European
Community
Health
Indicators
Monitoring

ECHIM

Katri Kilpeläinen, Arpo Aromaa and the ECHIM Core Group (Editors)

EUROPEAN HEALTH INDICATORS: DEVELOPMENT AND INITIAL IMPLEMENTATION

Final Report of the ECHIM Project

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FOREWORD

The ECHIM project was selected for funding by the European Commission in 2005 in order to put the ECHI system (European Community Health Indicators) in place. On 23rd of October 2007 the European Commission adopted a new Health Strategy, "Together for Health: A Strategic Approach for the EU 2008–2013". Building on current work, this Strategy aims to provide, for the first time, an overarching strategic framework spanning core issues in health as well as health in all policies and global health issues. The Strategy aims to set clear objectives to guide future work in partnership with Member States about European Community Health Indicators with common mechanisms for the collection of comparable health data at all levels, including a Communication on exchange of health-related information. The Second Health Programme also established as a priority the development of a sustainable health monitoring system with mechanisms for the collection of comparable data and information, including appropriate indicators.

The development of the ECHI indicators and ECHIM as a tool for the implementation of those indicators is not a scientific exercise, but an important part of the EU's Health Strategy. The main aims of ECHIM were a) to develop health indicators (based on the ECHI shortlist), b) to initiate their implementation in most European Union Member States, and c) to pave the way for the permanent Health Monitoring System in Europe.

European and national public health policy needs solid health information derived from valid and comparable sources. The information should be relevant and cover all necessary aspects of health status, determinants of health and health care. Currently, the key problems are lack of data for many indicators and the poor comparability between countries and regions within them. The situation is also reflected in the inadequate use of information as a basis for health policy in health policy development. During 2005–2008 DG SANCO set up a number of projects to cover some of these information needs, including ECHIM.

The aim of the ECHIM project was to lay the foundation for the further development of health indicators and to initiate the implementation of these health indicators in all EU Member States. The background of ECHIM comprised previous reports on the organisation of health monitoring, previous indicator projects (since 2000), in particular ECHI and ECHI-2 (health indicators) and EUHPID (health promotion indicators), other content-specific projects such as those concerning health determinants, diabetes, respiratory and cardiovascular diseases, and horizontal projects such as EUPHIX (data presentation), EUHSID (or HIS/HES, a database comprising all European national HISs and HESs), ISARE III (regional indicators), and FEHES (Feasibility of a European Health Examination Survey). See Annex 6 for the list of abbreviations.

ECHIM undertook to assess the present availability of core health indicators by two means. First, an enquiry was made on data available from international sources (WHO, OECD) and Eurostat. Available data and indicators were gathered. Next, to complete the picture, a questionnaire survey was carried out among contact persons in each of the Member States. To deepen the information, Bilateral Discussions with the contact persons were initiated and for most part carried out between summer 2007 and May 2008. As a result the European Commission believes that ECHIM has obtained a valid overview of data sources, data availability and indicators in most Member States, and can use that information to help develop health information systems in the majority of Member States. Many Member States are rather advanced and can provide much of the necessary ECHI shortlist indicators already. Using the survey information gathered and other nationally available information, it should be feasible to create national guidelines for the implementation of health indicators.

One step in furthering health monitoring was to develop many of the indicators in the ECHI shortlist. Some of these were new indicators and some adapted indicators from various projects and Working Parties. It was also possible to identify the priority needs for indicator development. In order to facilitate the addition and deletion of indicators, ECHIM developed a formal method for assessing newly proposed indicators. The first round of the process led to recommendations for the addition of a few indicators to the original ECHI shortlist.

However, this process was not simply a technical task of deciding on additions and deletions. It served the actual gathering of data, and ECHIM will undoubtedly be called upon to help with the assessment of the validity and comparability of the data gathered and indicators constructed. Although one would hope that all the proposed indicators have been tested, this will not be the case. Most of the indicators have a good track record at least in several countries. However, comparative cross-cultural studies are quite rare. Therefore, international comparative studies will be needed in order to obtain appropriate assurances of validity and comparability.

The efforts towards implementation of the health indicators were begun using the information derived from the ECHIM Survey and subsequent Bilateral Discussions. The resulting experiences have been very positive. The discussions were open and clarified the replies to the survey. They also provided insight into the overall situation in different countries. This is a good starting point for preparing implementation plans. It also became clear in the Bilateral Discussions that a full implementation effort in all Member States requires further in-depth discussions and the thorough involvement of a number of experts in each Member State.

The duration of ECHIM was very short in view of the task of fully implementing the indicators and building the necessary health monitoring system. We are now at a stage where we can confidently move forward to implementation proper. There is an urgent need to continue this action. Some of the initial next steps are to develop new indicators, to interact with Member States with a view to developing data sources and implementing indicators, to develop a prototype for data flow and to gather data for new indicators. Finally, some aspects of Health in Europe should be analysed using both the old, incomplete indicator sets and the new more comprehensive ones in all EU countries. Such a mission is likely to take many years to complete. Much time, therefore, will be needed to put into place a relatively comprehensive set of health indicators across Europe. It is essential that we succeed.

Luxembourg, December 2008

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SUMMARY

Technical information

Project financed by the European Commission	General Directorate Health and Consumer Protection/ Programme of Community Action in the Field of Public Health 2003–2008/Strand of Health Information and Knowledge
Title of the project	European Community Health Indicators and Monitoring (ECHIM)
Reference of the project	2004118
Duration of the project	1.5.2005–30.9.2008 (36 + 5 months)
Project leader	Professor Arpo Aromaa. National Public Health Institute, Department of Health and Functional Capacity. Mannerheimintie 166, FI-00300 Helsinki, Finland.
DG SANCO representatives	Antoni Montserrat
Countries involved	<u>Member States</u>: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom <u>Candidate Countries</u>: Croatia, Former Yugoslav Republic of Macedonia, Turkey <u>EFTA/EEA countries</u>: Norway, Iceland, Switzerland <u>Other European countries</u>: Serbia
Report status	Final
Date	December 2008

GENERAL OBJECTIVE: To advance health monitoring in the EU and all EU Member States by developing relevant, valid and comparable health indicators and making them available in the EU and in most Member States.

MAIN SPECIFIC OBJECTIVES: 1) To develop the ECHI shortlist indicators and their definitions; 2) To assess the availability and comparability of the ECHI shortlist indicators and their data sources; 3) To create a network of 1–3 health indicator experts from each Member State; 4) To maintain liaison with the Member States and their institutes, the Public Health Programme, other Working Parties, Eurostat, the OECD, the WHO Regional Office for Europe, and other national and international organisations; 5) To carry out the first phase of the ECHI shortlist implementation in most Member States; 6) To develop the ECHIM Products website; and 7) To act as the scientific secretariat for the Working Party Indicators and coordinate its projects horizontally.

STRATEGIC RELEVANCE & CONTRIBUTION TO THE PROGRAMME: ECHIM implemented core tasks of the Public Health Programme 2003–2008 and

its Work Plan 2004 (1.1. Developing and co-ordinating the Health Information and Knowledge system). ECHIM was a backbone for the whole Health Information and Knowledge system and for implementing comparable health indicators in Member States and at EU level. It paved the way for comprehensive and comparable information on health in all Member States. Without its efforts the EU would have continued to have uneven and incomparable data on health in different Member States.

METHODS AND MEANS: The National Public Health Institute of Finland (KTL) and Finnish National Research and Development Centre for Welfare and Health (STAKES) managed and coordinated the work of five Research & Development Centres under the supervision of a Core Group of 28 experts from different European countries. There were five main methods: 1) ECHIM Country Reports: In the first step towards the development of the ECHI shortlist indicators, the Country Reports provided a summary account of data availability, gaps, relevant sources and their differences in all EU Member States. 2) ECHIM Survey: Replies to the online ECHIM Survey were received from 30 out of 32 European countries. Its aim was to gather further, more detailed information about health data availability and providers. 3) Bilateral Discussions with Member State representatives provided additional depth to the information received from the ECHIM Survey and started the implementation process. 4) Close collaboration with the five other Working Parties and their health indicator relevant projects, the WHO Regional Office for Europe, the OECD and other international organisations was needed when the ECHI shortlist was extended and developed by the Delphi method. 5) Two ECHIM Core Group meetings and two meetings of Working Party Indicators were held each year.

OUTCOMES: 1) A network of health indicator experts comprising all Member States; 2) A new release of the ECHI shortlist and the Documentation Sheets: indicator definitions, interpretations and preferred data sources; 3) A review of and recommendations for data gathering, quality assurance, analysis, dissemination and reporting; 4) ECHIM Products website and database; 5) Country Specific Section on the availability and comparability of the ECHI shortlist indicator data, sources, reporting and ideas on the prerequisites for implementation in each country; 6) Final report of ECHIM project including proposals for implementation; 7) Recommendations for improvements of the ECHI shortlist indicators, data gathering, reporting and information dissemination; 8) ECHIM has become a brand.

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1. INTRODUCTION

1.1. Framework

ECHIM was a three-year project designed to develop and implement health indicators and health monitoring in the European Union. It was one of the core actions of the European Commission Public Health Programme 2003–2008, under the strand of Health Information and Knowledge. It followed the work of the ECHI (European Community Health Indicators, phase 1) and ECHI-2 projects, which were conducted between 1998 and 2005. The ECHIM Core Group consisted of 28 members from different European countries and the WHO Regional Office for Europe. ECHIM also acted as the scientific secretariat for the Working Party Indicators, created by the European Commission in 2005 to both develop and implement health indicators in Europe, and to develop the EU-wide health information system as a whole. Working Party Indicators comprised members from all EU Member States, leaders of the five other Working Parties of the Public Health Programme, project leaders of nine health indicator relevant projects funded by the Public Health Programme 2003–2008, and representatives from Eurostat, the OECD and the WHO Regional Office for Europe. Working Party Indicators both ensured that indicator development was in line with the needs of the European health information and knowledge system, and that the necessary preconditions for indicator implementation were put in place.

1.2. Public health policy, health indicators and health information

ECHIM was based on health policy needs and it was a key action for the development of the EU health information system. Its work was directly related to the annual work plans of the European Commission's Public Health Programme 2003–2008, which mandated the creation of a health information and knowledge system. In this context ECHIM has played a central role by drawing together experts from all Member States and international organisations to consider a) what health indicators are needed at EU level, b) what data would be needed to establish them, and c) what actions would be needed to implement them.

Public health policies aim at maintaining and improving the health of citizens, including the reduction of health inequalities. These policies have to be based on factual information, in other words on relevant data and indicators. In the ECHI report an indicator was described as "a concise definition of a concept meant to provide maximal information on an area of interest". The field of Public Health includes health status, lifestyle and health habits, living and working conditions, demographic factors and socio-cultural factors.

Well targeted promotion and protection of health are impossible without a comprehensive health information system. The European Parliament has been calling for an effective health monitoring system since the 1990s. In 2008 that system has been under construction in the EU for more than 10 years, and it is now time to deliver results. Key outcomes so far have included the ECHI indicators and plans for European Health Interview Survey and European Health Examination Survey. Working Party Indicators and ECHIM have been successful in creating a solid foundation for implementing health indicators in the Member States. In the future, analysis of the results on health trends and health differences between Member States and population groups will allow the EU and its Member States to assess health needs, to target health policy interventions and assess their effects as well as to plan health care. Major implementation efforts will be needed in the years to come.

ECHIM was the backbone for developing the whole Health Information and Knowledge System. Its actions were a cornerstone of the strategy for improving the health information system in the EU and all Member States. The strategic importance of ECHIM is evident if we imagine a future without these efforts. Europe would continue to have very uneven and poorly comparable data on health in different Member States. ECHIM worked closely with all Member States and EU bodies to achieve real improvements and to lay the foundation for a sustainable Health Information System. The establishment of a broad range of indicators covering more dimensions than ever before, and laying the groundwork for implementation, make ECHIM a forerunner in European health information.

ECHIM adopted a whole new approach to the development of indicators and it took into account all other ongoing work in Working Parties and projects. Its work was firmly anchored to major previous achievements: it leaned on previous EU work (Public Health Programme, Eurostat), referred to current needs and plans, and recruited contact persons intimately involved in the national and European development of health information systems. In particular, the development and implementation effort was directly built on the ECHI and ECHI-2 projects. The knowledge of European health surveys and health survey networks was based on national experiences but especially on HIS/HES and EUHSID projects and their survey database, FEHES (Feasibility of a European Health Examination Survey), EHRM (European Health Risk Monitoring

Project) and previous WHO work such as EUROHIS and MONICA. Furthermore, the contributions of Eurostat working groups and task forces and the progress made in the European Health Interview Survey (EHIS) and European Health Survey System (EHSS) were taken into account.

1.3. Objectives, methods and outcomes

Specific objectives:

- To create a network of health indicator experts from all Member States, Candidate Countries and EEA/EFTA countries

- To act as the scientific secretariat for the Working Party Indicators and coordinate its projects horizontally

- To develop EU Health indicators and definitions on the basis of the work of the ECHI and ECHI-2 projects

- To assess the availability and comparability of the ECHI shortlist indicators and their data sources in all Member States, Candidate Countries and EEA/EFTA countries by using WHO Health for All, OECD Health Data and Eurostat databases

- To initiate implementation of the ECHI shortlist in most Member States by carrying out the ECHIM Survey and starting Bilateral Discussions with Member States

- To publish a report on health information systems and health indicators in all Member States

- To develop the ECHIM Products website (previously the "International Compendium of Health Indicators" database)

- To promote gathering of comparable data and to assess the comparability and quality of data sources in Member States

- To promote quality assurance in Europe, particularly in relation to data gathering by surveys

- To improve the Health Information and Knowledge System in Member States and at EU level

- To maintain liaison with the Member States and their institutes, the Public Health Programme, other Working Parties, Eurostat, the OECD, the WHO Regional Office for Europe, and other national and international organisations

- To propose an appropriate mechanism for organising health monitoring in the European Union

- To pave the way for a permanent Health Information and Knowledge System

- To closely collaborate with the DG SANCO, other Working Parties of the DG SANCO, the WHO Regional Office for Europe, Eurostat and the OECD

Methods:

- ECHIM Country Reports: with respect to ECHI indicators, the Country Reports provided a summary account of data availability, data gaps, sources and their differences for all EU Member States in major international data sources

- ECHIM Survey aimed at delivering further information about the availability of health indicators and health information systems in the EU Member States

- Bilateral Discussions with the Member State contact persons helped to clarify and to deepen the information received from the ECHIM Survey, and to initiate the implementation process

- Close collaboration with the five other Working Parties and their health indicator relevant projects, the WHO Regional Office for Europe, the OECD and other international organisations was necessary when additions to and deletions from the ECHI shortlist were considered. In practice, this work was done by using the Delphi method.

- Regular meetings of the ECHIM Core Group and Working Party Indicators

Outcomes:

- A network of health indicator experts comprising all Member States

- A new release of the ECHI shortlist and the Documentation Sheets: indicator definitions, preferred data sources, calculations, availability info and other metadata descriptions

- A review of and recommendations for data gathering, quality assurance, analysis, dissemination and reporting

- ECHIM Products website and database (previously the ICHI database)

- The information gathered by the Country Reports, ECHIM Survey and Bilateral Discussions was summed up in the Country Specific Section, which aims to create a clear overview of the situation in each country and to serve as a starting point for future plans for the implementation of the ECHI indicators

- Final report of the ECHIM project including proposals for implementation

- Recommendations for improvements of the ECHI shortlist indicators, data gathering, reporting and information dissemination

- ECHIM is a well known brand among European health indicator experts

The ECHIM Core Group consisted of 28 members. Much of the practical work was carried out by the Central Secretariat in Helsinki (KTL and STAKES) and by the other four Secretariats at the national Public Health Institutes in Berlin (RKI), Rome (ISS), Bilthoven (RIVM) and Bielefeld (LIGA.NRW). The collaborating partners were from Belgium, Greece, Hungary, Ireland, Spain, Sweden, the United Kingdom and the WHO Regional Office for Europe. The ECHIM Core Group of experts and the Secretariats were selected to provide the highest calibre European expertise and experience in health policy, in health information and knowledge at large, both on national and EU level, in data gathering from registers and by surveys, in data analysis and indicator development, and in health reporting and information dissemination. As a whole the group had the deepest possible expertise in public health planning and development, programme and project management, and in relevant research. The contributing experts and institutes have also been involved both in the Health Monitoring Programme and in the Public Health Programme. Members of the ECHIM Core Group have participated in or led important projects such as the DG SANCO financed ECHI, ECHI-2, HIS/HES, EHRM, FEHES, EUHSID, EUPHIX, EUHPID, EURO-URHIS, ISARE, Hospital Data Project, Developing Health Monitoring in the EU, Eurostat working groups and task forces related to public health statistics, and WHO's EUROHIS. See Annex 6 for the list of abbreviations.

