much lower (23%).

More than half of women (54%) and 43% of men reported having longstanding health problems; nevertheless, more than 60% among them reported that they perceived their current health status as good (Figure 2).

TABLE 1:
Characteristics of participants in the Greek pilot HES

Characteristics	Men		Women		Total	
	N	%	N	%	N	%
Total	53	45.7	63	54.3	116	
Age group *(based on date of birth)*						
25-34	20	37.7	12	19.1	32	27.6
35-44	11	20.8	14	22.2	25	21.5
45-54	9	17.0	23	36.5	32	27.6
55-64	13	24.5	14	22.2	27	23.3
BMI categories (measured weight and height)						
Underweight (<18.5 kg/m^2)	1	1.9	2	3.2	3	2.6
Normal weight (18.5 - 24.99 kg/m^2)	12	22.6	25	39.7	37	31.9
Overweight (25 - 29.99 kg/m^2)	24	45.3	16	25.4	40	34.5
Obese (≥30 kg/m^2)	16	30.2	20	31.7	36	31.0
Educational attainment						
No formal education	0	0.0	0	0.0	0	0.0
Primary education	4	7.6	9	14.3	13	11.2
Lower secondary education	5	9.4	0	0.0	5	4.3
Upper secondary education	16	30.2	16	25.4	32	27.6
Post-secondary but not tertiary education	8	15.1	12	19.1	20	17.2
1st stage of tertiary education	13	24.5	20	31.8	33	28.5
2nd stage of tertiary education	7	13.2	6	9.5	13	11.2
Hypertension*						
No	38	71.7	52	82.5	90	77.6
Yes	15	28.3	11	17.5	26	22.4

* Hypertension: Systolic BP ≥ 140 mmHg or diastolic BP ≥ 90 mmHg or diagnosed for high BP or under antihypertensive treatment or any combination of the above

FIGURE 1:
Distribution of serum total and HDL cholesterol levels in 93 individuals receiving no medication for hypercholesterolemia

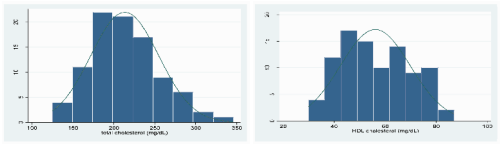
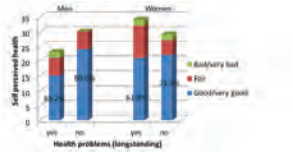


FIGURE 2:
Self perceived health and longstanding problems



CONCLUSIONS

PROBLEMS ENCOUNTERED	ACTIONS TAKEN
The sample was based on Census 2001 (included non-eligible participants and persons unable to be located/contacted). Low participation rate.	For the full-size survey, the sample will be drawn based on the most recent Census 2011.
Scheduling the appointments, co-ordinating fieldworkers.	A communication expert was engaged with the responsibility to call potential participants and set appointments for examination. An in-house collaborative platform was developed to enable document sharing and commenting and faster response to problems encountered.

The lessons learned from the overall experience during the planning of the Greek Pilot HES will be turned to advantage during the planning steps of the full-size national HES.

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The EHES Pilot project has received funding from the European Commission/DG Sanco. The views expressed here are those of the authors and they do not represent Commission's official position.

il progetto cuore

Opportunities of the Italian Pilot EHES

Luigi Palmieri, Chiara Donfrancesco, Cinzia Lo Noce, Francesco Dima, Amalia De Curtis[1], Licia Iacoviello[1], and Simona Giampaoli

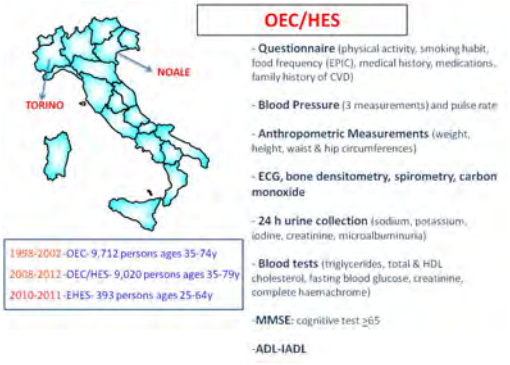
Istituto Superiore di Sanità, Rome, Italy;

[1]Catholic University, Campobasso, Italy

In Italy, the European Health Examination Survey (EHES) pilot survey was organized in the context of the Osservatorio Epidemiologico Cardiovascolare/Health Examination Survey (OEC/HES), a national survey started in 2008 for the assessment of heath status of the general adult population which involves the examination of 9,200 persons (ages 35-79 years) within the end of 2012.

The pilot survey was planned and conducted in two municipalities in addition to those involved in the national survey: Noale, a small village in the Veneto Region (9,134 residents of age 25-64 years), and a central district of Torino, the capital of the Piedmont Region (46,044 residents of age 25-64 years; overall Torino, 505,580). The EHES pilot survey included all the examinations of the national OEC/HES survey plus the specific "core" questionnaire recommended by the EHES; moreover the age-range examined (25-64) included the younger age-decennium, not planned for the national OEC/HES survey. In Noale, 200 persons were examined (response rate 54%) and in Torino 193 (45% response rate): a total of 203 women and 190 men, 50 persons by each gender and age-decennium.

The national OEC/HES survey was approved by the ISS Ethical Committee in 2008 contextually to its planning; the EHES pilot study was added to the study and approved by the ISS Ethical Committee in November 2009.



OEC/HES

- **Questionnaire** (physical activity, smoking habit, food frequency (EPIC), medical history, medications, family history of CVD)
- **Blood Pressure** (3 measurements) and pulse rate
- **Anthropometric Measurements** (weight, height, waist & hip circumferences)
- **ECG, bone densitometry, spirometry, carbon monoxide**
- **24 h urine collection** (sodium, potassium, iodine, creatinine, microalbuminuria)
- **Blood tests** (triglycerides, total & HDL cholesterol, fasting blood glucose, creatinine, complete haemachrome)
- **MMSE:** cognitive test ≥65
- **ADL-IADL**

OPPORTUNITIES

Comparison of self reported and measured weight and height

	mean	std	mean	std
Measured weight (kg)	80,0	14,8	63,9	11,7
Self reported weight (kg)	80,7	15,5	63,4	11,6
Measured height (cm)	174,2	8,2	162,1	7,0
Self reported height (cm)	175,9	7,3	164,4	6,8
BMI from measured values	26,4	4,6	24,3	4,5
BMI from self reported values	26,0	4,3	23,5	4,2
	%		%	
Overweight* (measured)	37,1		26,5	
Overweight* (self reported)	39,4		22,9	
Obesity** (measured)	17,7		12,0	
Obesity** (self reported)	15,4		7,3	