Indicator related work was mainly carried out in collaboration with other Working Parties and their projects. Contact persons in each of the 27 Member States and Candidate Countries and in EEA/EFTA countries helped to assess the situation and prepare plans for implementation. Experts from the WHO Regional Office for Europe and the OECD participated in the definition and selection of indicators. Responsibility for implementation is expected to reside with local experts, administrators and organisations (e.g. Ministries of Health, Public Health Institutes, and Statistical Offices).

ECHIM's tasks were grouped into six Work Packages. Work Package 1 coordinated the core activities of ECHIM and Working Party Indicators. Work Package 2 maintained liaison with the Public Health Programme, other national and international organisations and Member States and their institutes. Work Package 3 carried out both research and development work on health indicators and monitoring, and contributed to implementation of health indicators. It also promoted quality assurance, the gathering of comparable data, information dissemination and reporting. Work Package 4 improved and maintained the indicator database (www.healthindicators.org). Work Package 5 assessed the availability and comparability of the ECHI shortlist indicators and their data sources, and made proposals for improvements. Work Package 6 disseminated the results and recommendations in order to enhance the implementation of indicators.

ECHIM was also the scientific secretariat for Working Party Indicators. Working Party Indicators comprised a large number of experts from the ECHIM Core Group, Member State contact persons, all Working Party and Task Force leaders, Public Health Programme (PHP) project leaders from nine health indicator relevant projects, Candidate Countries and EEA/EFTA countries, representatives from DG SANCO, Eurostat, the OECD, the WHO Regional Office for Europe and some other international organisations.

The following projects were coordinated by Working Party Indicators:

- EUPHIX (European Public Health Information, Knowledge and Data Management System). Set up to create a system for the distribution and analysis of data and the dissemination of knowledge.

- ISARE 3 (Health Indicators in Europe's regions, phase 3). Described and characterised useful indicators available on the regional level.

- EUROTHINE (Tackling Health Inequalities in Europe: an integrated approach). Gathered information on health inequalities, assessed the evidence on the effectiveness of policies and interventions and made recommendations.

- EHEMU (European Health Expectancy Monitoring Unit). Calculated and presented data based on health expectancies.

- EUHSID (European Union Health Surveys Information Database). Provided data on HIS and HES in Europe.

- ECHIM (European Community Health Indicators and Monitoring).

- FEHES (Feasibility of a European Health Examination Survey). Prepared recommendations for health examinations in Europe.

- EURO-URHIS (Urban Health Indicators Project). Collected information and made proposals on Indicators for Urban Health.

- HCQI (Health Care Quality Indicators Project). Examined indicators applicable for assessing quality of health care.

These projects supported Working Party Indicators and ECHIM in many respects. First, some of them proposed and tested specific indicators, and disseminated the information. Second, some gathered and tested indicators suitable for use at regional level, for describing urban health, and for looking at health inequalities. Third, some produced data for use by the whole health information system. Fourth, some were a rich source of survey methods and made recommendations for a European Health Examination Survey.

ECHIM's strategy entailed keeping close contact with these projects, all of which were oriented towards the needs of the European Health Information and Knowledge System. The task of Working Party Indicators and ECHIM was to balance the mix of

these and other Working Parties' projects so that they served the needs of the EU Health Information and Knowledge System. With regard to the work of other Working Parties and other projects, ECHIM developed a generic approach for accepting and defining new indicators. ECHIM also advised all projects to ensure the coherence of indicators and their definitions.

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2. CURRENT STATE OF HEALTH INFORMATION AND INDICATORS

The importance of reliable and comparable health information has constantly increased in the past decade as public health issues have become a major focus of long-term political strategies in the EU Member States and the European Commission. The Council and the Member States have adopted the following key principles in order to further promote common values and principles across Europe: universal and equal access to good quality health care, solidarity, reducing health inequalities, improving the quality of life and strengthening citizens' capabilities[1]. These public health issues lie at the heart of fundamental political strategies adopted by the European Commission, such as the Lisbon Strategy[2], the Sustainable Development Strategy[3] and the new health strategy "Together for Health"[4].

The indicator based assessment of the effectiveness and efficiency of political strategies depends on reliable and comparable information from the Member States. The main objective of the ECHI projects (ECHI, ECHI-2, ECHIM) is to establish a European wide system of health information standards (e.g. health indicators) that enable national health information providers to incrementally adopt these standards for national and international public health monitoring and reporting. The ultimate objective of these efforts is the gathering of comparable health data in the European Union that allow for international comparisons and benchmarking.

2.1. Historical and structural determinants

Most EU Member States have long traditions of gathering and analysing data that are relevant for public health reporting and for various aspects of the health care system (e.g. health care planning and financing). Beginning with the collection of vital statistics

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[1] Council Conclusions on Common values and principles in EU Health Systems
2733rd Employment, Social Policy, Health and Consumer Affairs Council meeting, Luxembourg, 1–2 June 2006. Available at http://www.eu2006.at/en/News/Council_Conclusions/0106HealthSystems.pdf

[2] Facing The Challenge. The Lisbon strategy for growth and employment. Report from the High Level Group chaired by Wim Kok, November 2004. Office for Official Publications of the European Communities. ISBN 92-894-7054-2.

[3] The renewed European Sustainable Development Strategy. European Council. 10917/2006. Available at http://register.consilium.europa.eu/pdf/en/06/st10/st10917.en06.pdf

[4] Together for Health. A Strategic Approach for the EU 2008-2013. European Commission 2007. Available at http://ec.europa.eu/health/ph_overview/Documents/strategy_wp_en.pdf

in the early 19th century, social and health statistics are nowadays compiled in every European country and used for the respective reporting systems (health reporting, social and welfare reporting, etc.). This historical development implies that national systems for data gathering and data analysis have to be seen in the context of their specific national requirements. As a consequence most of the information collected on health care systems and health care has not been comparable across European countries.

The first efforts to harmonise such information were initiated by international organisations like the World Health Organisation (WHO) that had been active in the field of health information for decades. In addition, the Organisation for Economic Cooperation and Development has established an indicator database (OECD Health Data) that provides similar and complementary data for the 30 OECD Member Countries. Last but not least, DG Eurostat of the European Commission has gradually expanded its offer in the area of population and public health statistics. The different databases and some aspects regarding the hosting organisations are described in Chapter 2.3.

2.2. Health information systems in Member States

A Health Information System can be defined as a dynamic and flexible infrastructure for monitoring health activities and population health outcomes that is active at the national or sub-national level. The system encompasses the collection, analysis, storage, transmission, display, dissemination and further utilisation of data and information. It covers a wide range of information relevant to different user groups. On the one hand, health information systems contain an enormous amount of medical information for individuals who want to learn about diseases, diagnostics and treatments. On the other hand, they also provide information related to public health issues for the interested public and stakeholders. The goal of these systems is to allow all professional and lay users within and outside the health sector to use, interpret and share information in order to transform it into knowledge[5].

In the following the term Health Information System is used to describe information systems that serve the different needs of users in the field of public health and health policy making. In this context the separation of the public health sector, on the one hand, and the health care sector, on the other, often led to the creation of information systems for specific sectors, before comprehensive and integrative systems could be developed. An important issue in this respect has been the surveillance of infectious diseases, which has long been one of the basic elements of national public health surveillance.

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[5] Gissler M, Dumitrescu A, Addor V: Improving the performance of National Health Information Systems: the 2002–2003 reform in Finland from an international perspective. WHO 2005. EUR/05/5046412. Available at www.euro.who.int/Document/E88075.pdf

Typically, national health information systems compile data from several sources based on national data gathering routines. These data sources regularly produce a large amount of data that are usually distributed to a number of agencies and institutes. The processing and analysis is performed in diverse organisational structures, usually under the responsibility of different authorities. The integration and rationalisation of this fragmented information and the underlying distributed data sources is one of the key issues that has to be resolved in the development of a national health information system. The following table presents the most typical national data sources for health indicators as well as their main advantages and drawbacks.

Table 1. Most typical national data sources, their advantages and drawbacks.

Data source	Advantages	Drawbacks
Mortality and causes of death registers	Obligatory data collection, Excellent coverage, reasonable validity.	Relate only to the end point of disease and injury.
Cancer registers	Excellent coverage, good validity. Often incidence, case fatality and survival data.	Poor EU comparability since coverage and record linkage possibilities vary (data protection restrictions).
Other disease registers	May have good coverage and validity, such as infectious diseases register. Incidence data.	Cover only diagnosed cases of a few diseases. No problems with incidence, but prevalence not reflected. Differences in health systems may affect coverage and validity.
Registers on functional limitations	In principle, important information may be available in some registers of disabled people and persons entitled to social security benefits.	Registers often have poor coverage, and they are system dependent. Comparability between countries is poor.
Hospital admission/ discharge registers	May have excellent validity for both patients and treatment of major diseases.	Cover only hospitalised patients; may not allow individual level linkage for true incidence. Varies by health system. Private care not necessarily covered. Not possible to distinguish between suspected and confirmed diagnoses. Over-reporting of severe cases possible, if reimbursement system is related to diagnosis and procedures.
Primary care registers (general practice)	Reasonable validity for patients and causes of visits in some countries with comparable health systems.	System dependent; coding systems differ, making comparisons difficult. The information can only be related to the whole population in a few EU countries. Private care not necessarily covered. Not possible to distinguish between suspected and confirmed diagnoses. Over-reporting of severe cases possible, if reimbursement system is related to diagnosis and procedures.

Electronic health records	Many countries will introduce electronic records to replace their current records. The same validity and comparability comments apply as above.	E-Health systems will likely vary both in coverage and coding for many years to come. Therefore, their promises may not be fulfilled. Their introduction may involve a several-year period of uncertainty.
Health insurance registers	May reflect well the use of health care and medicines as well as work disability.	System dependent; comparisons between countries can be very difficult.
Registers on use of prescription medicines	Describes accurately the use of medicines and persons using them.	System dependent; comparisons unproblematic only for a few EU countries.
Registers on implants (e.g. hip, knee) and transplants (e.g. kidney, liver, heart, lung)	Excellent validity, where such registers exist. May describe both patients on a waiting list for a transplant and those who have had an operation.	System dependent; very uneven provision of data in various EU countries. Coverage may vary.
Accidents and injuries registers	Good coverage and validity.	System dependent; sources used vary; data not available in many EU countries.
Health interview surveys (EHIS and national)	Broad coverage of health and use of care; items such as perceived health, known diseases, self-reported functional limitations, doctor and dentist visits, use of medicines. Simultaneous access to socio-economic data. Reasonable comparability if the EHIS protocol is used.	Participation rates have typically been low (60–70%) in national HISs and must be improved. Even rather high response rates may give biased results and apparent differences between countries. Several typical HIS items depend on cultural factors and health care systems. Methods must be developed to take account of these differences or to compensate for their effects. Today HISs are partly comparable in Europe.
Health examination surveys (HES)	In addition to the above HIS information can be obtained on risk factors (BP, lipids), anthropometric and physiological measurements, clinically assessed diseases and functional limitations. Validity is good and comparability depends on standardisation. Other benefits are the same as for HISs.	As above, relatively low participation rates can bias the results. Results affected by differences in measurement protocols and environments. A standardisation scheme (EHES) is under development and will be tested in pilot national HESs.

2.3. Major international data sources

The most relevant international data sources are Eurostat database, OECD Health Data and the WHO Health for All database.

Eurostat database (www.epp.eurostat.ec.europa.eu/): As for all Eurostat activities, work is carried out within the European Statistical System. In the area of public health statistics, main partners in the Member States and associated countries are the National Statistical Offices, Ministries of Health and Public Health Institutes as the providers of official statistics on public health. Annual planning and strategic decisions are made with the Member States at the yearly meeting of the Working Group on Public Health Statistics. Eurostat's work in the area of Public Health statistics is structured according to four main topics:

• Causes of Death statistics

• Health Care statistics

• Health Interview Surveys

• Diagnosis-specific morbidity statistics

The current state of the different areas is briefly summarised below.

1. Causes of Death statistics – COD: Eurostat disseminates COD statistics according to a shortlist of 65 causes ("Causes of death – European shortlist", based on the ICD – International Statistical Classification of Diseases and Related Health Problems, WHO). Data are available at national and regional level (NUTS 2) for total number, crude death rates (CDRs) and standardised death rates (SDRs), broken down by age groups and by sex. While dissemination is according to the European shortlist of 65 causes, more detailed data (ICD-10 3-digit level) are available for most countries on request.

2. Health Care statistics – CARE (expenditure and non-expenditure data): Eurostat recently started collecting data on health care expenditure, based on the System of Health Accounts (SHA). In 2005 a Joint Questionnaire was created in co-operation with the OECD and WHO Headquarters, using the International Classification for Health Accounts (ICHA) as presented in the SHA Manual, supplemented with some classifications developed in the Guide to Producing National Health Accounts by the WHO. The Joint Questionnaire has reduced the burden of enquiry of the data producers, because data are only supplied once to all the international organisations of which the country is a member. A common effort of Eurostat, the OECD and the WHO in this area will serve additionally as a platform for harmonising institutional approaches and enhancing further SHA development. The aim of this joint data collection is to supply a consistent and comparable picture of health care system expenditure of countries,

according to services produced (functions), actual producers of the services (providers and their labour input expenditure), and financing of these services (by sources and agents). The first round of data collection according to the Joint Questionnaire was carried out during 2006, and the first data for 2003 and 2004 were published by the end of the first quarter of 2007. The SHA is perceived as a core element in Eurostat's system of statistical data collection in the area of public health, to which all relevant socio-economic data collections (e.g. manpower, hospital statistics, socio-economic status) will be linked in the future. The SHA manual and related classifications are subject to a revision process, led by Eurostat, the OECD and WHO Headquarters in co-operation with national experts in the field. This revision process aims to produce a more coherent health accounting system that is better suited for policy use and that is better linked to the System of National Accounts.

Non-expenditure data: Non-expenditure health care data cover health care staff as well as hospital statistics. Data are collected on an annual basis, and most data are available online in the Eurostat database.

Health care staff: Regular data collection covers physicians (by age and sex), dentists, nursing and caring professionals, pharmacists and physiotherapists. For health care staff, different concepts exist – practising, licensed to practice, professionally active, economically active. The Eurostat recommended concept is practising, i.e. physicians, dentists, nursing staff, etc. who provide services directly to patients.

Hospital statistics: Regular data collection covers data on hospital beds, surgical procedures in hospitals, high-tech equipment and patient related data (i.e. hospital discharges). An additional set of indicators on staff in hospitals and hospital technical resources is covered through a pilot data collection exercise.

Available beds in hospitals: With regard to hospital beds, countries are asked to provide the total number of beds in hospitals and broken down into 1) curative care (acute care) beds, 2) psychiatric beds, 3) long-term care beds (excluding psychiatric beds) and 4) other beds. These data are available online. Countries are also asked to provide data on all available beds in "Nursing and residential care facilities" and in "Nursing care facilities". These data are expected to be available in 2008.

Hospital discharges: Eurostat collects and disseminates data on hospital discharges by disease. Hospital discharge statistics are the most commonly used measure of the utilisation of hospital services, but international comparisons are complicated by differences in national health information systems. What is more, despite the known limitations of statistics based on hospital discharges, these are often the only available source for estimating the prevalence of some diseases. It should be noted that hospital

discharges and beds are part of health care data which are primarily designed to measure hospital activity. Hospital discharge data refer only to patients treated in hospitals, i.e. they do not provide population based estimates.

Hospital discharge data for reference years 1989–2002: Up to 2004, the disease breakdown followed a shortlist of about 60 groups, based on the ICD. Data according to this shortlist are available online from the Eurostat database.

Hospital discharge data for reference years 2000 onwards: Since 2005, a new shortlist is used for data collection and dissemination: the "International Shortlist for Hospital Morbidity Tabulation" (ISHMT) – Eurostat/OECD/WHO. This new shortlist comprises about 120 diseases or groups of diseases and mainly builds on the disease list developed by the Hospital Data Project (HDP, funded by DG SANCO).

3.   Health Interview Surveys (including disability) – HIS: Up to 2004, Eurostat collected data on 18 items from national Health Interview Surveys (HIS) and post-harmonised the data to the extent possible. The results of the 2002 round are available in a publication. The most comparable items of the 2004 round are available in the Eurostat database. In 2008/2009 Eurostat will implement the harmonised European Health Interview Survey (EHIS) that will subsequently be carried out once every five years. EHIS consists of four modules (health status, health care, health determinants and background variables) that may be grouped in one separate national survey or included in existing national surveys. The final version of the EHIS questionnaire was adopted by the Member States at the Working Group on Public Health Statistics in November 2006. A small module on health is included in the European Statistics of Income and Living Conditions survey (EU-SILC) which is carried out annually and which has been conducted (first data collection reference year) in 2003, 2004 or 2005, depending on the Member States (2005 is the first year covering all EU-25 Member States). This module, called the Minimum European Health Module (MEHM) includes questions on self-perceived health, chronic conditions and limitations due to health problems. Four questions on unmet needs of health care are also included in the SILC. A new European System of Social Statistical Survey Modules (E4SM) will in the future be used for collecting some health data on an annual or biennial basis (using some EHIS questions for ECHI indicators requiring frequent update) or to cover specific health topics on an ad-hoc basis as part of the proposed European Household Survey. Also, as part of its 2007/2008 work programme, Eurostat will develop a survey module on disability and social integration (EDSIM) within the context of the International Classification on Functioning, Disability and Health (ICF). This module will cover mainly items on "participation" and "environment", taking into account the recommendations of the Washington Group on disability measurement.

4.   Diagnosis-specific morbidity statistics – MORB: In addition to COD and HIS, data on diagnosis-specific morbidity are considered indispensable for providing a comprehensive description of the health status of European populations by means of statistics. HIS and diagnosis-specific data are complementary to each other. HIS provides data on health as perceived by individuals themselves, whereas diagnosis-specific statistics should provide data on health as observed by medical professionals. Since 2007, diagnosis-specific morbidity statistics have become a new strand of European public health statistics. The overall aim is to achieve sustainable data provision on a regular basis for a selected set of diseases within the European Statistical System and in this way to provide a general picture of diagnosis-specific morbidity at population level. Work on diagnosis-specific morbidity statistics is still at a developmental stage, i.e. a methodological approach has been proposed and the first pilot data collections to test the feasibility of the approach have been started. As yet, however, no mechanisms are in place for regular data collection. The main emphasis is on a common output at EU level, irrespective of the national sources. The first step has involved developing a draft morbidity shortlist, taking into consideration other existing shortlists such as the COD European shortlist, the ISHMT and the European Community Health Indicators (ECHI). A "Morbidity Statistics Development Group" (MSDG) was set up in spring 2006 in order to bring forward the methodological framework for diagnosis-specific morbidity statistics within the European Statistical System. The work of the group focuses on improving the shortlist itself, choosing the best measures (incidence, prevalence) according to the shortlist items, how to deal with multiple causes and conditions, late effects of external causes, quality criteria according to measures, and sources. During 2005/2006, a first pilot project involving three countries tested the feasibility of different data sources, and these experiences are being considered by the MSDG. More national pilot projects will start from 2007 onwards. MSDG recommendations will include a final shortlist, including recommended measures as well as guidelines for pilot data collection.

OECD Health Data (www.oecd.org): An interactive database comprising data on a range of key aspects of the health system in the 30 OECD Member Countries within their demographic, economic and social contexts. OECD has been publishing health statistics since the mid-1980s. Some 1 200 series were selected for the 2007 version of the information system according to whether they were relevant to describing key aspects of health care systems, sufficiently consistent to enable comparisons between countries and available in a significant number of countries. Although many of the variables still do not satisfy all three criteria, the inclusion of these statistics may help to encourage greater conceptual convergence among OECD Member Countries.

The data comprise some 1 200 different series, with selected long-time series from 1960 onwards. Most data cover the 1980s and 1990s, with many series extending up to 2004 or 2005, and selected data up until 2006. OECD Health Data enables

users to assess data quality via the consultation of sources and methods attached to the variables. This qualitative information gives the standard definition of the variable and, where applicable, identifies any discrepancy between national data and the standard definitions. These definitions, sources and discrepancies may be subject to change in subsequent versions, just as the comparability, consistency and comprehensiveness of the data series have been improved with each successive release.

The indicator groups covered are:
- Health status
- Health care resources
- Health care utilisation
- Expenditure on health
- Health care financing
- Social protection
- Pharmaceutical market
- Non-medical determinants of health
- Demographic references
- Economic references

WHO Health for All database (HfA) (www.euro.who.int/hfadb)**:** A central database of basic health statistics. It has been a key source of information on health in the European region since the WHO Regional Office for Europe launched it in the mid-1980s. It contains time series from 1970. HfA is updated biannually and contains about 600 indicators for the 53 WHO Member States. The indicators cover:
- Basic demographics
- Health status (mortality, morbidity, maternal health and child health)
- Health determinants (such as lifestyle and environment)
- Health care (resources and utilisation).

HfA allows analyses within and between countries to be displayed as charts, figures or maps, which can be exported free of charge to other software programs. It can be used online or downloaded for installation on a computer. The data come from: a) an extensive network of country experts working in statistical, monitoring and surveillance units in ministries, b) technical programmes of the WHO Regional Office for Europe, and c) partner organisations such as the OECD.

One of the main problems of the HfA is the limited information provided on the national or international data sources. Usually only the public body or institution that has delivered the data is named in the metadata. Detailed information that would be necessary to assess data comparability is not available.

The WHO recommends that national data sources and methods be reviewed if the data are used for international comparisons. This means it is difficult to use the HfA for international comparisons without an in-depth analysis of the national data sources - which regrettably is done quite rarely.

It is important to notice that the OECD and DG SANCO are collaborating in the area of health statistics. The indicators developed in the Health Care Quality Indicators project have laid the foundation for the respective section for the ECHI indicators. Currently the OECD has received funding for projects on mental health care quality and patient safety. In the future it will be important to streamline the ongoing developments in these projects with the DG SANCO working group on health indicators.

The only way to guarantee sound results and comparisons is through a general framework with fully integrated, coherent and internationally accepted definitions and classifications. In the case of expenditure on health services, such a system is the SHA (System of Health Accounts), which has been adopted by the European Union together with the OECD and the WHO. These three organisations are now making efforts to implement this system. Moreover, the EU and the OECD recently, for the first time, collected the data through a common instrument where they have, on the basis of the SHA methodology, harmonised definitions, wording and data collection specifications on health care statistics. The latest version of OECD Health Data and currently available health information in Eurostat are disseminating this data.

Hyperlinks to Eurostat, OECD and WHO websites and databases can be found at www.echim.org. Moreover, there is an extensive list of hyperlinks to major European national data holders and their information systems on that website.

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3. THE ECHI INDICATOR LISTS

3.1. Frame and background

One of the objectives of ECHIM has been to further improve the ECHI shortlist, i.e. to develop and refine the definitions of indicators and the appropriate data sources.

To help gain a better understanding of the history of ECHI shortlist in the context of the subsequent Public Health Programmes and related structures, Table 2 provides a chronology of the events.

Table 2. History of the ECHI shortlist

WHEN	ISSUE	BY WHOM
1994	A report on health monitoring was published, including proposed indicators for the future EU Health Information System.	Danish Ministry of Health
1997	Working Group created a plan on organising health monitoring in Europe.	Arpo Aromaa and Working Group (at request of the European Parliament and the Commission)
1998	Launch of the Health Monitoring Programme, with three pillars. One of these was "The Establishment of Community Health Indicators".	European Commission
1999	ICHI (International Compendium of Health Indicators) published as a database of indicator definitions used by WHO, OECD and Eurostat.	WHO Regional Office for Europe
2000–2003	Present state and future of HIS and HES were elaborated.	Working group on HIS/HES
2001	ECHI report proposes indicator list (first version longlist) based on WHO, OECD, Eurostat and HMP project recommendations.	ECHI project group

2004–2005	ECHI-2 project proposes extended longlist, 2005 version shortlist and a website (ICHI-2) updating ICHI and including the ECHI indicators. The Commission initiated the development from the comprehensive indicator list to the shortlist. The ECHI shortlist was adopted by DG SANCO based on the proposals of ECHI-2, after discussion in the Working Parties and the NCA (Network of Competent Authorities).	ECHI project group with DG SANCO
1998–2008	A number of health indicator relevant projects were initiated either under the Health Monitoring Programme or the Public Health Programme of DG SANCO.	Projects, DG SANCO
2005–2008	The Working Party Indicators was established to guide the development of indicators and their implementation. It was also intended to pull together the indicator work of projects in other Working Parties. The ECHIM project (2005–2008) acts as the scientific secretariat for the Working Party Indicators.	ECHIM project, DG SANCO
2005–2008	Quite a few Member States have started using the ECHI shortlist as a frame for data collection for public health monitoring. The need has been expressed to keep the shortlist stable, but some measure of flexibility is needed. Therefore, a procedure is started for a limited update of the shortlist.	Member States, ECHIM Core Group, WP Indicators
2005–2008	The ECHIM project is in many respects a continuation of ECHI and ECHI-2 projects. The main aims of ECHIM are to develop and implement the ECHI shortlist indicators in all EU Member States.	ECHIM Core Group
5/2006: WP Indicators meeting #2	The first proposal for the improvement of the ECHI shortlist was submitted and discussed. Agreement was reached on the basic procedures for the modification of the ECHI shortlist.	Working Party Indicators
2006–2007	Working Parties were asked to specify their suggestions for changes in the ECHI shortlist, within their respective fields of action. Suggestions for remaining questions and compliance with agreed criteria were checked and feedback from projects was requested.	Scientific secretariat of the Network of Competent Authorities
10/2007: ECHIM Core Group meeting #5	Final proposal for recommendations was made.	ECHIM Core Group

12/2007: WP Indicators meeting #5	All suggestions from the Working Parties and the relevant projects of the Public Health Programme were presented, and the selection procedure was discussed.	ECHIM Core Group, WP Indicators
1/2008: NCA meeting	A new selection list was presented, discussed and agreed on, with the proposed procedure for further work.	ECHIM Core Group, NCA
2/2008	The new selection list was circulated among the members of WP Indicators for a new round of selection.	ECHIM Core Group
3/2008: ECHIM Core Group meeting #6	Results were discussed and amended. A proposal was prepared for the 6th meeting of WP Indicators. A general procedure was proposed for the future improvement and updating of the shortlist, after the ECHIM project.	ECHIM Core Group
4/2008: WP Indicators meeting #6	Additions to the ECHI shortlist were discussed and agreed.	WP Indicators
6/2008: NCA meeting	A new release of the ECHI shortlist was approved by DG SANCO and the Network of Competent Authorities.	Network of Competent Authorities, DG SANCO

The ECHI shortlist was established in 2004. It was developed by the ECHI-2 project[6] together with DG SANCO as a list of priorities in the development of valid and comparable data throughout the EU for monitoring the health of Europeans. It was approved by the NCA (Network of Competent Authorities) after several rounds of discussions in all the Working Parties and the NCA itself.

The ECHI shortlist (82 indicators) was selected from the ECHI longlist of almost 500 items, including quite a few indicators from the WHO Health for All (HFA) database and OECD Health Data. The selection was done by a panel of public health generalists. The criteria were as follows:

1. importance for overall health status and major health problems at population level
2. strength of evidence for inequalities in health
3. importance for effective interventions and health policies

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6   Kramers PGN and the ECHI team. Public Health Indicators for the European Union: context, selection, definition. Final report by the ECHI Project phase 2. RIVM report no. 271558006, 2005. Available at www.echim.org/documents

In short, the shortlist would focus on major public health problems and the best chances for improvement. Thus, the focus would be on key issues of public health policy.

The ECHI shortlist was subsequently divided into three sections, based on data availability and development status, as judged by Eurostat:

1.   readily available and reasonably comparable (46 indicators)

2.   partly available and/or sizeable comparability problems (31 indicators)

3.   not available, need for development (5 indicators)

An annex was attached to these three sections that included a list of indicators that had been proposed by projects and Working Parties shortly after the selection of the ECHI shortlist indicators. This annex list was not taken up in follow-up actions.

It was acknowledged that the distinction between the sections was not always clear-cut, and that one could also speak of a "gradient" of data availability and of degrees of development.

In this manner, the data for the shortlist indicators would primarily serve the purpose of providing an overview of the entire area of public health, including health status and health determinants as well as aspects of health promotion, health care provision and health care quality. At the same time, the shortlist would indicate areas for innovation and development, based on unmet data needs in these areas. The shortlist was adopted by DG SANCO as a basic structure in the development of various actions. Almost the entire section 1 was implemented using data from the DG SANCO website. More recently, EUPHIX website was used to present data related to 37 shortlist indicators. All of this information is also accessible via the EU Health Portal.

3.2. Update process of the ECHI shortlist

When the shortlist was established, it was recognised that it would still need to be updated at regular intervals. These updates would imply both improvements of existing indicators, possible additions of new ones and perhaps even deletions. The need for modifications would be determined by new information needs driven by political priorities, as well as new scientific insights and improved ways of collecting information.

During 2004–2007, several Member States have started using the ECHI shortlist as a frame of data collection in general public health monitoring schemes (e.g. Cyprus, Spain, Germany, the Netherlands). From this perspective, the need has been expressed to keep the shortlist stable. Nevertheless, it was decided in ECHIM that procedures will be put in place to conduct an update round by 2008.

The first step was to consult the Working Parties, which were expected (with the projects they represented) to have the best knowledge of indicator availability and development in their specific areas. In 2006, they were asked for their suggestions for:

1. Improving existing indicators, e.g. by better definitions and better source identification.

2. Adding or deleting indicators.

DG SANCO was also consulted for suggestions from the EU policy needs perspective.

Towards the end of 2006 and during 2007, ECHIM received several suggestions. They were divided into the categories of suggestions as shown above; improving existing indicators (1) and adding new indicators (2). The suggestions falling under 1 were taken up in the process of writing the Documentation Sheets, i.e. the full documentation of definitions, data sources, etc. for each of the existing shortlist indicators. This is further described under Chapter 3.6. The process of deciding on additions is discussed below.

As to the suggestions for additions, the total number eventually amounted to almost 60, even though the Working Parties were encouraged to be selective. They were also asked to produce the rationale and full documentation for each proposal, keeping in mind the criteria that were used for the original shortlist selection (see above), plus practical feasibility (validity, availability, etc.). There was a lot of communication between the Working Parties and projects and the ECHIM secretariat to clarify questions arising from the proposals. At the same time, the ECHIM Core Group insisted that the number of additions be limited in order to keep the shortlist short (at most 5–7 additions).

In order to select new indicators a procedure was adapted based on suggestion by RIVM. In selecting the indicators to be added, the next step should be to present the list of indicators (proposed by the Working Parties) to the members of the Working Party Indicators. Subsequently the list should be submitted to a voting procedure in the meeting of Working Party Indicators. Working Party Indicators was considered to be the best forum to judge both the policy relevance and practical feasibility of the proposals. At their meeting in December 2007, the final list of 53 items and the proposed procedure were presented. It was decided at this meeting that the Network of Competent Authorities (NCA) should also have the opportunity to make suggestions for additions based on policy relevance at their January 2008 meeting. Also at that Working Party Indicators meeting, a pilot voting procedure was carried out by asking all participants to select their top seven choices. Voting forms were filled by 35 participants. Out of the 53 proposed items, the highest-ranking one received 20 votes, while only 6 items got no votes at all. In other words, there were quite diverse views.

As agreed, the NCA meeting of January 2008 was asked for possible further suggestions, based on the full documentation sent to its participants. The ECHIM Core Group proposed that the voting results should not be used directly, but as input for the follow-up evaluation. This was done by excluding the items that received less than 4 votes, which would leave a list of more than 20, much more than the final number allowed for addition (5–7). This would simplify the process. The NCA members responded amply. They did not suggest additional items, but gave their preferences among the proposed additions and indicated data problems in their countries for the proposed additions.

Based on all the above, i.e. the voting at the Working Party Indicators meeting and the reactions from the NCA members, a final selection of 29 possible indicators was made and then presented by e-mail to the members of the Working Party Indicators, and also to the national ECHIM contact persons. For each indicator, extensive documentation on a) the proposing project/group, b) the proposed definition, c) the rationale for inclusion, d) data availability, and e) additional notes was presented. In this round people were asked to rate each indicator for policy relevance and practical feasibility, both on a scale of 1–5.

By the deadline, responses were received from 16 country representatives, 13 EU Member States and Norway, Serbia and Turkey. The highest rating was found for "Incidence of selected communicable diseases", scoring an average of 3.9, both for policy relevance and technical feasibility. Otherwise, the ratings were quite similar to the voting results obtained during the December 2007 meeting of the Working Party Indicators. The results of this rating round were discussed at the last Core Group meeting of ECHIM in March 2008. The group decided to submit a proposal to the Working Party Indicators meeting of April 2008, based on a qualified judgement. This implied giving much weight to the rating results but also taking account of additional arguments such as the coverage of missing areas and the balance between areas in the entire shortlist. The Working Party Indicators agreed on the ECHIM proposals. Some specific comments were received from projects. The NCA meeting of July 2008 also basically agreed on the proposals. Some technical remarks were made, and there was a remark that there should have been more time for discussion.

More detailed information of the final selection list of 29 items with documentation, and the results of the rating by the Working Party Indicators are available at www.echim.org/documents.

3.3. Additions to the ECHI shortlist

The ECHIM agreement on the new version of the shortlist included two elements: one to divide it into two sections, and one on additions. Annex 1 gives the full ECHI shortlist in its new edition, with comments to the proposals for additions.