* 25<=BMI<=30 kg/m^2; **BMI>=30 kg/m^2

Comparison of fasting blood glucose assayed in serum and plasma (tubes with EDTA and fluoride-citrate)

	mean	std dev	median	min	max	mean	std dev	median	min	max
Plasma Glucose, EDTA, mg/dl	87	12	86	65	127	84	12	83	61	162
Plasma Glucose, Fluor. citrate, mg/dl	93	11	91	75	130	88	12	86	71	163
Serum Glucose, mg/dl	89	11	87	69	132	84	11	82	67	160

RESULTS

Risk factors: population mean and standard error

	MEN		WOMEN	
	mean	std error	mean	std error
Systolic blood pressure, mmHg	124,2	1,1	116,7	1,0
Diastolic blood pressure, mmHg	83,2	0,7	76,4	0,6
Serum total cholesterol, mg/dl	200,6	3,3	198,2	3,1
HDL-cholesterol, mg/dl	53,0	0,9	65,2	1,1
Fasting plasma glucose, mg/dl	91,8	1,4	82,7	0,8
Waist circumference, cm	92,9	1,0	81,3	0,8
BMI, kg/m^2	26,4	0,4	24,3	0,3

HIGH RISK CONDITIONS: POPULATION PREVALENCE

	MEN	WOMEN
	%	%
Hypertensives	32,0	15,4
Elevated serum cholesterol	32,0	15,4
Diabetes	10,9	3,9
Obesity	17,7	11,5
High waist circumference	19,4	26,0
Smokers	21,2	20,0
Ex-smokers	34,3	30,2

24 HOUR URINE TESTS

	MEN		WOMEN	
	mean	std dev	mean	std dev
Sodium chloride (g/24h)	11	4	8	3
Potassium chloride (g/24h)	5	2	5	2
Sodium/Potassium	3,2	1,3	2,5	1,0
Creatinine (mg/24h)	1538	367	1064	253
Urine volume (L)	2,0	0,7	2,2	0,7

CONCLUSIONS

- In the Pilot survey, participation rate was lower than OEC/HES national survey (the population sample was younger)
- population mean salt intake was higher than WHO recommendation: 11% of women and 3% of men had less than 5 g. of salt intake per day
- Self reported weight and height were lower than those measured
- Fasting blood glucose assayed in plasma was higher if collected in tubes with fluoride-citrate as recommended by the EHES

Misclassification between EHES and EHIS: the BMI case

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European Health Interview Survey (2008)

- Sample of Maltese adult resident population
- Self-reported weight and height.

Pilot European Health Examination Survey (2010)

- Pilot sample of Maltese adult resident population
- Both self-reported & examined weight and height

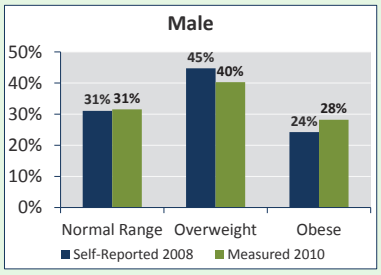
Aim

- To measure misclassification of body mass index (BMI) by gender, age & education.

Method

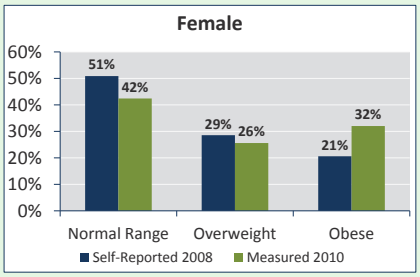
- Weighted analysis based on EHIS sample.
- Only univariate analyses presented.

Gender

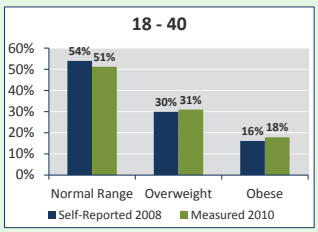


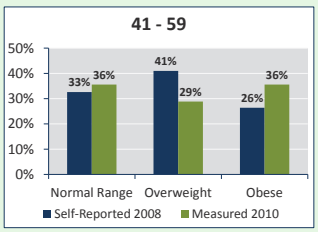
Underestimation seen in both genders

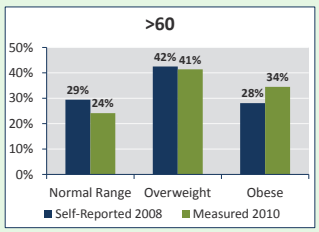
More pronounced in females (up to 10%)



Age







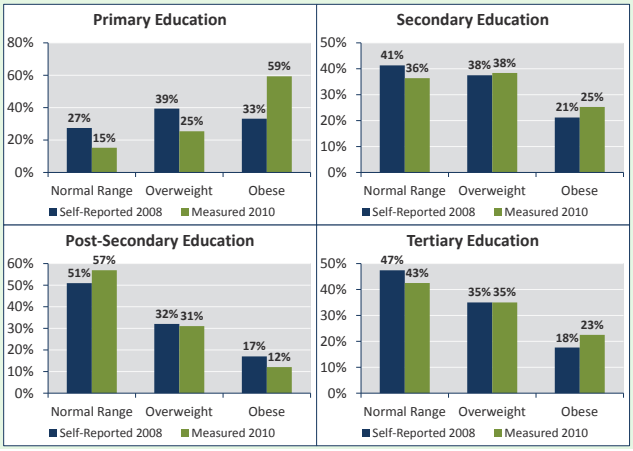
Self-reported BMI underestimated in all age groups, especially in the 41-59 age group (up to 10%)

Education

- In all education categories, except post-secondary education the proportion of obese individuals is underestimated.

- 20% underestimate of the obese proportion within primary education.

- Within post-secondary education, underestimation of normal BMI proportion by 6% and overestimation of obese by 5%.



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National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport

Measuring the Netherlands, 2009-2010

Authors: A. Blokstra, P. Vissink, L.M.A.J. Venmans, A.L. Viet, P. Holleman, Y.T. van der Schouw, H.A. Smit, W.M.M. Verschuren

Sampling

Originally, we sampled 15 towns (spread over 5 regions, in each region a large, medium sized and small town). Due to changes in the recruitment and changes in the budget, we were able to complete the survey in 7 towns (see Figure 1).