Instead of the present three sections, the proposal is to have two sections:

- The "Implementation section" is intended for gradual implementation over the next few years, although there may still remain some data problems. This section would largely merge the earlier sections 1. "readily available, reasonably comparable" and 2. "partly available and/or sizeable comparability problems". The distinction between 1 and 2 is often not clear-cut, and specific data issues and problems are to be clarified in the Documentation Sheets.

- The "Development section" intended to cover typical policy relevant issues but not yet developed into properly defined indicators. This section would cover the old section 3. "not available, need for development" plus a few poorly defined or otherwise difficult items previously placed in section 2. On the basis of progress made, it should be possible to move indicators from the development section to the implementation section.

In terms of additions to the ECHI shortlist, the following proposals are made:

To add in the "Implementation section":

- incidence of selected communicable diseases, including a few vaccine-preventable diseases
- influenza vaccination rate in the elderly
- 30-day in-hospital case-fatality for AMI and stroke.

To include in the "Development section":

- pregnant women attending regular visits
- excess mortality by heat waves
- colon cancer screening
- psychological well-being

3.4. ECHI shortlist and longlist: further development

As ECHI-2, also ECHIM submitted its results to DG SANCO. The results included improved documentation of the existing ECHI shortlist (as seen in the Documentation Sheets, see Chapter 3.6), and a list of 7 proposed additions (3 for the implementation section and 4 for the development section). The proposed additions have also been included in the Documentation Sheets.

In the coming years, the main focus of the "Joint Action for ECHIM" (2009–2011) will be the implementation of the ECHI shortlist indicators in the Member States, including the harmonisation of data collection methods for better comparability. However some room for development will always be needed.

The ECHI shortlist was established to cover highlights over the entire area of public health. It was not intended to be comprehensive in any specific field, which means that there is a continuous need for expansion and to develop the health indicators. By the end of ECHI-2, the so-called ECHI longlist was characterised as an inventory of all indicators proposed by projects in the Public Health Programme. It is by definition biased towards the areas covered by those projects. Nevertheless the longlist contains very valuable subsets (user windows, see final report on ECHI-2) in specific areas (e.g. child health, oral health, cancer, patient safety, etc.).

The ECHI-2 final report contains the entire longlist fitted into the ECHI conceptual frame (health status, health determinants, health interventions: health services, and health interventions: health promotion). Following the same structure as in the ECHI shortlist, the ECHI longlist was also included in the ICHI-2 inventory together with the indicator definitions from WHO HfA, the OECD and Eurostat. It is important to note that after that, during the ECHIM project, quite a few projects have produced additional indicator proposals, and the longlist has not been maintained in the same manner as before. Instead, a listing has been made of all the projects, with a short note of the area and type of indicators proposed. This listing is presented on the ECHIM Products website, the successor of the ICHI website (International Compendium of Health Indicators, www.healthindicators.org, Annex 5). It is envisaged that these subsets (user windows) of indicators will be used by the networks that are active in the respective areas, and that sometimes elements from them will be included in the shortlist, basically in the same way as has been done for the current shortlist additions.

It is also envisaged that work on improving and implementing the shortlist will be the prime activity for the future Joint Action for ECHIM, whereas the development and application of specific indicator sets will largely be taken up by the appropriate networks, Task Forces and Working Parties active in the specific areas. However, it is necessary that this work is documented by the Joint Action for ECHIM .

It was proposed earlier that the shortlist be divided into two sections, i.e. Implementation and Development sections.

It is evident that the first section will also require improvement. The aim during the coming period will be to further improve and finalise the Documentation Sheets for all indicators, and to develop them into precise guidelines on how to collect data and how to calculate the indicators. This will be undertaken by Joint Action for ECHIM together with the expert groups (projects) in the respective areas. In addition, it is obviously necessary to work closely with Eurostat, which in due course will coordinate much of the actual data collection. This work with Eurostat as well as with the Member States will reveal practical constraints, but also create new opportunities.

Along with the work on improving definitions and implementation, the shortlist indicators should be evaluated using a few standard criteria and a formal but pragmatic procedure. Such a procedure should include the same or similar criteria that were used in the current selection. However, it should apply the process on the actual situation concerning policy relevance and data availability. This is also a task to be taken up in the Joint Action for ECHIM.

In addition to the shortlist "Implementation section", it is particularly the "Development section" that will require further work. In fact, it should serve as an agenda for issues to be brought up in the annual work programmes of the Health Programme, and as such play a role in the gaps analysis.

In conclusion, it is important that work is continued to improve the ECHI shortlist, but ultimately its future depends on its use and implementation within the EU Member States.

The process of proposing and deciding on additions to the shortlist has been quite complex and time-consuming, and resulted in quite limited extension.

In the future it is expected that there will be strong pressure to keep the shortlist short and stable. Changes of the following types can be foreseen, but only to a limited extent:

• Further extensions, but only on sound arguments

• Deletions of items with limited policy relevance and data availability without prospect for improvement

• Removal of items from "Implementation" section to "Development" section, where policy relevance remains high, but technical feasibility and availability of data is low

• Removal of items from "Development" section to "Implementation" section, where work towards improved technical feasibility and data availability has proven successful

In order to create a simplified procedure for shortlist development, the following steps are proposed. These will be co-ordinated by the ECHIM secretariat specifically responsible for the development of the shortlist:

1. The secretariat will actively keep track of specific needs and problems in the current shortlist as they emerge in policy documents and project reports, and initiate contact with appropriate projects and networks to tackle these problems.

2. Around 2010, the secretariat will launch a query to the projects, via the Working Parties (or similar co-ordinating structures), to solicit their suggestions for improvements, additions or deletions, with explicit mention of the indicator criteria and of the need to submit appropriate documentation.

3. The secretariat will make a qualified judgement of the suggestions and contributions, taking into account the criteria and formal evaluation procedures for indicators. Based on this, it will make a proposal to the ECHIM Core Group.

4. The agreement of the ECHIM Core Group will then be submitted to the Working Party Indicators, or the equivalent body in place at that time.

3.5. Impact of the ECHI shortlist

The ECHI shortlist has become quite a central issue in organising health monitoring and reporting within the EU. To keep things in perspective, it is useful to set out a few considerations on the use and the impact of the shortlist.

1. There is life beyond the shortlist. Indicators not included in the shortlist are often very valuable within their own field of use (cancer, health care quality, etc.). The same applies to the underlying data collection.

2. There are related sets of indicators such as the WHO HfA, OECD Health Data, the data collection under European Commission's DG for Employment, Social Affairs and Equal Opportunities (intimately "the Social Protection Committee") by Open Method of coordination (OMC), "structural indicators", etc. While the structure of the shortlist should be retained, it is important to be very pragmatic and explicit about overlapping indicators and to share definitions and data collections, unless there are good reasons to do otherwise.

3. Many Public Health Programme projects have proposed improved indicator definitions or related data collection methods. These must be put to good use in developing the shortlist.

4. Indicators have a tendency to become administrative tools that have only one absolute interpretation, sometimes with unjustified claims of "transparency". However it is important to bear in mind that indicators are by nature rigorous simplifications of reality and may thus have only limited value in helping us understand the true nature of reality.

5. Closely connected to this is the realisation that harmonising indicators is not the end-point, but only the beginning in the effort to understand time trends and differences between countries or regions. This harmonisation should trigger further investigation.

6. Finally, the purpose of the shortlist indicators is to produce a quick overview of the broad area of public health.

3.6. Documentation Sheets

The idea of the Documentation Sheets is to present complete information on each of the ECHI shortlist indicators in condensed form, i.e. to detail the definition, calculation, interpretation, preferred data sources and data availability and quality for each of the indicators. In a way the Documentation Sheets bind together and summarise the outcomes of the main activities of the ECHIM project: the conclusions of the Country Reports, the ECHIM Survey and, to some extent, Bilateral Discussions. The Documentation Sheets also present the overall guidelines for implementing the ECHI indicators and provide the necessary basis on which Member States can start work to implement the indicators. However, they do not address the practicalities of implementation, which must be separately designed for each country.

As described in earlier chapters, the new ECHIM Products website was developed and modified, among other things, to contain all this indicator metadata and documentation, i.e. up-to-date health indicator definitions and source specifications for the European health indicators.

The ECHI shortlist itself was conceived and finalised in the previous projects, ECHI and ECHI-2. At the start of ECHIM, the specifications of the shortlist indicators were not fully formalised, although for most indicators quite precise definitions and preferred data sources were given in the final report of ECHI-2. For some indicators, though, not much more than the indicator topic was given.

At the first meetings of the ECHIM Core Group and Working Party Indicators it was agreed that the first step in the implementation of the ECHI Indicators has to be to define each shortlist indicator with greater clarity. This was considered necessary before the Member States could be asked to deliver information on data availability and indicators in their own country. It was also noted that if the Member States were presented with the content of international databases, that might help to clarify to them the intentions of ECHIM. Sometimes it does not make sense to define a single indicator, but rather a data source from which more than one indicator can be calculated. In theory, the assessment of the indicator definition and the data sources should be independent of data availability. In practice, however, there is interdependence. The need for data may stimulate the development of an HIS or HES instrument, but the pragmatic aspect of the final shape of these instruments will determine the indicator definition. All this can be brought together and presented by the Documentation Sheets.

After reviewing several examples of different "metadata tables" from the literature and other projects, the ECHIM Helsinki Secretariat sketched the first version of the structure of the Documentation Sheets. Step by step, after various drafts and revisions of example sheets, the ECHIM Core Group decided on the final structure of the Documentation Sheets, which was then accepted by Working Party Indicators.

It was agreed that a Documentation Sheet should include ECHI indicator name, operational definition and calculation, further relevant dimensions (e.g. relevant breakdown categories, by e.g. sex/gender, age, region, socio-economic status), definition of preferred underlying data sources, availability and quality of data in international databases (especially Eurostat, WHO Health for All and OECD Health Data), underlying concepts and rationale.

Sometimes it might be necessary to have two or more definitions, calculation methods or data sources for one indicator. This may be the case if there are two different acceptable data sources for the indicator, but also when limitations of data availability may lead to second choices of acceptable data sources. In case there is more than one acceptable data source and/or calculation method for the indicator in question, all the various options should be listed, in order of preference. This prioritisation should be based on expert arguments (e.g. suggestions by the ECHIM Core Group, other Working Parties, projects and experts) and decided upon by the ECHIM Core Group and accepted by Working Party Indicators.

It was also agreed that European Health Interview Survey (EHIS) instruments should be incorporated as a primary data source when appropriate. In accordance with the agreement above, it should be indicated whether EHIS is a preferable data source for the indicator, or whether other sources are more suitable

Documentation Sheets are divided into 10 sections:

1) "ECHIM Indicator name" specifies the topic that is to be measured. In addition to the ECHIM name and indicator number, this section specifies to which of the five subgroups the indicator belongs: Demographic and socio-economic factors, Health status, Determinants of health, Health interventions: health services, or Health interventions: health promotion

2) "Definition of indicator" describes what the indicator is intended to measure. If this is not unambiguous, all acceptable alternatives are listed in order of preference, i.e. as first, second, third, etc. choice. The base preference order given in this section is to be followed in all other sections of the Documentation Sheet in question. The final decisions on order of preference were made by the ECHIM Core Group and Working Party Indicators, based on the expert opinions of the ECHIM Core Group, Working Parties, projects and experts.

3) "Calculation of the indicator (numerator, denominator)" describes how to calculate the indicator in question (method of calculation, numerator, denominator, etc.), corresponding to the order of preference laid down in the definition section. In some cases it is possible to have more that one alternative method. All acceptable alternatives are to be presented in numbered order of preference. If the choice between alternatives is more or less arbitrary, only the most pragmatic alternative is chosen. For example, in the case of a 3 versus 6 month reference period, the one that corresponds to the EHIS question is chosen.

Tables 3 and 4 present examples of the Documentation Sheets. Table 3 represents a relatively simple case, i.e. an indicator with only one definition and method of calculation. Table 4 presents a more complicated case, an indicator with multiple alternative definitions and methods of calculation, in their order of preference.

4) "Additional underlying concepts" describes why the indicator is measured in the chosen way: i.e. prevalence, incidence, mortality, absolute numbers, etc., or why a certain age group is chosen. The reasons for the preferred definition and calculation details can also be included here.

5) The "Relevant dimensions (subgroups)" section states by which background variables it should be possible to stratify the indicator (e.g. age, sex/gender, socio-economic status and area). The general rule for the sex/gender terms is that biological sex should be used in the case of register-based data and self-defined gender in questionnaire based data.

6) "(Preferred) data source(s)" lists the type of preferred data source, corresponding to the order of preference given in the calculation section, when necessary. Typically, this is either register-based data, Health Interview Survey (HIS), Health Examination Survey (HES) or special survey. In some cases there can of course be more than one acceptable data source. In these cases, possible data sources are given in order of preference by calculation alternative.

7) "Rationale" describes why this indicator is important, especially from the public health point of view. Examples include size or dynamics of the problem/issue, evidence of the relevance of the issue in public health terms (for determinants), or evidence of intervention effectiveness (for prevention or care issues).

8) "Data availability, quality, periodicity" lists the recommended data source (e.g. Eurostat, WHO Health for All and OECD Health Data databases, national registers, HIS or HES, project databases, etc.), referring to the order of preference in the abovementioned sections, when necessary. Some notes on the quality and availability of the data for the indicator are also presented. This section may also include additional information by Member States on the potential availability of indicators for which there are no (comparable) data in the international data sources, derived mainly from the ECHIM Survey.

9) The "References" section gives references to original publications, websites, questions and methods in the European Health Interview Survey (EHIS), projects funded by the former Health Monitoring Programme, Public Health Programme, etc., that are relevant to the indicator and its operationalisation.

10) Finally, there is the "Work to do" section, which contains notes on what should be done to improve and complete the Documentation Sheet in question. Eventually, this section should be blank

Table 3. A Documentation Sheet for an indicator that has only one definition and method of calculation: Total fertility rate (ECHI shortlist indicator #4).

ECHIM Indicator name	A) Demographic and socio-economic factors 4. Total fertility rate
Definition of indicator	Total Fertility Rate is defined as the mean number of children per woman at the end of childbearing age, based on one calendar year data.
Calculation of the indicator (numerator, denominator)	Eurostat, WHO, OECD: The mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years (conventionally 15–44, sometimes 15–49) conforming to the fertility rates by age of a given year. It is therefore the completed fertility of a hypothetical generation, computed by adding the fertility rates by age for women in a given year (the number of women at each age is assumed to be the same).
Additional underlying concepts	Total fertility rate (TFR) calculated as a period indicator (e.g. assuming that age-specific fertility levels remain constant in the future), not by birth cohorts. Completed fertility rate by birth cohort (CFR) refers to the average number of children at the end of reproductive period. TFR and CFR differ significantly if the timing of childbearing differs by time or by country.
Relevant dimensions (subgroups)	Country (also region), calendar year
(preferred) data source(s)	Eurostat, WHO, (OECD: Data from Eurostat); regularly updated based on national data / vital statistics.
Rationale	Basic demographic data. Total fertility rate is also used to indicate the replacement level fertility. In more developed countries, a rate of close to 2.1 can be considered to be replacement level.
Data availability, quality, periodicity	Basic demographic data, available for all MSs.
References	WHO HfA: www.euro.who.int/hfadb OECD Health Data: www.oecd.org Eurostat (Methodology for the calculation of Eurostat's demographic indicators): epp.eurostat.ec.europa.eu/portal/page?_pageid=1073,46587259&_dad=portal&_schema=PORTAL&p_product_code=KS-RA-07-006
Work to do	

Table 4. A Documentation Sheet for an indicator that has multiple alternative definitions and methods of calculation: 30-day in-hospital Case-fatality of AMI and stroke (ECHI shortlist indicator #79).