Figure 1: The 15 towns, randomly selected. The survey is carried out in 7 towns (written in black)

Measurements

- Weight, height, waist circumference
- Blood pressure
- Blood sample for total- and HDL cholesterol, triglycerides, glucose, HbA1c
- Questionnaire on lifestyle and health
- After the exam, a second questionnaire to fill in at home (return rate 80%)

Field work

Phase 1
- 5 towns, sample of men and women aged 18-70 years
- Recruitment: invitation letter, if no response: reminder (letter), followed by attempts to reach the invited person by telephone.
- Fasting blood sampling, between 7 and 10 am
- Incentive was 10 euros

Phase 2
- 2 towns, sample of men and women aged **30**-70 years, because of the low response in the 18-30 year olds
- Recruitment: invitation letter, if no response: **house visit** to invite the person
- Fasting (7-10 am) and non-fasting blood sampling (rest of the day), also on Saturday
- Incentive was **50 euros**

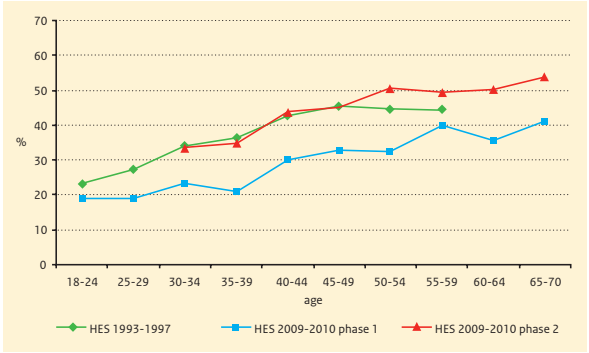

Figure 2: The response of HES 1993-1997 versus HES 2009-2010

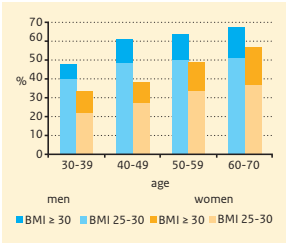

Figure 3: The prevalence of overweight and obesity

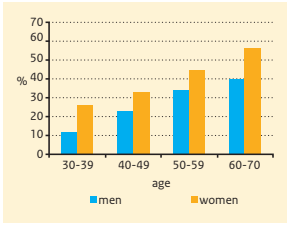

Figure 4: The prevalence of abdominal obesity (waist ≥88 cm (women) or ≥ 102 cm (men))

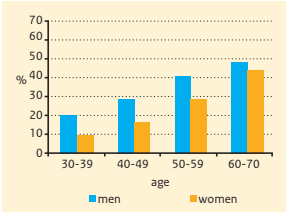

Figure 5: The prevalence of metabolic syndrome

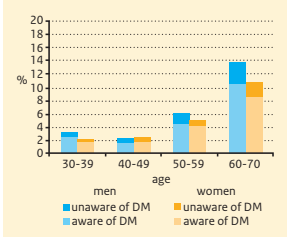

Figure 6: The prevalence of diabetes mellitus (Aware = self-reported. Unaware = not reported and plasma glucose level ≥7.0 mmol/l (fasting) or ≥11.1 mmol/l (non-fasting))

Results in 30-70 year olds

- New recruitment strategy resulted in increased respons rate (see Figure 2)
- Overall, 60% of the men and 44% of the women was overweight, with increasing prevalence in higher age groups (Figure 3, age specific)
- 27% of the men and 39% of the women were abdominally obese (Figure 4)
- 34% of the men and 24% of the women had metabolic syndrome (Figure 5)
- Prevalence of diabetes was 6% in men and 5% in women (Figure 6)
- A quarter of those diagnosed with diabetes, were unaware of it (Figure 6)

Conclusions

- The new recruitment strategy paid off, we were able to reach the same response rates as 15 years ago, however with a much larger effort
- In order to increase response rates, it is easier to have a limited number of research sites (towns). In this way, more publicity can be generated locally, and door-knocking can be arranged efficiently.
- Prevalance of risk factors was high
- Compared to the last HES 15 years ago, the most striking change was the increase in the prevalence of abdominal obesity

More results: www.rivm.nl/nldemaat
Contact: monique.verschuren@rivm.nl

The survey was organized by the National Institute for Public Health and the Environment (RIVM) in collaboration with the University Medical Centre, division Julius Centre and Julius Clinical Research (JCR).

Published by
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www.rivm.nl

609603

European Health Examination Survey Pilot in Norway

HES in Norway

Previously, there has not been a national representative HES conducted in Norway. However, several regional HESs have been carried out since 1974.

The Norwegian pilot survey was conducted in May/June 2011. A sample of about 1000 persons aged 25-64 years were selected from the two municipalities of Fjell and Sund on the island of Sotra outside Bergen. The examinations were carried out in a mobile unit, especially equipped for the purpose of health examination surveys. The bus was parked in the parking lot of the main shopping centre on Sotra.

In addition to the EHES core measurements, triglycerides were measured and an oral health examination, including x-rays, was conducted.

The mobile unit is well laid out and has 4 examination rooms as well as a reception area. One of the examination rooms also functions as a laboratory with a centrifuge and refrigerator/freezer. The survey team also had use of a separate waiting room adjacent to the shopping centre.

Project leader: Grethe S.Tell (grethe.tell@isf.uib.no)

Participants in the Pilot study

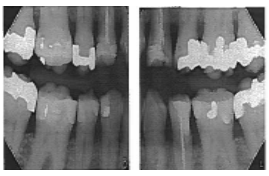
Sex- and age groups	In sample	Participants	
		N	%
Men	642	100	15.6
Women	669	205	30.6
18-34 years	329	47	14.3
35-44 years	326	70	21.5
45-54 years	332	92	37.7
55-64 years	324	96	29.6
Total	1311	305	23.3

Oral Health Module

Little is known about the level and socio-demographic distribution of oral diseases and use of dental health care services in the Norwegian adult population.

The oral examination includes registration of:

- Dental caries
- Missing teeth and fillings due to caries
- X-rays (2 Bitewings/electronically)
- Periodontal disease



Pilot study results, mean (s.d.)

	N	SBP mmHg	DBP mmHg	Total Cholesterol mmol/l	HDL Cholesterol mmol/l	Waist circumference cm	BMI kg/m²
Men	100	129 (14.3)	82.2 (8.7)	5.20 (1.02)	1.30 (0.37)	99.4 (11.5)	28.1 (3.9)
Women	205	114 (14.1)	76.1 (9.8)	5.23 (1.00)	1.73 (0.41)	86.9 (11.3)	26.1 (4.4)

Norwegian Institute of Public Health

EHES
Measuring the Health of Europeans

EHES Survey Pilot in Poland - selected results

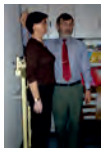
The EHES pilot was conducted in January-April 2011 by the regular team of the Department of Epidemiology, CVD Prevention and Health Promotion of the Institute of Cardiology in Warsaw. The Polish participants were sampled from the permanent residents of the area of right bank of Vistula river in Warsaw that is divided in 7 districts. From each districts 70 subjects aged 20-74 years (35 menand 35 women) were randomly selected (1-Stage Selection). A total of 487 people aged 20-74 years were contacted (3 persons were not eligible) and 206 participate d in the survey, which gives a total response rate of 42,3 percent (for men 41,8%, for women – 42,8).

EHES-PL website

SHORT HISTORY OF EHES-PL

FIRST PART OF 2010
IKARD EHES Team started to be familiar with EHES-JA Pilot

SECOND PART OF 2010
IKARD Team has been intensively trained



FIRST PART OF 2011
January-March - Pilot survey was conducted

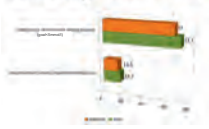
Site Visit from RC

SECOND PART OF 2011
* Creation of data base
* Statistical analysis
* REPORTING, REPORTING, REPORTING...!!!