ECHIM Indicator name	**D) Health interventions: health services**
	79. 30-day in-hospital case-fatality of AMI and stroke
Definition of indicator	Proportion of hospital in-patients with primary diagnosis of a) acute myocardial infarction (AMI) and b) stroke who died within 30 days after the admission.
Calculation of the indicator (numerator, denominator)	1) OECD Health Care Quality Indicator: Numerator: The number of the patients who died in the hospital within 30 days of admission.
	Denominator: Number of a) AMI (ICD-10: I21, I22) and b) stroke (ICD-10: I61–I64) patients admitted to hospital. Multiple admissions within 30 days should be counted as one.
	2a) EUROCISS case-fatality of AMI: Numerator: The number of persons who died within 28 days of the onset of the attack.
	Denominator: number of AMI's or coronary deaths (ICD-10: I21–I22 from hospital discharge register and ICD-10: I20–I25 from mortality register). Multiple attacks within 28 days should be counted as one.
	The indicator can be further divided into:
	– 1-day case-fatality and
	– 28-day case-fatality among first day survivors.
	2b) EUROCISS case-fatality of stroke: Numerator: The number of persons who died within 7 days of the onset of the attack.
	Denominator: number of strokes (ICD-10: I6–I69 or G45) from hospital discharge register or mortality register).
	3) EUPHORIC: Numerator: The number of a) AMI (ICD-10: I21, I22) and b) stroke (ICD-10: I61–I64) patients who died in the hospital within 30 days of admission plus those who died after discharge from hospital within 30 days of admission.
	Denominator as in the OECD definition.
Additional underlying concepts	1) The OECD indicator is most widely available because it is based on hospital discharge data only. However, its interpretation is limited for two reasons:
	a) Most deaths take place before the person reaches hospital or on arrival in hospital. Therefore, good treatment of hospitalised patients decreases the case fatality, whereas early acceptance of the patients to hospital increases the case fatality. Furthermore, there is variation in the practices on the stage at which a patient is recorded as a hospital patient.
	b) The indicator is sensitive to the length of the period the patients are kept in hospital.
	2) The above problems are overcome by the EUROCISS definition. However, it is available in fewer countries than the OECD definition because it requires the possibility to link the hospital discharge and mortality register. Furthermore, in some countries the diagnosis of many of the out-of-hospital deaths is vague.
	3) The EUPHORIC definition improves the OECD definition slightly but, similarly as the EUROCISS definition, it requires the possibility to link the hospital discharge register and the mortality register. When the linkage is possible, the EUROCISS definition is preferred.

	As a summary, the OECD indicator should be reported for all countries in which it is available. In addition, the EUROCISS indicators should be reported for the countries for which they are available, and their availability should be promoted.
	Also the conclusion of the OECD Health Care Quality Indicators Project with regard to the indicator "AMI and stroke 30-Day Case-Fatality Rate/In-Hospital Mortality Rate" is "Report in-hospital mortality for all countries for comparability reasons until the majority of countries is able to calculate the true 30-day case-fatality rate".
Relevant dimensions (subgroups)	Country (also region), calendar year, sex.
(preferred) data source(s)	1) OECD, based on national hospital discharge records and hospital registers.
	2), 3) The EUROCISS and Euphoric definitions require a linkage between the hospital discharge records and the mortality register.
Rationale	An indicator for the adequacy of AMI and stroke treatment, for AMI especially in the acute phase. Note however, that early access to hospital both improves the success of treatment and tends to increase the case fatality because many of the subjects who will die early will reach the hospital before the death. AMI and stroke 30-Day Case-Fatality Rate/In-Hospital Mortality Rate are both included in the OECD set of Health Care Quality Indicators.
Data availability, quality, periodicity	– OECD Health Data: reports data for 23–24 countries.
	– OECD Health Care Quality Indicators Project report (Health Care Quality Indicators
	Project - Initial Indicators Report) presents data for 17–20 European countries.
	– Eurostat, WHO HfA: no data.
	– OECD Health Care Quality Indicators project note: the main problems in cross-country comparisons: Some data are drawn from samples of patient records, some from all patients. Some countries use unique patient IDs (allows identifying hospital readmissions) some not. Some countries are able to track patient after hospital discharge, some are not. Data are available for different years.
	– Results from MONICA project indicate that a higher percentage of women reach hospital alive, but a higher percentage of men survive after hospitalisation, making the overall 28-day case-fatality very similar between the sexes.
References	– EUROCISS project: www.cuore.iss.it/eurociss/
	– EUROCISS 2003 report: www.cuore.iss.it/eurociss/en/project/report2003.asp
	– OECD Health Care Quality Indicators project: www.oecd.org/health/hcqi and
	the publication. "Health Care Quality Indicators Project - Initial Indicators Report" (OECD Health Working Papers no. 22/2006: www.oecd.org/dataoecd/1/34/36262514.pdf
	- European Public Health Outcome Research and Indicators Collection, The EUPHORIC Project: www.euphoric-project.eu
	- Genetic regulation of the end-stage clotting process that leads to thrombotic stroke, EuroClot: www.euroclot.eu/
Work to do	

Documentation Sheets (version 9/2008) for all ECHI shortlist indicators are listed in Annex 2 in a shortened form that contains only three sections: the Definition and Calculation sections are identical to those in the complete Documentation Sheets, but the Notes section is a combination mainly of the Additional underlying concepts and Rationale sections of the complete Documentation Sheets. The complete Documentation Sheets are available at www.echim.org (pdf) and at www.healthindicators.org (database tables).

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4. AVAILABILITY OF ECHI INDICATORS

4.1. Identifying the international data sources

One of the main objectives of the ECHIM project was to assess the availability and comparability of the ECHI shortlist indicators in the EU Member States, Candidate Countries and EEA/EFTA countries. This was considered necessary because until the launch of the ECHIM project, information about the actual availability of the proposed ECHI shortlist indicators was incomplete and outdated. For this reason it was decided to compile "Country Reports" using the data already available for the ECHI shortlist indicators. For organisational reasons, the ECHI shortlist indicators were initially divided into three sections. The first section contained the indicators that had previously been assessed as regularly available and comparable. The second section contained those indicators where data availability and comparability was assessed as limited. The third section consisted of those indicators that had been assessed as not available or not comparable. In addition, there was the list of indicators, which had been proposed by projects and Working Parties after the ECHI shortlist indicators had been selected.

Because the data for the different indicators were not available in a single database, it was decided to use all major international databases for the availability check. Many of the ECHI shortlist indicators were provided by more than one database. For those indicators the data from the different databases were compiled into one Excel file in order to give the national contact persons an overview of the data their country provides for the various international organisations.

In addition to the data retrieved from international databases, project-based databases were included in the review. This was felt appropriate as several projects that dealt with the development of health indicators under the DG SANCO Public Health Programme had established topic-specific databases. These databases normally covered indicator sets for theme-specific purposes, e.g. the monitoring of mental health (MINDFUL project) or environmental health (ENHIS project), and contained data from pilot data collections under these projects. It is important to account for the fact that the future development of these databases is currently unclear. For this reason, indicator data contained in these databases was only presented if there was no other data source. Usually these project databases were designed as comprehensive "user windows" that contained indicators from both the ECHI shortlist and the longlist.

The definitions of ECHI indicators developed by projects under the European Community Public Health Action programme have been used if available. Because specific operational definitions were not available for some of the ECHI shortlist indicators at the beginning of the project, it was necessary to use proxy indicators covering the same issue. The proxy indicators were selected ad hoc and the databases were checked for available national data. In several cases the indicator definitions used by the international databases showed some differences. These differences influence the results of the availability check, for instance when indicators are defined for slightly different age groups or other categories (e.g. birth weight of newborns). In addition to the availability of data for ECHI shortlist indicators, the possibility of stratification by important demographic and socio-economic variables was determined. The relevant stratification variables that are considered necessary for nearly all ECHI shortlist indicators are age, sex (routine data collection)/gender (self-reported) and socio-economic status, the latter being the variable with the lowest availability. It is an important finding of the availability check that indicator-based information for different population subgroups is currently restricted to age- and sex-specific data. Overall it can be said that stratification for age and sex is possible for some ECHI shortlist indicators, while stratification for socio-economic status is generally possible for indicators derived from common surveys, such as EU-SILC and EHIS.

For several ECHI shortlist indicators final definitions were not available at the time of the review of international databases. In these cases, preliminary definitions have been used to identify proxy indicators that are presented in international and project databases.

This approach was chosen in order to avoid duplication of data reporting, and based on previous experiences it was decided to assess the availability of the ECHI shortlist indicators from existing international data sources where identical or similar indicators have already been collected. This step was considered necessary in order not to overwhelm national contact persons with requests for data retrieval. Moreover, it is essential to build on the results of the ongoing harmonisation process in the context of the partnership for public health statistics, a process set up by DG Eurostat. Until 2007 several Working Groups and Task Forces have worked on improving public health statistics, mainly focusing on three areas (causes of death, health care statistics – both non-expenditure and expenditure data – and health interview surveys). Since 2007 more effort has been put into collecting morbidity statistics.

4.2. Assessment of the availability of the ECHI shortlist indicators

As explained above, the assessment of the availability of the ECHI shortlist indicators is based on a review of major international health databases (Eurostat, WHO Health

for All, OECD Health Data) and topic-specific databases (ENCR on cancers and selected project databases, such as MINDFUL on mental health, Database on accidents and injuries and others). The review of the availability of data for the indicators was performed between January 2006 and January 2007. Due to this timeframe, updated versions of the different databases were taken into account only until the end of 2006.

The review aimed at compiling the Country Reports for the ECHI indicators. These reports were submitted to the national contact persons in the Working Party Indicators. The contact persons were asked to review the results for their countries and comment on possible differences that were found between the selected databases.

Figures 1–5 presented in this chapter provide an easy-to-read overview of the availability of indicators in the participating countries, as seen from the perspective of the user of international databases. It has therefore been decided to limit the level of detail in these overview charts. More detailed indicator and country specific information on the results of the availability review from international databases for each indicator is summarised in Annex 3. Overall availability figures for individual countries are presented in the Country Specific Section (Annex 4).

The following charts indicate the percentage of countries for which data for the indicator are available. If an indicator is not available the reported percentage is zero. In principle there are two reasons why an indicator is not available: 1) data are not available in international data sources, 2) the indicator definition was not finalised at the time of the review. Both cases result in a non-available indicator.

Figure 1. Availability of ECHI shortlist indicators in international data sources: Demographic and socio-economic factors
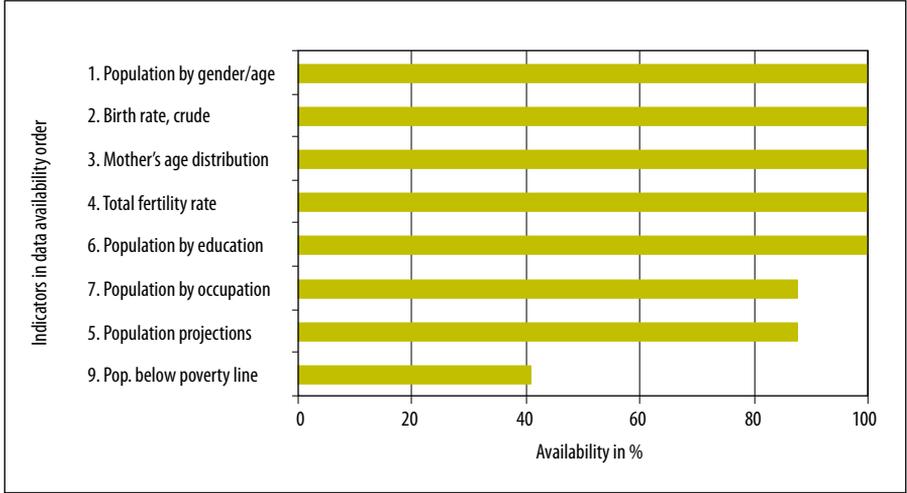
Figure 2. Availability of ECHI shortlist indicators in international data sources: Health status
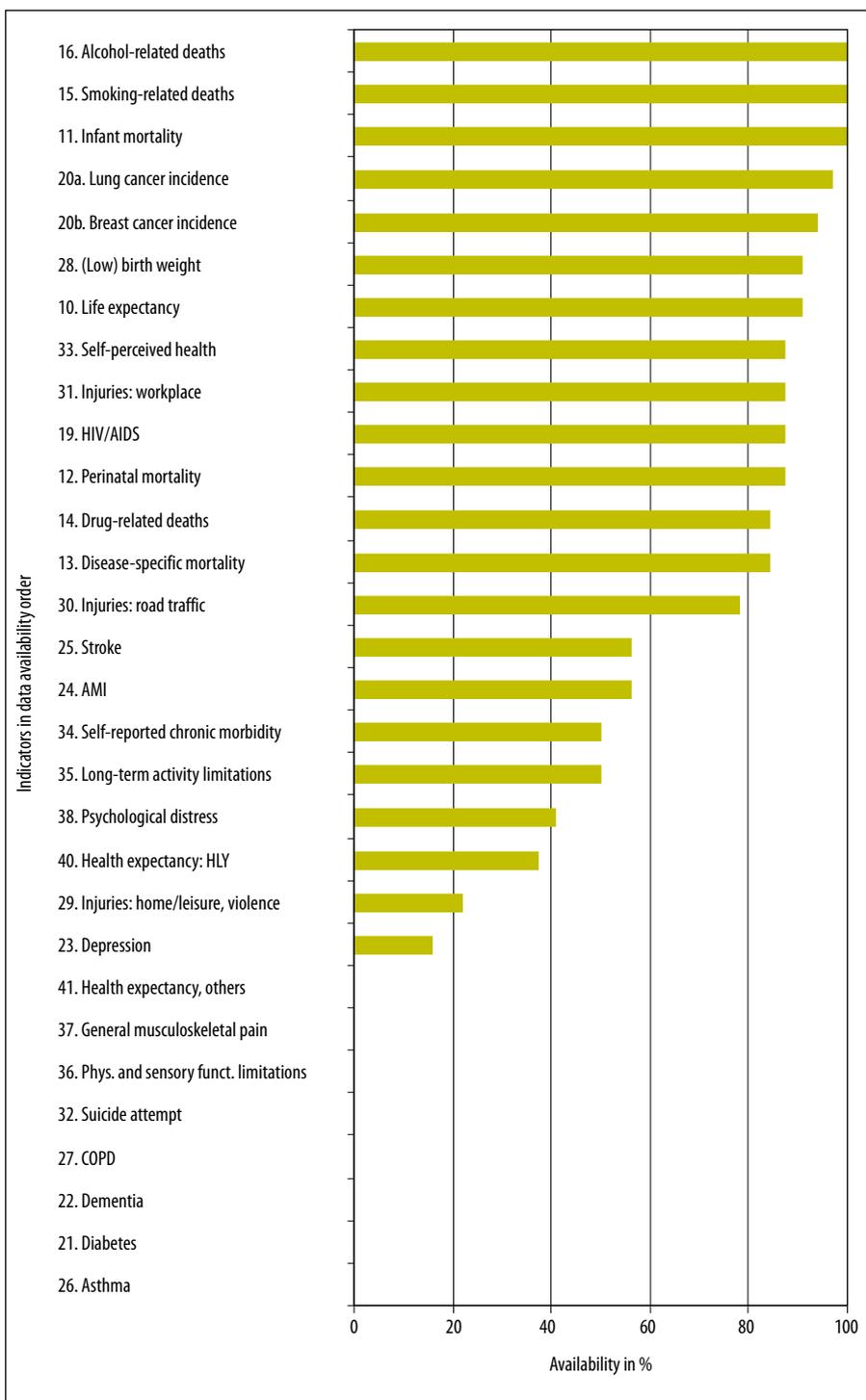
Figure 3. Availability of ECHI shortlist indicators in international data sources: Determinants of Health
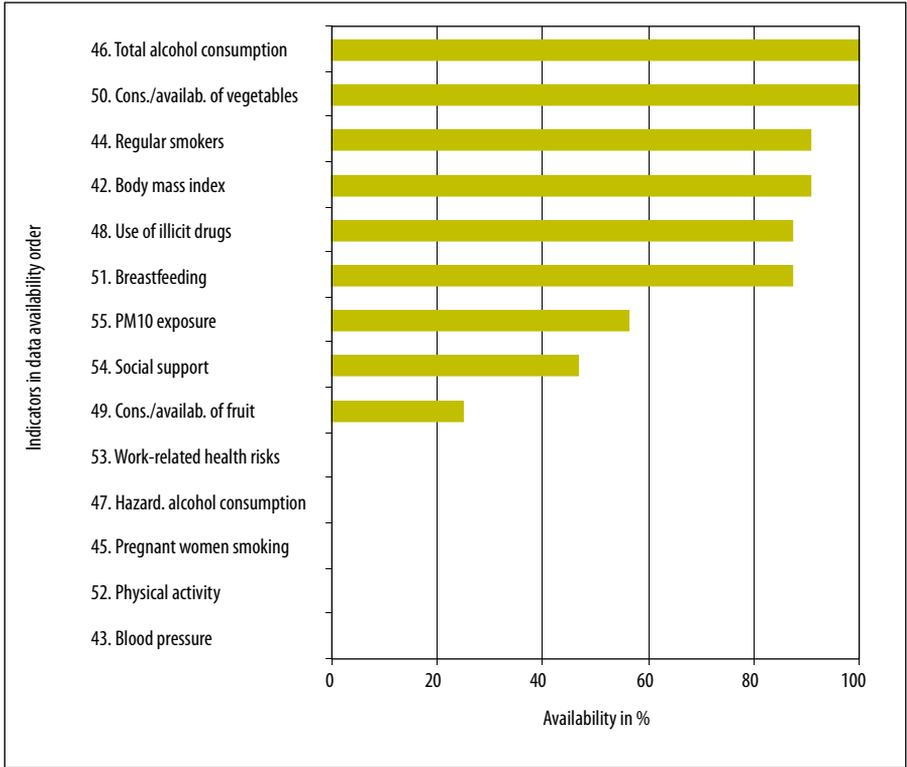
Figure 4. Availability of ECHI shortlist indicators in international data sources: Health services
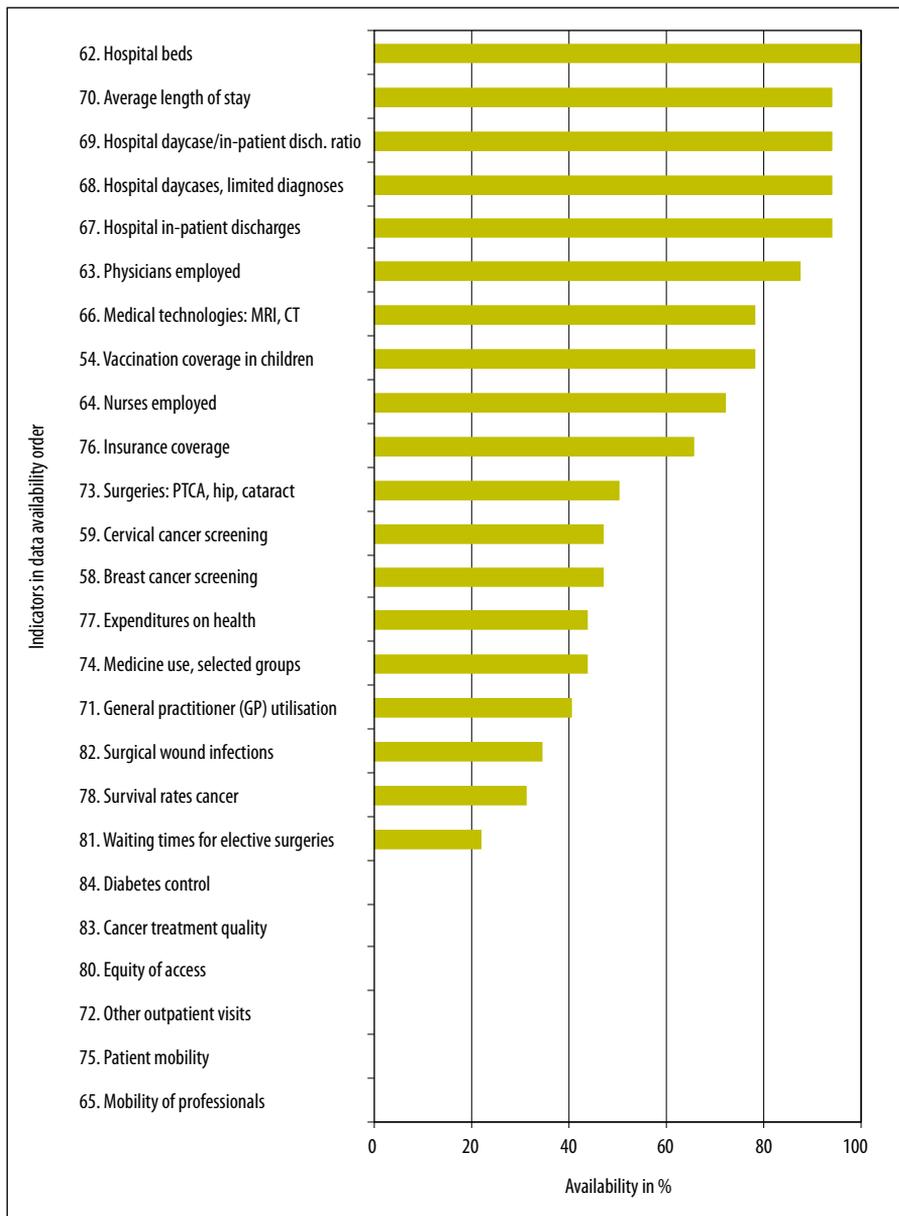
Figure 5. Availability of ECHI shortlist indicators in international data sources: Health promotion
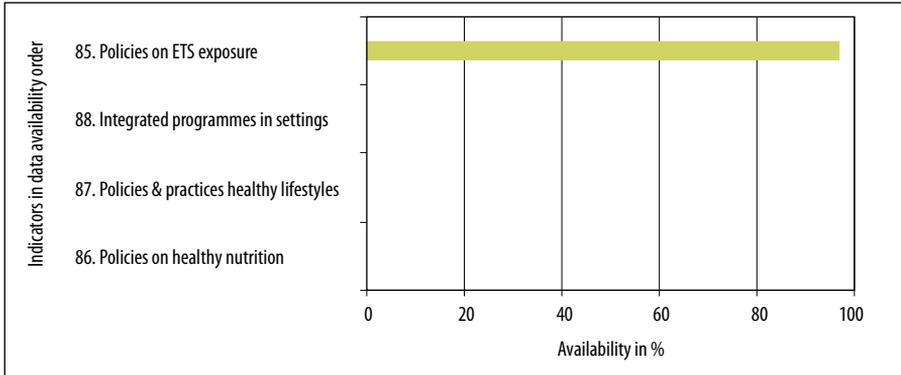
4.3. Needs for improving information systems and their comparability