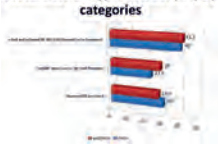
FINAL CAKE

Prevalence of hypercholesterolemia by categories

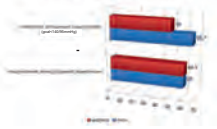
Control of hypercholesterolemia



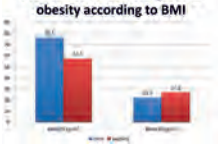
Prevalence of hypertension (HT) by categories



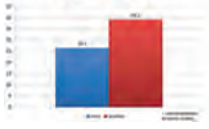
Control of hypertension



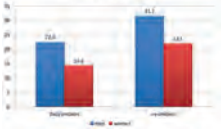
Prevalence of overweight and obesity according to BMI



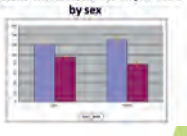
Central obesity *



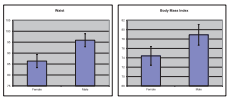
Smoking habit



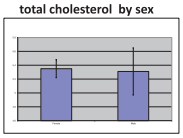
Means and 95% CI of systolic and diastolic blood pressure by sex



Means and 95% CI of anthropometric measurement by sex



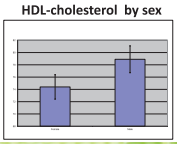
Means and 95% CI of total cholesterol by sex



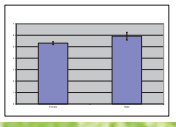
CONLUSION

1. The examined population have been characterised by high prevalence and rather poor control of classical modifiable risk factors.
2. There is considerably potential for health services and health decision makers to further reduce CHD risk factors in the population and consequently morbidity and mortality.
3. Further studies are needed to identify main factors influencing high level of risk factors.

Means and 95% CI of HDL-cholesterol by sex



Means and 95% CI of glucose by sex



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The EHES Pilot project has received funding from the European Commission/DG Sanco. The views expressed here are those of the authors and they do not represent Commission's official position.

The European Health Examination Survey Pilot in Portugal

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[1] Instituto Nacional de Saúde Dr. Ricardo Jorge (INSARJ), [2] Departamento de Saúde Pública da Administração Regional de Saúde do Algarve (ARSA), [3] Laboratório de Saúde Pública Dra. Laura Ayres [4] Centro de Saúde São Brás de Alportel

The EHES pilot project has received funding from the European Commission/DG Sanco. The views expressed here are those of the authors and they do not represent Commission's official position

Background and objectives

The Portuguese component of EHES takes the acronym of INSEF (**In**quérito **N**acional de **S**aúde com **E**xame **F**ísico) and its main purpose was to build scientific knowledge about the health of the resident Population in Portugal, providing information that supports planning and evaluation activities in health policies and, thus, to harness the adequacy of the national politics to the needs of well-being and welfare of the population. Since no national health examination survey has been carried out previously, a pilot study was performed in order to evaluate the viability of developing an HES in Portugal.

Implementation

Study Design: An observational, cross-sectional, descriptive epidemiological study was designed. Data collection was performed through a questionnaire, physical examination and biochemical analysis of biological materials.

Target population: Residents of São Braz de Alportel in Algarve included on the National Health System (NHS) and aged over 25 years old.

Sampling: The selection was made through the users' lists of São Brás de Alportel Health Centre. This health centre was selected since it offered the best conditions for the pilot phase: for its proximity to the Regional Health Administration (RHA) of Algarve and for having some features that made it unique in the sense that it developed a close work with the local community.

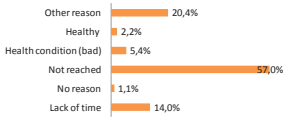
Sample size: In the beginning, an oversized list of 600 invited individuals has been considered, to compensate for the non-responses.

Participants recruitment: An invitation letter with the information leaflet was mailed to the sampled persons two weeks before appointment. A 2nd letter with appointment was mailed five days before. After that, a phone call was made to confirm the appointment. Whenever eligible individuals refused to participate in the study, a questionnaire was made by telephone interview to characterize these individuals (Table 1 and Fig. 1).

Table 1. Characterization of non participants

Sex (%)		Smoking (%)	
Male	45,2	Yes	11,8
Female	53,8	No	32,3
Missing	1,1	Missing	55,9
Age group (%)		**Hypertension (%)**	
25-44	18,3	Yes	10,8
45-64	9,7	No	30,1
≥65 years	10,8	Do not know	52,7
Missing	61,3	Missing	6,5

Figure 1. Reasons for not participating



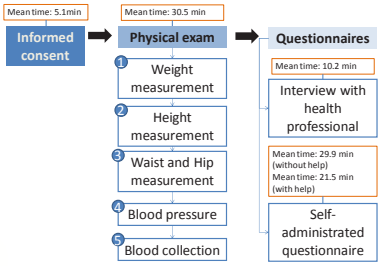
Ethical and legal aspects

- ✓ The study protocol was submitted to and authorized by the National Committee for Data Protection and by Ethics Committee of Instituto Nacional de Saúde Dr Ricardo Jorge, I.P.
- ✓ All participants voluntarily gave their informed consent before any inquiry.

INSEF local team The fieldwork staff (receptionists, nurses and laboratory technicians) worked at the local health centre. They were trained for the survey measurements before the fieldwork started.

Field work The fieldwork took place in S. Braz de Alportel (Algarve), from May to July in 2010. During five weeks, on working days, activities carried on between 08:00-12:00 (Fig. 2).

Figure 2. Representative scheme of the measurement process and inquiry and mean times in each step

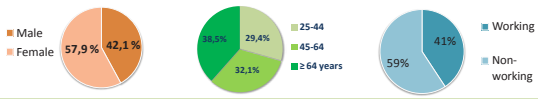


Measurements and questionnaires In addition to the EHES core measurements, waist and hip circumference were measured. From blood samples, a total blood count was performed and triglycerides were analysed. In addition to the EHES core questions, ADL, IADL, women's questions on use of contraceptives, menopause and pregnancies, as well as mental health (MH1-5) and use of health services were also included.

Some health results

Who were the participants

Figure 3. Participants distribution by sex, age group and occupation (n=221)



Health Status

Figure 4. Self reported health status

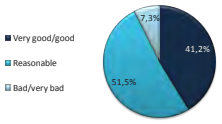
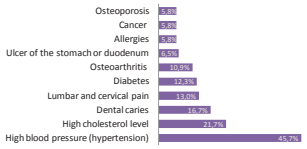


Figure 5. Prevalence of chronic diseases (top 10)



Physical exam

Table 2. Waist to hip ratio

	Total	Male	Female
Mean (CI 95%)	0.94 (0.93; 0.95)	0.98 (0.97; 1.00)	0.90 (0.89; 0.91)
Median	0.93	0.99	0.90
Minimum	0.68	0.84	0.68
Maximum	1.17	1.17	1.15
% risk of metabolic complications (CI 95%) M ≥0.90 cm; W ≥0.85 cm	84.1 (79.3; 88.9)	87.0 (80.1; 93.8)	82.0 (75.4; 88.7)

Figure 6. Body Mass Index (total and by sex)

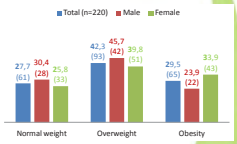
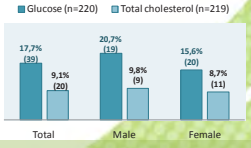


Table 3. High Blood pressure (total and by sex) according to the intake of medication for the condition

	Total	Male	Female
Hypertension (%)	13,1	9,7	15,6
CI 95%	(8.7; 17.5)	(3.7; 15.7)	(9.3; 21.9)
Taking medication (%)	59.0	45.5	66.7
CI 95%	(46.7; 71.3)	(24.7; 66.3)	(51.9; 81.5)
Not taking medication (%)	26.9	26.8	27.0
CI 95%	(20.0; 33.7)	(16.5; 37.1)	(17.8; 36.2)

Figure 7. Proportion of participants with altered levels of glucose and total cholesterol



Health determinants

Figure 8. Drinking habits in the past 12 mo (total and by sex)

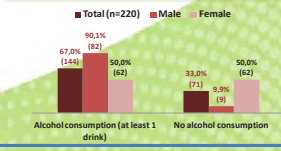
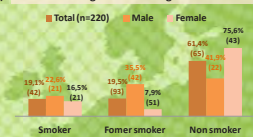


Figure 9. Smoking status



Conclusions and recommendations

The pilot study results evidences the viability of Portugal to implement a National Health Examination survey, by creating an human and logistical framework. Portugal can conduct a full-size national HES, in the next few years, if there is an european funding. The Pilot study also enhanced the following reccomendation:

1. Announcement of the health survey with physical examination
2. Autonomous health team
3. Suitable spaces for survey (examination and interview)
4. Improvements in some procedures (blood collection / transportation, physical exam)
5. Review part of instruments

The Utilisation of the Pilot EHES Study Results in Preparation of the National HES Study in Slovakia

Mária Avdičová, MD, PhD, Assoc. Prof. Eleonóra Fabiánová, MD, PhD.
Katarína Francisciová, Mgr.
Regional Authority of Public Health in Banská Bystrica, Slovakia

Organisation of the Pilot EHES Study

Examination site: model district - Banská Bystrica

Study implementation: staff of Epidemiology Department and Health Promotion Department, Regional Authority of Public Health (RAPH) in Banská Bystrica

Laboratory examination: Biochemical Laboratory in Faculty Hospital of FD Roosevelt in Banská Bystrica

Promotion: - Local audio and print media
- Press conference
- Information on web site of the RAPHs
- Leaflets, posters
- Information for General Practitioners

Time: November and December 2010

Invitation of respondents:
- the first, the second and the third invitation letter
- phone interview for specifying date and time of the examination.

Facts about Slovakia:

- Capital: Bratislava
- Official language: Slovak
- Ethics groups: Slovak (85,5%)
  Hungarian (9,7%)
  Others (4,5%)
- Government: Parliamentary republic
- Area: 49 035 km²
- Population: 5 435 273

Methods and subjects

Subjects:
-250 respondents selected from the Evidence of Inhabitans
- Age: 18 – 64
- Equal distribution of men and women

Methods:

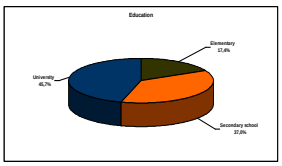
Questionnaire - questions are mostly taken from the EHIS questionnaire, but some are partially changed. Some questions were added on physical activity, nutrition, stress. Questions were completed by the respondents in the form of the interview.

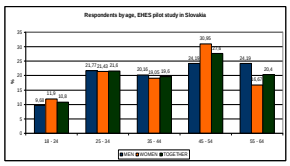
Physical examination: height, weight, waist circumference, subcutaneous fat, blood pressure

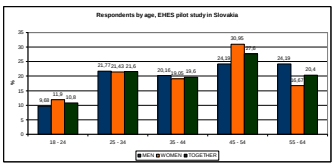
Laboratory examination: total cholesterol
HDL cholesterol
triacylglycerides
glucose

Selected results

age	selected	participated	
		abs	%
18-24	27	7	**25,9**
25-34	54	25	46,3
35-44	49	22	44,9
45-54	69	54	78,3
55-64	51	30	**58,8**
total	**250**	**138**	**49,3**



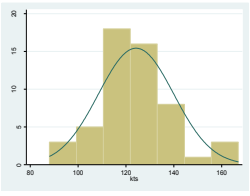




Categories of serum total cholesterol

Chol. Cat.	MEN	WOMEN	TOTAL
	25	26	51
<5	46,30%	30,95%	36,96%
	15	31	46
≥5 and < 6	27,78%	36,90%	33,33%
	11	21	32
≥6 and < 7	20,37%	25,00%	23,19%
	2	4	6
≥7 and < 8	3,70%	4,76%	4,35%
	1	2	3
≥8	1,85%	2,38%	2,17%
	54	84	138
TOTAL	100%	100%	100%

Systolic blood presure - MEN



Prevalence of elevated systolic blood presure

	MEN	WOMEN	TOTAL
	45	78	123
BP<140/90	83,3%	92,9%	89,1%
	9	6	15
BP?140/90	16,7%	7,1%	10,9%
	54	84	138
TOTAL	100%	100%	100%

Systolic blood presure

	Obs	Mean	St.Dev.	95% Conf. Interval
Men	54	124,2407	2,143349	119,9417-128,5398
Women	84	111,9167	1,64683	108,6412-115,1921

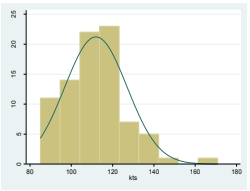
Serum total cholesterol

	Obs.	Mean	St. Dev.	95% Conf. Interval
MEN	54	5,2	0,137386	4,924439 - 5,475561
WOMEN	84	5,47619	0,1213405	5,234849 - 5,717532

BMI (based on measured height and weight)

	Obs.	Mean	St. Dev.	95% Conf. Interval
MEN	53	26,77031	0,521384	25,72408 - 27,81655
WOMEN	84	24,16541	0,4539311	23,26255 - 25,06826

Systolic blood presure - WOMEN



Prevalence of daily and occasional smokers

Smokers	MEN	WOMEN	TOTAL
	10	14	24
Daily smokers	18,52%	16,67%	17,39%
	3	3	6
Occasionaly smokers	5,56%	3,57%	4,35%
	41	67	108
Not at all	75,93%	79,76%	78,26%
	54	84	138
Total	100%	100%	100%

Conclusions

- Analysis of the pilot study sample has demonstrated the high risk of the cardiovascular diseases.
- Response rate was lower in the respondents of lower age, lower education and men.
- Analysis of the Pilot EHES Study sample has shown that it is necessary to provide also the National HES Study.