In all countries the goal of a health information system is to gather policy relevant high quality health data and to make these data available to all who need them. On EU level a health information system must provide comparable health data and indicators from all Member States in order to support EU health policies.

Because of the variation in availability and comparability of health data in Europe, the first priority is to implement health data collections with sufficient comprehensiveness, coverage and comparability between countries. The ECHI shortlist is intended to provide an overview of health in all European countries. However, as ECHIM continues to progress, this is not all. The ECHI shortlist Documentation Sheets (Annex 2) should greatly help those who wish to implement the indicators, their sources and data collections. In fact, at the present stage ECHIM should provide excellent support for the implementation of indicators and other elements of the health information system.

However, at present also the ECHI indicators that are considered as available are a mixed collection of indicators based on data and calculations by a variety of organisations. A fundamental question that needs to be addressed is whether in the future EU indicators should be based on raw data delivered and calculated centrally, or whether they should be collected in indicator format.

Second, it is profoundly important to be able to gather valid health data by country and by socio-economic status and to turn these data into valid and comparable indicators. ECHIM together with other PHP projects provides support for creating suitable data sources and gathering data using breakdowns by socio-economic status.

Third, it is not enough to define data and indicator needs and background variables, but all the necessary needed data must be collected on a regular basis. The data needed for ECHI indicators are in part available from [common] register sources such as mortality and hospital discharge registers. The bulk of the data on health determinants and health status has to be collected by surveys. There are two major European efforts: Eurostat's EHIS (European Health Interview Survey) and DG SANCO's EHES (European Health Examination Survey). Both of these sources will also provide detailed health data by socio-economic status. EHIS is currently underway in several countries, and it is expected to have been carried out in most countries by 2010. After extensive preparatory work by the DG SANCO funded FEHES project, EHES is entering a pilot phase in 2009.

In each country, work to develop national health information system should be based on ECHIM recommendations. This implies that the system should be designed by national experts in such a way that its components enable the calculation of as many ECHI indicators as possible. Since the original data source is crucial to quality, all designs should take into account the need for specialised personnel and recurring training.

Fourth, each country needs a legal foundation for collecting and processing health data. It is recommended that this is modelled on relevant EU directives and legislation on health statistics and registers from countries with advanced health information systems. The need for a legal basis for the collection of public health data on the community level is discussed in Chapter 5.4.

The main point in gathering health data and in calculating indicators is that all these data is to be used by students, professionals, planners and policymakers both at Member States and at EU level. Also, the information need for Health in All Policies must be considered. Therefore, implementation of the indicators should lead directly to dissemination of the results in the form of printed publications (e.g. health reports) and in websites, in order to boost the use of this information by as many as possible, and as much and as widely as possible.

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5.   IMPLEMENTATION OF ECHI INDICATORS

5.1. The implementation process and tools

The first step in the process of implementing the ECHI indicators was to assess the current situation in EU Member States with regard to indicators and data. This involved, first, collecting and summarising the evidence already provided by all the main international sources of information such as Eurostat, the WHO, the OECD and the previous EU project reports prepared under the DG SANCO Public Health Programme. The results of this exercise were summarised in the Country Reports, which outline the availability of health indicator data by country in international databases, as described in Chapter 4.

The second step in the implementation process was to deepen the information gathered in the Country Reports by a survey covering all EU Member States, Candidate Countries and EFTA/EEA countries. It was deemed necessary to gather further information in order to be able to assess which additional health data and indicators not found in the international databases are available in each country at the moment and in the near future, from which sources the health information is derived, and to gain an overview of the health information and health reporting systems in each of the participating countries. This was done by the ECHIM Survey.

The specific topics dealt with in the ECHIM Survey were the availability of data for the ECHI shortlist indicators with regional subdivisions and other breakdowns as well as time series, possible new data sources and their accessibility and quality, organisations gathering data and institutes producing health statistics, further details of health information and health reporting systems, and future expectations. The respondents were also asked about their initial ideas of how to promote implementation of the ECHI indicator system in their countries.

The ECHIM Survey was addressed to the ECHIM contact persons in all 32 participating countries. The contact persons are public health specialists who mainly work for the responsible national authorities, usually public health authorities, regional public health authorities and statistical offices, and Ministries of Health. The contact persons were expected to reply to the survey based on their own understanding of the

health information situation in their country, but also strongly advised to consult other specialists of the topics before filling in the questionnaire.

Planning for the ECHIM Survey started in 2006 within the ECHIM Core Group. The survey was officially introduced at the third meeting of Working Party Indicators in December 2006. The Working Party members had the opportunity to dry run the survey questionnaire and comment on it. After various amendments, the survey was finally launched in January 2007 as an online web questionnaire. The Country Reports were attached to the survey to be commented on by the contact persons as well. Since the launch of the survey, the progress of the survey was regularly reported at both Working Party Indicators and ECHIM Core Group meetings. In addition, group discussions on speculative implementation solutions have been conducted at Working Party Indicators meetings.

The original deadline for replies was the end of February 2007. However, in most cases extensions were required. By the time of writing this report, responses were received from 30 out of 32 countries, i.e. all but Romania and Slovakia. The quality of the replies varied greatly; some were very general, others extremely detailed. The replies were received by the Helsinki secretariat at KTL, where they were modified to Excel format, stylised and evaluated in order to prepare for the next phase of the implementation process, i.e. the Bilateral Discussions with the contact persons.

When analysing the survey replies, it became even more apparent that some kind of face-to-face discussions would be very useful in order to deepen and clarify the information obtained through the Country Reports and the ECHIM Survey. Thus the third step of the implementation process, i.e. the Bilateral Discussions with the national contact persons, was started in May 2007, alongside the fourth meeting of Working Party Indicators. Bilateral Discussions were carried out with contact persons from 18 countries. From the remaining 12, the main points of the discussion were received by email.

The main objective of these Bilateral Discussions was first and foremost to sketch the outlines for the implementation process in each country together with the national contact persons. The discussion covered such topics as the overall health information situation, main problems, ongoing and expected improvements in data availability and possible implementation solutions. A major concern was with the evaluation of the data sources: best and worst covered areas of health data, quality of data, co-operation among data producing institutions, anticipated future, upcoming national health interview and health examination surveys, etc. The ECHIM Survey replies were also reviewed and completed when necessary. In some cases, the Country Reports were discussed as well.

In this chapter the ECHIM Survey results are examined on a general level. Detailed, country specific information is placed in the annexes. The concept of data availability – the main point of the survey – is somewhat speculative as a result of the varying quality of the survey replies and general definitions of the indicators. Data comparability was not assessed at this point. Moreover, the information is based on conceptions of a small number of people and does not represent any "official" national view. Therefore, all "positive" information on availability has been taken into account, i.e. cases where data are "partly available" or "expected in the near future" are counted in. Even in cases where data are simply "available", the sources can vary from electronic registers to rough estimates based on small samples, which means that the quality of the available data is variable in any case. These issues are reviewed in greater depth for individual countries in the annexes.

The first part of the ECHIM Survey (sections 1–5) concentrated on data availability of individual indicators under the topics "Health status", "Health determinants" and "Health care". Depending on the nature of the indicator, either prevalence or incidence data – or both – were asked for. For prevalence-only data indicators, the availability of time series was also inquired. For Health care indicators, the contact persons were asked to indicate whether the data can be broken down by age, sex/gender and/or socio-economic status. For Health determinants indicators, these breakdowns were not separately tracked, because they are mostly broken down in any case.

The ECHIM Survey focused mainly on those indicators for which there are no or only very little data in the international data sources. Therefore causes of death and demographic indicators, for instance, have been almost entirely excluded from the survey: data availability for these indicators is already well known. From this it follows that the list of indicators covered in the ECHIM Survey is different from the ECHI shortlist.

For indicators under the topic "Health status", both incidence and prevalence data availability were tracked. Some of the indicators can be based either on incidence or prevalence data, i.e. the data may originate from registers and records (incidence) or health information and/or health examination surveys (prevalence). Examples include several cardiovascular and respiratory diseases such as AMI, stroke, COPD and asthma. However, most indicators under this topic are based on one or the other, and mostly on prevalence data. In fact only data on (low) birth weight and drug-related deaths are clearly based on incidence. Still, for all indicators under this topic there were notes of availability both by incidence and prevalence.

Overall data availability was quite good for the aforementioned cardiovascular and respiratory diseases. Furthermore, data for diabetes, mental depression, HIV/AIDS and above all (low) birth weight were available for almost all countries. Availability was lowest for musculoskeletal disorders, such as neck disorder, osteoarthritis of lower limbs and low back disorder, and for health expectancy. However, it is worth pointing out that varying or vague definitions of some indicators have contributed to the availability information. This fact was pointed out by many of the respondents.

The following diagrams show the overall availability in the 30 European countries for each indicator and source. The results are not shown country-specifically but indicator-specifically, and in the case of the Data sources section source-specifically. The previously mentioned difficulties in defining data availability are also the reason why the results are shown in diagram format only, not in exact numbers.

Figure 6. Data availability for Health status indicators in Europe
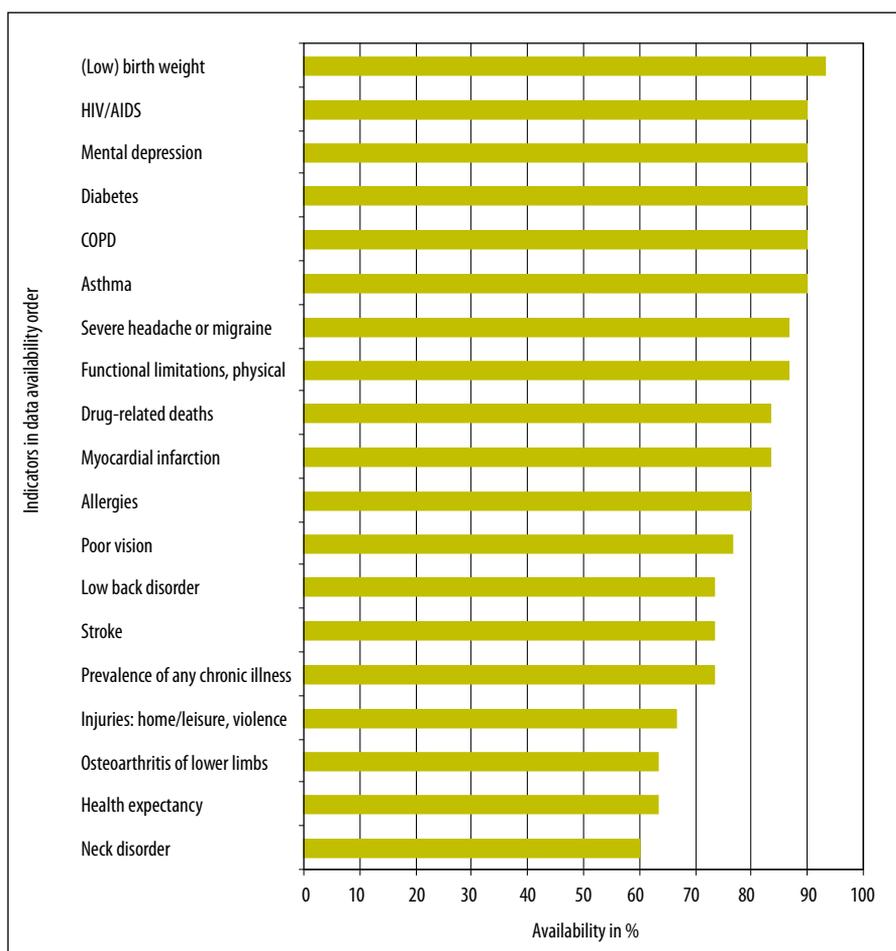
The Health determinants section included indicators for which data can only be gathered either by health interview or health examination surveys. The highest ranking indicators were body mass index, physical activity and smoking, for which data were said to be available in all countries. Almost total coverage was also seen for consumption of fruit/vegetables and blood pressure. The only indicators with poor availability were those that are based on blood samples. The obvious reason for this lies in the relative infrequency of health examination surveys, while health interview surveys are conducted regularly in most countries. This was tracked by asking the respondents to indicate whether time trends are available for indicator data.