Challenges from the Pilot EHES Study to the National HES Study

- Staff with many experiences and stereotypes
- Not very atractive examination (many similar actions of Health Promotion Department)
- Participation of health conscious respondents
- Financial motivation of respondents
- Need for higher level of motivation for respondents of lower age, lower education and men
- Home visits unsuccessful

National HES Study facts

- Coordination – RAPH in Banská Bystrica
- Implementation – 36 RAPHs in Slovakia (only districts with RAPHs)
- 4032 adressed respondents
- Response rate 51%
- Metods by Pilot EHES study
- Study is still running
- Finishing the field work – examination of respondents at the moment
- Blood samples are examinated in the Biochemical Laboratory in Faculty Hospital of FD Roosevelt in Banská Bystrica
- Actually data are input into Epi Data
- Preliminary results – April, May 2012

Examination sites in the National HES Study in Slovakia:

Acknowledgements:

The EHES pilot project has received funding from the European Commission/DG Sanco. The views expressed here are those of the authors and they do not represent Commission's official position.

The National HES Study was funded by the Ministry of Health of the Slovak Republic and the National Programme of the Cardiovascular Diseases Prevention

Use of Health Survey for England data by policy makers

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NatCen Social Research that works for society

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Why a health examination survey?

Information is needed for all stages of policy making process:

- Strategy development
- Policy initiation
- Option appraisal
- Development
- Implementation
- Monitoring
- Evaluation
- Review

But there is only limited information available from routine sources on objective measures of health and risk factors.
There is almost no information available about the distribution in the population of these objective measures, eg by age, gender, socio-economic measures, or ethnicity.

STRATEGY DEVELOPMENT

National Service frameworks

National service frameworks (NSFs) are long term strategies for improving specific areas of care. They set national standards, identify key interventions and put in place agreed time scales for implementation:

- Blood pressure
- Cancer
- Children
- Chronic lung disease 2011
- Coronary heart disease
- Diabetes
- Long term conditions
- Long term neurological conditions
- Mental health
- Renal function

HSE data feeds into development and monitoring of these NSFs.

MONITORING

HSE – source for national and international databases

- The WHO Global InfoBase is a data warehouse that collects, stores and displays information on chronic diseases and their risk factors for all WHO member states
- HSE contributes:
- Blood Pressure: Raised blood pressure causes stroke and heart disease
- Cholesterol: High cholesterol levels increase the risk of coronary heart disease
- Overweight & Obesity: (BMI)

HSE – parliamentary questions eg re Cholesterol – question posed in 2006

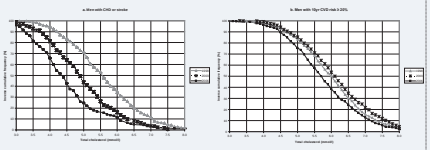
- Rosie Cooper: To ask the Secretary of State for Health what estimate she has made of the percentage of adults in West Lancashire with high cholesterol levels. [64112]
- Mr. Byrne: The information is not available in the format requested. Data on cholesterol levels are available from the Health Survey for England (HSE). The most recent data available on cholesterol are for 2003, as this is the last year where the HSE focused on cardiovascular disease.
- The results in the table show the mean total cholesterol levels for adults for England and the North West Government Office Region, broken down by gender for 2003.

Monitoring the effects of legislation

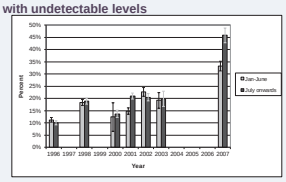
- Smokefree law implemented 1st July 2007
- Much publicity through advocacy and health education campaigns throughout 2005-2006

Progress in population-level prevention of CVD

Mindell J, Aresu M, Zaninotto P, Falaschetti E, Poulter N. Improving lipid profiles and increasing use of lipid-lowering therapy in England: results from a national cross-sectional survey – 2006. *Clin Endocrinol.* 2011;**75:621-7**

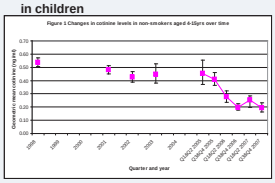


Salivary cotinine levels: % of non-smoking adults with undetectable levels



Sims S, Mindell JS, Jarvis MJ, Feyerabend C, Wardle H, Gilmore A. Did smokefree legislation in England reduce exposure to secondhand smoke among non-smoking adults? Cotinine analysis from the Health Survey for England. *Environ Health Perspect.*

Geometric mean salivary cotinine levels in children



Jarvis M, Sims M, Gilmore A, Mindell JS. Impact of smoke-free legislation on children's exposure to passive smoking: cotinine data from the Health Survey for England. *Tobacco Control.* 2011; doi: 10.1136/tc.2010.041608.

Monitoring levels of risk factors in the population

- Inadequate vitamin D levels
- Poor levels of fitness

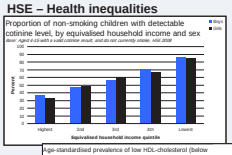
TARGETS

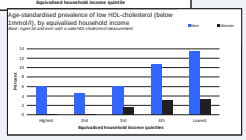
Target setting – eg Government reports *Health of the Nation (1992)*, *Our Healthier Nation (1999)*
Target monitoring:
BMJ 1996: Britain is failing to meet targets on reducing obesity
Meeting targets on high blood pressure:

- 17% of men (19% of women) had a systolic blood pressure over 160 mm Hg or were being treated for hypertension.
- A drop in the average systolic blood pressure from 139 mm Hg to 136 mm Hg was found in 16 to 64 year olds. These figures suggest a downward trend towards the government's target of an average systolic pressure of 133 mm Hg by the year 2005.

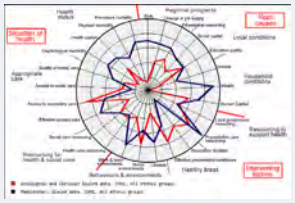
HSfE- health inequalities

HSE – Health inequalities





Health Poverty Index visualisation tool www.hpi.org.uk/

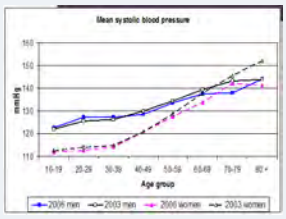


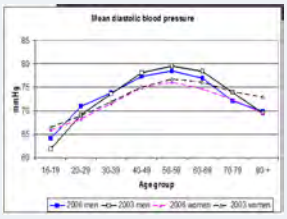
Driver for action

CMO recommendations

Data from the Health Survey for England collected during the 1990s suggest that the proportion of people with high blood pressure receiving treatment has risen, and the proportion of those treated whose blood pressure at the time of the survey was controlled has also risen. While this represents progress, there is still great scope for further improvement and lives that could be saved.

Improved hypertension and management and control: Results from the Health Survey for England 1998, Primatesta et al





Quantifying impacts

Health Poverty Index

"In England and Wales, the CHD NSF, NHS Plan, and CHD Information Strategy now explicitly recognise the huge importance of disease monitoring and service evaluation. All have made a number of specific and sensible recommendations. **However, at present over 99% of the £2 billion NHS CHD budget is spent on medical interventions, particularly revascularisation. Less than 1% is currently spent on the monitoring of CHD.** These are inadequate resources for even basic information strategy or information technology." Unal *et* al, 2003

Final reflections

* Examination component gives us critical information on key aspects of health status and health determinants.
* The examination component may be considered a *relatively* expensive component of the survey programme but it is **essential for informed (evidence-based) policy-making**.

Acknowledgments

Staff of the Joint Health Surveys Unit of UCL and NatCen:

- Health and Social Surveys Research Group, Dept of Epidemiology & Public Health, UCL
- National Centre for Social Research (NatCen)

Interviewers and Nurses
Participants in the health surveys

HSE reports

Trend tables: www.ic.nhs.uk/pubs/hse10trends

HSE 2004-2010 reports: www.ic.nhs.uk

Reports up to HSE 2003: www.dh.gov.uk

Posters by Other HESs and Projects

Survey of Lifestyle, Attitudes and Nutrition in Ireland (SLÁN): Lessons from the 2007 Health Interview and Health Examination

Morgan K, Murphy L, McGee H, Division of Population Health Sciences,
Royal College of Surgeons in Ireland on behalf of the SLÁN 2007 consortium

Background

SLÁN (Survey of Lifestyle, Attitudes and Nutrition) is Ireland's national health and lifestyle study. Three surveys have been carried out – in 1998, 2002 and 2007 – with 2007 being the largest to date. The overall aim is to provide nationally representative data on the general health, health behaviours and health service use of adults in Ireland. Each survey was conducted by teams formed specifically for this purpose and funded only for the duration of that survey.

The SLÁN 2007 survey had both health interview and health examination components. A total of 10,364 adults aged 18 years or over interviewed at home addresses (62% response rate) were included in the interview survey. The health examination included two groups: 967 younger adults (aged 18 – 44 years) who had body size assessment at the end of the health interview and 1,207 older adults (45 years +) who had a detailed physical examination involving nurse assessment and blood and urine sampling.

The sample was representative of the general population in Ireland when compared with Census 2006 figures and was further weighted to match the census for analysis. The 1998 and 2002 surveys were postal surveys and involved 6,539 respondents (62% response rate) in 1998 and 5,992 (53% response rate) in 2002.

A total of 7 reports were produced from SLÁN 2007 – a main report, a report comparing data to data from Northern Ireland and reports examining in more detail the areas of mental health and well-being, diet and nutrition, injury, smoking, alcohol consumption. All reports can be downloaded from www.slan07.ie.

In this poster we outline a number of the lessons learned from our experience with the 2007 Survey.

Lessons Learned

Sampling

Challenge: Representation v time and budget

The SLÁN 2007 sample was probabilistic and was selected from the GeoDirectory, which is a listing of all addresses in Ireland. The three step process ensured that random people at random addresses were selected resulting in a highly representative national sample. However, this came at a cost in terms of time (as interviewers had to return to some addresses multiple times) and budget.

Data Collection

Challenge: Creating the best interview and examination team

Key to ensuring a good response rate and good data are good interview and examination staff. We found:

- Field interview staff are well trained in recording health interview data, but are often uncomfortable carrying out examination tasks e.g. weighing respondents
- Nurses who are expert at health examinations are uncomfortable collecting some types of interview data e.g. socioeconomic status
- When collecting interview and examination data separately good communication between the field office and exam centres is crucial and should be facilitated through a central communications office/hub.

Preparation

Challenge: Maximizing use of existing resources

- Previous datasets should be examined and mined to inform the current survey
- Consultation with staff from previous surveys is essential
- Identify other sources of data – where data already exist duplication can be avoided and survey 'space' becomes available for other themes/questions
- Ensure comparability of questions across waves, but not at the expense of important international comparability
- Get as much feedback on the survey from as many experts as possible
- Pilot all measures and methods

Analysis

Challenge: interrogating the data

- There is a need for up-to-date high level statistics (e.g. national smoking rates); however, there is also a need for detailed analysis to explore patterns and pathways. This requires time and discussion e.g. while overall smoking levels seemed to have not changed much over 10 years in Ireland detailed analysis revealed that the profile of smokers had changed significantly with important implications for health promotion policy and practice
- Where surveys are funded for a specific period consideration should be given to funding research staff to work on the data after main survey results are reported

Dissemination, archiving and training

Challenge: ensuring data is widely used

- Data dissemination must include reports for the public, policy briefs for policy makers and scientific papers for the research community
- All surveys should be archived soon after data collection so that they are available to as broad a research community as possible
- Short training workshops should be provided for researchers, policy makers and government workers who want to work with the data

The SLÁN 2007 survey was funded by the Health Promotion Policy Unit of the Department of Health and Children in Ireland. The survey and analyses were carried out by the SLÁN 2007 Consortium, consisting of the Royal College of Surgeons in Ireland (RCSI), University College, Cork (UCC), the National University of Ireland, Galway (NUIG) and the Economic and Social Research Institute (ESRI). The questionnaire, reports and presentation slides can be downloaded from www.slan07.ie . Further queries to kmorgan@rcsi.ie

European Health Examination Survey Conference: Monitoring the Health of Europeans. 6.–7.3.2012 Brussels, Belgium

ECHIM

European Community Health Indicators and Monitoring

A. Tuomi-Nikula, M. Gissler, A.-P. Sihvonen
National Institute for Health and Welfare, Helsinki, Finland

Abstract ECHIM (European Community Health Indicators and Monitoring) is an action aiming at a sustainable European health information system. ECHIM's main goal is to collect and disseminate comparable health data and information based on the ECHI shortlist covering 88 key health indicators. ECHIM is financed as a Joint Action, jointly by the European Commission and the Member States.

Introduction

Both at EU level and in the Member States health policy and planning must be evidence based. This evidence concerns the health of the population and its needs for health promotion, prevention and care. It enables targetting all measures and assessing their impact correctly in relation to the need for care. Time trends provide a chance to assess which measures are needed the most.

The evidence cannot be put together without a good health information system producing key health indicators. Furthermore, the indicators must be comparable across countries to form a solid basis for planning and policy at EU level and in the Member States.