Figure 7. Data availability for Health determinants indicators in Europe
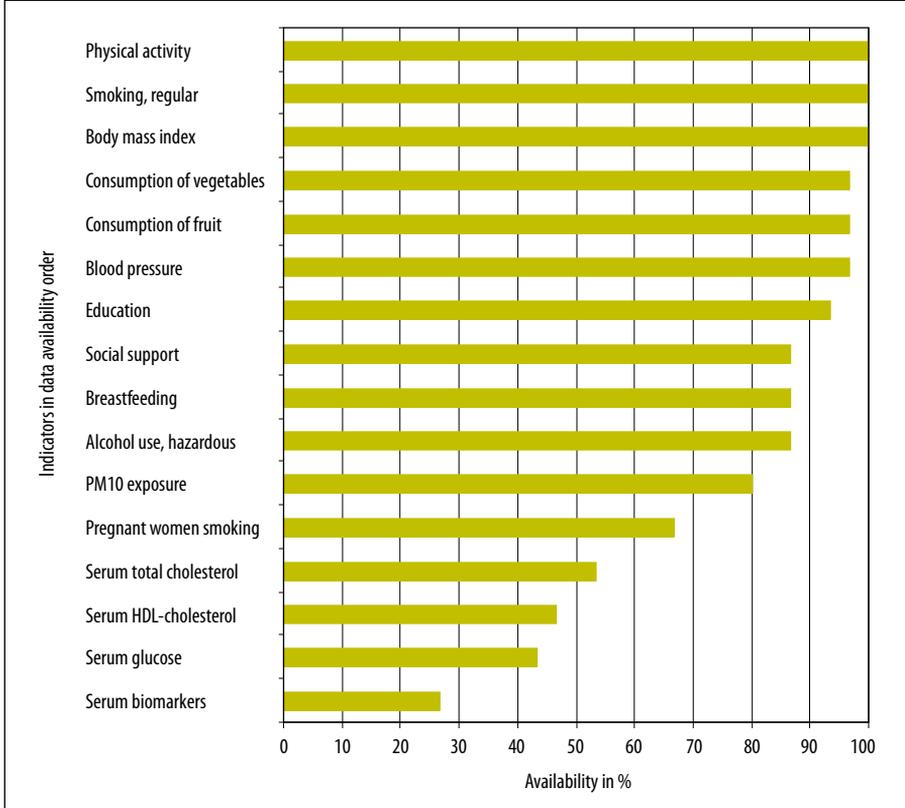
The Health care section indicators were based mainly on hospital data. In addition to overall availability, breakdowns by age, sex and socio-economic status were tracked for these indicators. Basic hospital data, i.e. average length of stay and causes of admissions/discharges were available in all countries. Day cases in hospitals, n and % of children vaccinated and surgeries (PTCA, hip, cataract) were also generally very well available. Availability was poorest for many control type indicators, such as screenings for PSA, cancer treatment quality and diabetes control. However, in this section in particular, it is noteworthy that insufficient indicator definitions in the ECHI shortlist of that time

had a significant influence on the availability information.

Most indicator data were also available with breakdowns by age and sex/gender. Data stratified by socio-economic status, on the other hand, were seldom available. Cancer screening indicators (mammography, cervical smears, PSA) based on health surveys were basically the only cases where data were available by socio-economic status in a number of countries.

Figure 8. Data availability for Health care indicators in Europe
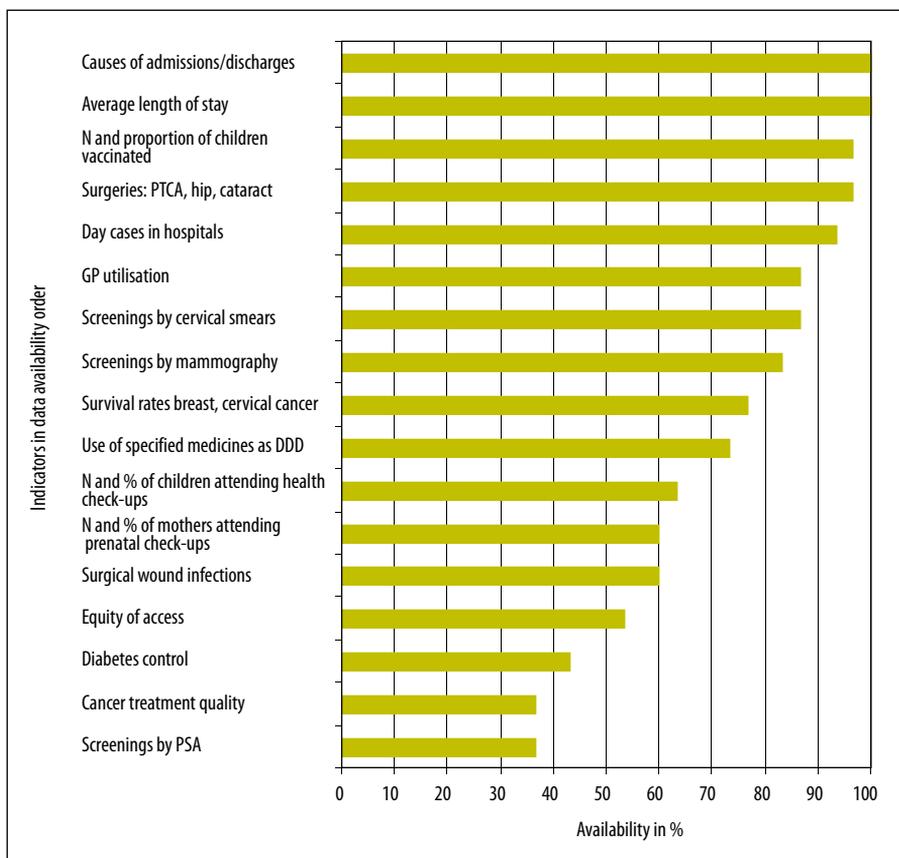
At the end of the first section of the ECHIM Survey there were a few very general questions about data gathering institutes, regional subdivisions of health care and data availability for these subdivisions. These themes were examined more closely in the next part of the survey, which concentrated on sources of different types of data, i.e. registers, records, databases and recently conducted health interview (HIS) and health examination surveys (HES). Attention was also paid to the anticipated changes in the present data sources, potential other data sources available now or in the near future, as well as to the possibility of linking records from various sources using the personal identification number.

Excluding vital statistics, there was no data source that existed in all countries. The most prevalent sources were HIS, hospital admission/discharge register and register on the use of prescription medicines. Although simply named "registers" in the questionnaire, other types of sources were also taken into account, such as e-health records. The most infrequent source was clearly HES, which was also clearly seen in the Health determinants section. Primary and ambulatory care registers and registers on accidents and injuries were not very frequent sources either, yet available in more than half of the countries.

Figure 9. Availability of data sources in Europe
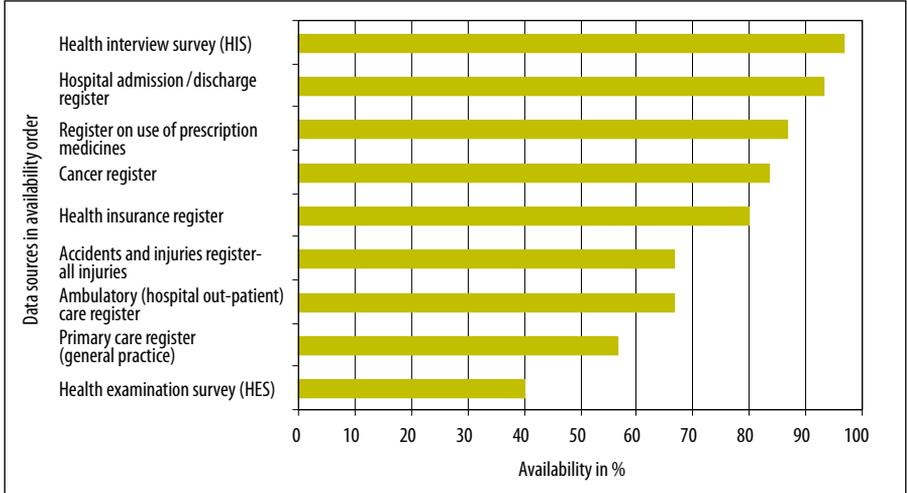
It was also asked if records could be linked from various national sources. In most cases this was possible, but in many countries data protection legislation, usually based on strict interpretation of the EU Directive on Data Protection (Directive 95/46/EC), presented serious obstacles to record linkage[7].

The third part was about data reporting. It was asked whether the countries have a national system for disseminating health data and whether they produced regular health reports in paper or online. The question concerned both general national health reports and topic specific reports.

Generally, all countries have a data reporting system, but the information received for this section varied greatly, from simple "yes" replies to extensive catalogues of publications and websites.

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[7]   Vershuuren M, Badeyan G, Carnicero J, Gissler M, Pace Asciak R, Sakkeus L, Stenbeck M, Devillé W: The European data protection legislation and its consequences for public health monitoring: a plea for action. European Journal of Public Health 2008. In press.

The last questions were about the respondents' initial ideas of implementing the ECHI system in their countries, and their suggestions or comments on the ECHI indicator list. These questions served as an introduction to the Bilateral Discussions, in which the same topics were considered more deeply. These issues are the focus of Chapter 5.4.

5.3. Comparing Country Reports and ECHIM Survey results

As far as indicator data were concerned, the purpose of the ECHIM Survey was to deepen the information provided by the Country Reports. The Country Reports simply reviewed the availability of national indicator data in international data sources. The ECHIM Survey examined the original national data sources. An important added value of the survey was that it revealed origins and clarified data quality for many indicators, for which metadata in the international data sources were sometimes quite vague. It was equally important to discover that much data are available nationally that are not available in international data sources.

In connection with replying to the ECHIM Survey, the contact persons were also asked to check the information of their Country Reports. In most cases the figures were correct, but some inaccuracies were also reported. These were isolated cases, though, and may be explained by typing errors when entering data in the databases. Also the use of different data calculation methods and different standard populations in age-standardisation may have had an impact on the figures.

When it comes to data quality, there were much more alarming cases where the information gained by the ECHIM Survey made the information in the Country Reports seem very questionable. According to the Country Report, one country was ranked high by data availability (data available for 79% of ECHI shortlist indicators). However, the ECHIM Survey and the related Bilateral Discussion revealed that there are in fact very little register data available in that country. Majority of the data are based on very rough estimates based on small, often unreliable samples.

Many of the contact persons pointed out that the necessary data would be available even though they were missing from the international databases. These cases were mainly breaks in time series, though. A more important issue is that for many ECHI shortlist indicators, there are no datasets in the databases of Eurostat, WHO or OECD. This cannot always be explained by data availability, since for some of these indicators the data would be available at country level in almost all the surveyed countries. Clear examples include asthma, high blood pressure and social support. A feature shared in common by all these indicators is that there is a wide variety of optional acceptable definitions, a fact that may have halted their implementation in the databases.

5.4. Initial experiences at the start of the implementation process

The main focus in the Bilateral Discussions with the contact persons was on the implementation of the ECHI Indicators. In the group discussions at the Working Party Indicators meetings, in the replies to the ECHIM Survey and in the Bilateral Discussions with the contact persons, the following issues and themes emerged with regard to the means for promoting the use of ECHI shortlist indicators and possible obstacles to implementation on country level. In this chapter these issues are discussed on a general level. Detailed country information is compiled in Annex 4 under the heading Country Specific Section.

a) Support for and obstacles to the implementation of ECHI Indicators

Implementation was seen as relatively straightforward in countries where one organisation is in charge of health information. More complex situations require special handling. Intersectoral co-operation (e.g. across ministries, government departments, national and regional public health and social sector bodies and institutes) should be strengthened in these situations. It is also necessary to set up a structured and sustainable flow of work and data from the data providing units to the health monitoring and health reporting units, taking account of European requirements. Both of these would contribute to more consistent and valid national health reporting.

Some contact persons felt that it would be necessary to introduce national legislation to strengthen the national health monitoring unit or equivalent body and to kick-start the implementation process. In some countries it is likely that implementation will be delayed by ongoing or recent restructuring of national health and social care services or amendments to national legislation (related to health, data collection, etc.). In many countries it is likely that the process will be hindered by complex administration and strict data protection legislation. Data collection often requires additional resources and organisational structures that in many cases are not readily available.

In many countries EU level regulation or legislation on public health statistics and indicators was considered more important to implementing the ECHI shortlist in practice than a push from the national level only. Others felt that Eurostat regulation on public health statistics will not be strong enough. Some felt that the only way to implement new data collections or to improve existing ones is through mandatory EU regulation. Without this regulation, implementation will not be successful. It is unlikely, though, that any regulations will be put forward for the Member States to implement the ECHI shortlist. A more likely solution is based on "open method of co-ordination (OMC)", with DG SANCO requesting Member States to implement the ECHI shortlist and expecting them to provide the requested information based on a "gentleman's agreement".

Before the implementation process can get underway, projects and more support (know-how, monetary) from the EU and Eurostat will be needed in countries planning to implement and develop e.g. AMI/stroke registers, cancer registers, registers for health care services and quality assurance programmes (e.g. on causes of death registers). The amount of resources needed depends largely on the health monitoring systems currently in place in the country. Furthermore, projects will be needed to look into ways of harmonising national practices and methodologies so that valid and comparable data for ECHI indicators can be calculated, whilst ensuring that national trends are not lost. It would also be beneficial for several countries to obtain organisational examples to help them improve their health monitoring systems.

In order to get harmonised indicators and data sharing, increased co-ordination especially between international organisations (Eurostat, DG Sanco, the OECD and the WHO) was hoped for. Closer co-operation was also needed in order to further standardise the data definitions and data collection. And they could also be more active and rigorous with the data they receive from the countries and point out the problems. For the most problematic areas of health data, EU projects should be initiated to "fill the gaps". New data collections to get data for ECHI indicators should only be set up where data are not already available via international organisations.

There is a need to invest in long-term data collection in all countries. It is important to emphasise that the ECHI indicators are also useful for national health monitoring and health reporting purposes, complementing national indicators. They are not just additional indicators but work on top of the national indicators. National time series are important, but internationally comparable time series can be equally important. ECHI indicators can also provide inspiration for country discussions on data availability, reliability and comparability as well as give new ideas of which indicators to be used in health monitoring and reporting. One way to promote the ECHI shortlist is to try hard to get these indicators included in different national public health strategies as tools that can be used in monitoring policy measures and comparing the results with other EU countries that have introduced similar policy measures.

The possibility to compare national data with other Member States or the EU average would certainly add to the attractiveness of implementation as far as the political actors are concerned. First of all, to encourage efforts to make some indicators and data available in cases where in one's own country data are lacking but in other countries they are available. A second motivation might be to see whether one's own country is doing better or worse than other countries. From this point of view it is important to have easy access to these indicators through the Internet. This will require a well-designed and user-friendly website that presents the ECHI indicators to all Member States and that allows for comparisons with one or several countries or for the selection of all EU countries.

b) Dissemination of knowledge about ECHI and the use of ECHI indicators

The ECHI frame and associated indicators provide a common conceptual structure for public health information both at EU and country level. This means that one of the best ways of promoting the use of the ECHI shortlist indicators is through their integration into national health information systems and to ensure that they are accessible via this system. People seeking comparable health indicators for Europe should be able to easily access ECHI indicators via their national health information portals and websites. In other words, Member States should benefit from indicators based on their own data and on European level indicators. This will require a permanent structure for analysis, interpretation, reporting and dissemination at EU level.

The DG SANCO data display software that is currently being developed to house ECHI data will need to be quick and easy to use. The data will need to be as complete, reliable and as up-to-date as possible. The provision of time series whenever possible would also help to promote the use of the indicators for policy purposes since it is often necessary to monitor trends and to set targets. Careful planning and assessment is therefore needed to find the best way in which to disseminate the ECHI indicators via the DG SANCO website. The end product should be a quick, reliable and user-friendly website or portal. It is essential to work closely with Eurostat, and in relation to Eurostat actions, to build up a sustainable system on how to regularly retrieve data from Eurostat database and update the data for ECHI indicators. One example of such an effort is provided by the EUPHIX website (see Chapter 3.1.)

c) Main prerequisites for implementation

One of the conclusions reached in practically all of the discussions was that successful implementation will require political support from the highest level in government and ministries. However, all the participants were confident that it is possible to create an implementation plan in their countries, provided that a functioning network can be established for implementation.

It was stressed that it is essential to know what kind of EU-level health information system will be in place in the future to ensure the continuity of EU level data collection and dissemination. The stability and sustainability of the system was also stressed: revisions and amendments to the ECHI shortlist should not be made too often. EU funding for Member States would greatly facilitate implementation. Another common theme raised in the discussions was the need for more detailed descriptions of operational definition, calculation, recommended data sources and detailed guidelines (i.e. Documentation Sheets: Chapter 3.6., Annex 2). It is expected that steps are taken to improve harmonisation and the quality of the current shortlist indicators.