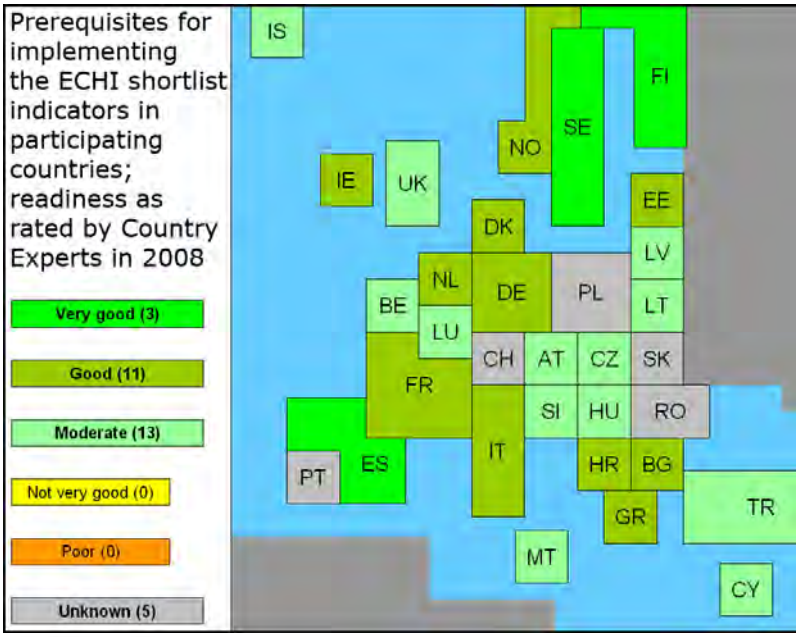
Possible differences between countries, regions and population groups are the starting point for implementing up-to-date health systems.

Methods & Materials

ECHIM coordinates the implementation of ECHI Indicators in Member States and at EU level by providing them with expert support and specific guidelines. The action's ultimate goal is to install an ongoing process of implementation in most Member States.

The ECHIM Core Group consists of 35 Member State experts and it also has a liaison with the European Commission, Eurostat and WHO. ECHIM covers almost all EU Member States, and in all it has contact persons in over 30 European countries.

The ECHI shortlist comprises an extensive spectrum of health indicators. The main topics covered are demographic & socio-economic factors, health status, health determinants, health services, and health promotion. The selection of 88 most important indicators is a result of years of work of health experts.



Results

ECHIM seeks to put into action the long-term theoretical expert work initiated already in 1998.

ECHIM has close collaboration with the EHIS, which is a major data source for survey based ECHI shortlist indicators. The EHES represents a future source of high quality data for several ECHI indicators related to health status and health determinants.

Data flow of improved and new data will result in a European health indicator database with versatile data presentation.

Joint analyses and reports on data based on ECHI shortlist indicators will be the first of their kind in scope and quality.

Conclusions

A good health information system serves the whole population by directing policy and services toward fulfilling the health needs.

In a pragmatic sense there are many other beneficiaries such as officials, administrators and professionals responsible for public health. Comparative health information is of great use also for other groups such as politicians, journalists, teachers, students and researchers.

More information:

www.echim.org
-Latest information & releases, presentations, newsletters etc.

www.healthindicators.eu
-Complete metadata for ECHI shortlist indicators

European Community Health Indicators Monitoring ECHIM

European Health Examination Survey Conference: Monitoring the Health of Europeans. 6.–7.3.2012 Brussels, Belgium

The European Health Surveys Information Database (EUHSID)

A. Tuomi-Nikula[1], S. Ahonen [1], P. Koponen[1], J. Tafforeau[2]

[1]National Institute for Health and Welfare, Helsinki, Finland
[2]Scientific Institute of Public Health, Brussels, Belgium

Introduction

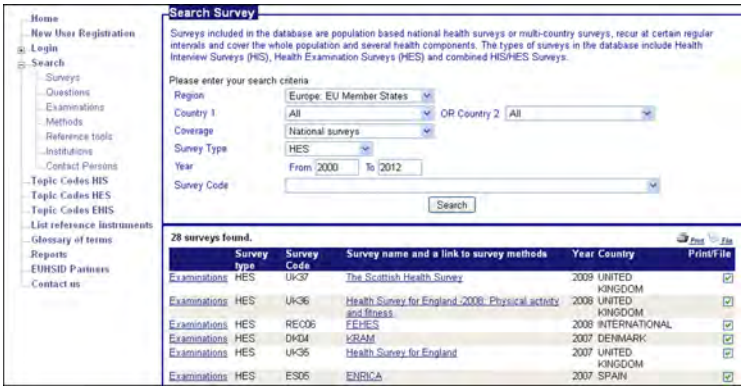
The database presents an inventory of national or multi-country health surveys implemented in EU Member States as well as EFTA countries, EU Candidate Countries and USA, Canada and Australia. The types of surveys incorporated into the database include Health Interview Surveys (HIS), and Health Examination Surveys (HES).

The goal of this online database is to share information to:
- Understand the scope of health surveys
- Familiarise with the methods used in each survey
- Obtain an overview of the topics covered in health surveys
- Consult recommended questions and examination protocols
- Perform searches on specific question wording or examinations performed in health surveys
- Compare health surveys amongst countries
- Strengthen the development and standardisation of survey instruments

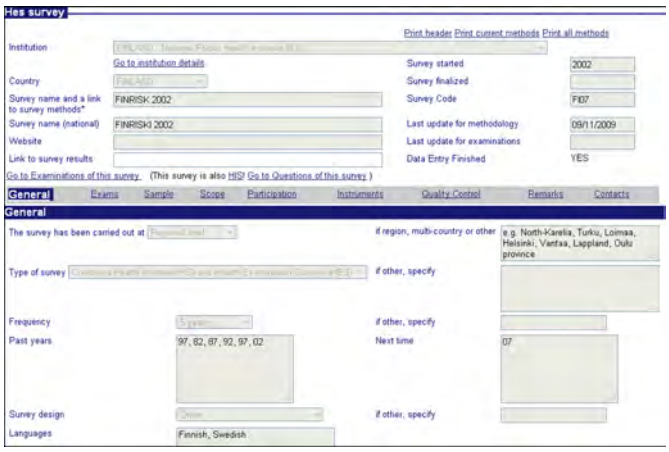
By using the database it is possible to search:
- **Surveys** by region, country, type and timeframe
- Details on **survey methods** related to sampling, sample size, response rate and data collection modes
- **Questions** used in all surveys in the database
- **Examinations** implemented in all surveys in the database
- **Reference tools**; recommended survey questions or examination protocols according to selected topics
- **Institutions** in charge of each health survey
- **Contact information** for each survey
- **Topic Codes** for searching by specific health topics.

At the moment (2/2012) the database includes information on 245 HIS and 41 HES. HIS surveys included in the database have mainly been executed between 1991–2009, HES between 1999–2009.

Picture 1. Search of HES in Europe



Picture 2. Details of a specified HES (part)



More Information

www.euhsid.org
- Latest news & releases, contact information etc.

https://hishes.iph.fgov.be
- the HIS/HES Database

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http://www.ehes.info

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