The importance of national contact persons in various data collecting institutions cannot be overestimated. They and their contacts are the best experts on the situation in their respective countries. It is essential that all national contact persons are fully committed to implementation. First of all it is necessary to decide which institute or other structure will be principally responsible for implementation, then to build the implementation team and coordinate the actions. Support for the contact persons and their effort is therefore essential.

A concerted effort is also needed to persuade the decision-makers of the advantages of implementing ECHI. The sharing of practical experiences in different countries from implementing the ECHI indicators will certainly prove useful. The same goes for experiences from previous processes of implementing Eurostat indicators.

5.5. Outcome of implementation by 2008

The process of implementation has been started within the ECHIM project by establishing some key core structures. First of all, the availability of health data has been assessed in the participating countries, and by now there is a reasonably clear picture of national preparedness for implementation. Second, good progress has been made with the development of the ECHI shortlist and related documentation: the shortlist is now ready for use. Third, a network of contact persons covering almost all of the 32 EU Member States, Candidate Countries and EFTA/EEA countries participating in ECHIM has been established. All of them eagerly wait for implementation to continue.

The availability of health data was first tracked by the Country Reports, and the information was deepened in the ECHIM Survey. National data sources, their quality and prospects, as well as potential future data sources have also been reviewed. An even deeper level of understanding was reached through Bilateral Discussions focusing on the national potential to implement the ECHI shortlist indicators. However, much better understanding is still needed for comparative and trend analyses.

The revised ECHI shortlist with specifications is the prerequisite for full-scale national implementation. Once the indicators and their definitions had been finalised, they were entered in a database on the ECHIM Products website. The list is available on that website and ready to be taken into use throughout Europe.

At the start of ECHIM, a network of contact persons was created to ensure that the views and needs of the Member States would be taken into account. The project established excellent rapport with each of these contact persons and the members of Working Party Indicators. However, based on the Bilateral Discussions, it was deemed advantageous to have a more permanent and more "official" network for the next stages of the

implementation process. There was also an expressed need for more guidance, funding, recommendations, and even regulations by the Commission and DG SANCO.

No doubt partly because of the "unofficial" nature of the network of contact persons, no reply was received to the ECHIM Survey from one country. A reply from one other country was received too late to include its information in this report. Consequently no Bilateral Discussions were conducted with the contact persons of these countries. In the next phase, extra attention must be paid to establishing and maintaining contacts with these two countries.

The ECHIM actions (development of the ECHI shortlist and the Documentation Sheets, the building of the network of contact persons and the outcomes of the Country Reports, ECHIM Survey and the Bilateral Discussions) have laid a solid foundation for the country specific implementation plans. The plans drafted by the national teams under the supervision of the contact persons will be revised and further developed in the next phase of the implementation process. The implementation plan will comprise a work plan describing the implementation process as a whole. It will also incorporate a prioritised list of data and indicators, and for each of them a full outline of how and by whom the national system should be developed. Nevertheless, as anticipated, many more discussions will be needed in order to initiate and complete the national implementation process in practice.

The initial findings of the Country Reports, ECHIM Survey and Bilateral Discussions are compiled in Annex 4 of this report under the name Country Specific Section. For 29 countries from which the requested information was received, the core points are listed in standardised form: indicator data availability, situation of data sources, possibility of record linkage, health reporting, main problems, expected improvements and finally the possible solutions for implementation of the ECHI indicator system. The contact persons have also rated their countries in terms of implementation preparedness. The key figures and words are condensed in an "Info Box" for every country, providing an easily accessible overview and comparison between different countries. The Country Specific Section is intended to provide the starting point for practical implementation work.

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6. NEXT STAGES IN THE DEVELOPMENT AND IMPLEMENTATION OF HEALTH INDICATORS AND THEIR DATA SOURCES

6.1. Indicator development

Work to improve the health information and knowledge system and to improve the validity, relevance and comparability of health information from different Member States is continuous process. The maintenance of ECHI indicators and their full and high quality implementation in all Member States will require added efforts at least until 2018. During the last few years (2005–2008) these efforts have intensified with the establishment of Working Party Indicators and ECHIM. According to the European Union Health Strategy 2008–2013 (launched on 23rd of October 2007), there is a need to continue the development of the ECHIM system and to continue work on health indicators. The Health Strategy says that the European Commission should adopt a system of comparable, harmonised health indicators, and co-operate with the Member States. The work undertaken so far by Working Party Indicators has been extremely important and well appreciated by the European Commission. ECHIM is a key programme that brings forward the process of developing and implementing health indicators at the European level.

In general, Member States feel that the ECHI shortlist should be kept short and stable. However, it is also necessary to react to changing policy and public health needs. The need for updating is also evident with respect to the Documentation Sheets. Therefore one of the tasks for the future is to reconsider at regular intervals the need for updates on the basis of contacts with users, Member States' experts, the Commission, WHO, OECD, proposals coming from EU funded projects and from the scientific community at large. The process developed during ECHIM should prove useful when deciding about additions and deletions to the shortlist.

6.2. The future of ECHIM

ECHIM (2005–2008) initiated but could not yet complete all the necessary actions. Therefore, the future work of ECHIM and Working Party Indicators is expected to be funded through a new funding mechanism of DG SANCO in 2009–2011, the "Joint Action for ECHIM". It is envisaged that much of the work will be carried out over the next three years, but much more will still remain to be done later.

Summary of Joint Action for ECHIM

GENERAL OBJECTIVES: 1) To implement ECHI indicators in all Member States; 2) To improve, document and maintain ECHI indicators; 3) To maintain a network of national health indicator experts for ECHI indicators and their collection.

STRATEGIC RELEVANCE & CONTRIBUTION TO THE PROGRAMME: Joint Action for ECHIM will implement the core tasks of the Health Programme and its Work Plan 2008 (point 3.4.1.2.). It is the backbone for the whole Health Information and Knowledge System and for the implementation of comparable health indicators in Member States and at EU level. It will result in comprehensive and comparable information on health in all Member States. Without its efforts the EU would continue to have very uneven data on health in different Member States, without any comparability.

METHODS AND MEANS: Work will be divided between several R&D Centres under the coordination of the Finnish National Institute for Health and Welfare (THL; merged KTL and STAKES since 2009) and under the supervision of the ECHIM Core Group. The R&D work and the Bilateral Discussions with Member State experts will result in country specific implementation plans guiding the work of national experts and key persons in Member State administrations. The existing international network of health indicator experts will support both the development and implementation of indicators in all countries.

PARTNERS: a) Coordinator: THL, b) Associated partners: ISS (Italy), LIGA. NRW (Germany), LSIC (Lithuania), RIVM (the Netherlands), RKI (Germany), c) Collaborating Partners: Belgium, Czech Republic, Estonia, Greece, Ireland, Slovenia, Spain, Sweden, United Kingdom, d) Other Member States involved: Bulgaria, Cyprus, Denmark, France, Hungary, Latvia, Luxembourg, Malta, Poland, Portugal, + Iceland, Norway, Republic of Moldova.

EXPECTED OUTCOMES: 1) New releases of the ECHI shortlist at 2–3 year intervals; 2) A formal method to evaluate and update the ECHI shortlist; 3) Country specific guidelines for ECHI shortlist indicator implementation; 4) An ongoing process for implementing health indicators to be installed in most Member States; 5) Enhanced data and methods for analysing and presenting comparable health indicators in Europe; 6) The first joint analyses and reports on data based on ECHI shortlist indicators; 7) A website containing all relevant information on ECHI indicators; 8) An electronic data reporting system for health indicators; 9) Interim ECHIM report on health indicators and their implementation; 10) A plan for permanent EU health monitoring.

As stated in the summary of this report, the foremost task is to implement indicators in all EU Member States. Whilst this sounds straightforward, it will require reshaping or creating many data sources, which is a much greater effort.

At present, the most important task is to establish a balanced system of data and indicators for all countries. The most sensible framework for this system is provided by the indicators of the extended ECHI shortlist. In due course Joint Action for ECHIM and the processes initiated by it are expected to result in comparable health information in all Member States and in the EU, and a well managed system for improvements, maintenance, analyses, reports and dissemination. The first demonstration of what can be achieved will be a descriptive report based on the newly established indicators.

6.3. Interaction with Member States and their experts

Joint Action for ECHIM is going to work together with national and regional experts of the Member States in order to support their efforts to develop data sources and to implement health indicators. The project's experts will provide support and help national experts draw up plans for implementation. International data sources and the ECHIM Survey are going to be supplemented in collaboration with Member States, DG SANCO and Eurostat. In fact, the key for success lies in national implementation plans drawn up by Member States experts in conjunction with ECHIM experts and implemented by the national experts. Joint Action for ECHIM will work closely with the above to design the pilot data flow and to make suggestions for the operation of the whole health information and knowledge system.

The project will employ modern means of communication to support the implementation and development effort at EU level and in Member States. The main target groups are administrations in the EU and in the Member States, specifically the health, public health and statistical authorities, health professionals, and policymakers. Most pragmatically, the project will work together with the EU and Member States during the introduction of the concepts in Member States and at various stages of implementation. This will also be done by meetings with key officials. DG SANCO and Eurostat experts are going to be asked to join the discussions with Member States when needed. Other discussions and training sessions with Member States are a central part of the implementation process.

Indicators, their sources and definitions (Documentation Sheets) will be refined in collaboration with the Working Parties and projects under the Public Health Programme, with DG SANCO, Eurostat, WHO Regional Office for Europe and OECD. Input from Member States during the negotiations is important. All results should be made available on the ECHIM Products website, which houses indicators and metadata, and should be integrated with the EU Health Portal. Expert advice on the implementation of health

indicators and the development of data sources must be provided to Member States. It is expected that the research and development work and the discussions will result in country specific implementation plans providing guidance to the work in Member States. Implementation will be supported by Joint Action for ECHIM affiliated experts in all EU countries. In each country the responsibility for implementation proper lies with national key persons.

The need for regional implementation in many Member States must be taken into account by the project's regional experts and in the guidelines for the use of indicators in regions (ISARE project).

6.4. Developing the data flow and gathering of new indicators

To obtain practical results it is essential to reshape or create data sources in each Member State, to retrieve the data, to create indicators and to transfer them to a central repository. As long as there exists no EU-wide agreement and health monitoring system, these processes must be simulated. Joint Action for ECHIM must take on the necessary tasks in order to test the data and their sources as well as the transfer, analysis and dissemination system. Therefore as part of the implementation and development process the major tasks ahead are 1) to design the data flow (gathering, quality assurance, storage, analysis and dissemination) from Member States to a central health monitoring capacity, 2) to take into account existing arrangements in Member States, in EU bodies (Eurostat and other DGs, European institutes, such as ECDC) and other international organisations (OECD, WHO), 3) to carry out pilot tests of data flow with several Member States, 4) to persuade and support Member States in applying the proposed design, binding central EU activities with those in the Member States, 5) to retrieve the first newly implemented indicators, 6) to present a tabulation and conclusions based on that tabulation and 7) to continue to participate in the development and implementation of indicators. The plan for the design of the data flow will be discussed in particular with DG SANCO, Eurostat, the WHO Regional Office for Europe and the R&D unit at THL. The plan includes setting up a temporary server for testing the data flow, if necessary. This server will be used to gather data from as many Member States as possible, to enable quality assessments and, finally, to tabulate, analyse and publish the information on current and new indicators. This work will result in a first extended Health Report for Europe.

The development phase, including data transfer and dissemination, must be kept as streamlined as possible and remain in the control of the Joint Action, including the Member States. Therefore, the Commission, i.e. DG SANCO and Eurostat, will collaborate with Joint Action for ECHIM but will not be directly involved in administering and running the development work. However, it is necessary to maintain close collaboration with them. In the long run it is intended that a permanent EU

structure will assume responsibility for practical work in developing and maintaining health information. The organisational solutions depend on future resources and developments in the field. In the future Eurostat may become increasingly involved in indicator development, in the maintenance of several health statistics and in gathering and tabulating new indicators. However, in view of the Health Policy and Public Health skills needed, it seems essential that both DG SANCO and a possible EU Capacity for Health Monitoring will be responsible for much of the work. In particular, the identification of the need for new indicators, finding solutions for their collection, as well as analysing, interpreting and disseminating the findings will clearly require specialised personnel qualified in public health. This reasoning stresses the need to assess the need to establish a Health Monitoring Centre either as a separate new EU agency or within an existing agency.

As stated above, it is expected that the need to improve and develop indicators and the Health Information and Knowledge System will remain for many years to come. During its three years ECHIM was only able to initiate the ECHI shortlist implementation work across Europe. The only logical way to carry on with this work, as long as there exists no health monitoring capacity, is through the Joint Action for ECHIM. Later on, the continued role for the Joint Action as a partner will be to scrutinise the validity and policy relevance of the indicators, helping to improve and implement the indicator set, and identifying new areas for development.

6.5. Analysis of health in Europe based on old and new indicators

The first empirical demonstration of the utility of the European health indicator system will be a comparative analysis of health and its determinants between as many countries as progress permits.

Until now, European health reports have been based mainly on mortality data. Due to the central role of health determinants in public health and health policy, Joint Action for ECHIM expects to put into place other indicators such as those describing functional capacity, several symptoms and non-lethal disease conditions and their medicinal treatment, as well as risk factors of major diseases. This expectation can only be fulfilled if some interview based and some health examination based comparable information becomes available. As EHIS (European Health Interview Survey) is only partly implemented today and EHES (European Health Examination Survey) is still in its pilot phase, it is likely that a major part of the new data and indicators will become available by 2010 or 2011. This timing suggests that the Joint Action must be continued for several years until implementation and analysis mature.

Nevertheless, the intention is to demonstrate how much the new data add to the current mortality data by gathering as much of that data as possible and by performing a new comparative analysis. The aim is to analyse current and new indicators in several countries to show possible similarities and divergences. Also, the analysis is expected to demonstrate the usefulness, health policy wise, of having data and comparisons on both determinants and outcomes. This is not a new concept since similar approaches have been successfully applied in the Northern countries and elsewhere with regard to various public health problems, such as cardiovascular diseases.

The utility of national health reports (published since the early 1990s) has been demonstrated in more than ten European countries, and the benefits of international comparisons have been demonstrated by the WHO Regional Office for Europe since the 1980s. In fact, the purpose of the Joint Action is to provide the EU and all its Member States with up-to-date health information enabling evidence based health policies.

7. CONCLUSIONS

This final report of the first three years of ECHIM first describes its actions and then outlines the future Joint Action for ECHIM.

Public health policy can only be evidence based if it has access to data, indicators and information on health and its determinants. In the EU context a further prerequisite is that information from different Member States can be compared.

The major tasks of ECHIM were carried out successfully. A new release of the **ECHI shortlist** with 88 health indicators will be initially implemented in all Member States during the Joint Action for ECHIM. The **Documentation Sheets** which contain definitions, calculations, availability info and other metadata for all the shortlist indicators are available on the ECHIM website. The **Country Reports** helped ECHIM to identify data availability, gaps, relevant sources and their differences in EU Member States. These reports were the basis for the analysis of comparability of the ECHI shortlist indicators. The **ECHIM Survey** gained national level information about the availability and providers of health data that could not be derived from the Country Reports. The information was deepened in **Bilateral Discussions** with the contact persons. These discussions will be continued in the Joint Action for ECHIM. The information gathered by the Country Reports, ECHIM Survey and Bilateral Discussions is summed up in the **Country Specific Section** (Annex 4), which aims to provide a clear overview of the situation in each country and serves as a starting point for future implementation plans. In all its work ECHIM maintained close contact with Member States, DG SANCO, Eurostat, OECD, and the WHO Regional Office for Europe as well as the Working Parties and numerous experts.

The European Health Interview Survey (EHIS) initiated by Eurostat will be an important and powerful data source for ECHI indicators. Therefore it is important that its contents are valid and relevant. EHIS will be carried out in the Member States as part of the national health interview surveys. The majority of Member States are planning to carry out EHIS by 2009. DG SANCO-Eurostat Steering Committee is in charge of coordinating also EHIS development.

7.1. Current state in Europe

Health information systems and, by the same token, the availability of data and indicators differ widely between EU countries.

These differences reflect different historical developments and also some differences in current perceived needs for information.

In several countries health information systems are quite advanced and it will be relatively easy to implement the health indicator system. In a number of other countries, more work will be needed.

Another determining factor is the extent of regionalisation in national administrations and health care systems. In strongly regional structures, health information varies from one region to the next.

The influence of history is reflected in many systems having access to and providing to international databases mainly data on demography, mortality and causes of deaths.

Because of the long history of infectious disease surveillance and control and the existence of a European institution (ECDC), information on communicable diseases and vaccinations is also widely available.

However, although all the current data and indicators may continue to be necessary in the future, the real needs of current public health policy call for a much broader complementary information basis.

7.2. Availability and comparability

Many efforts in the area of health reporting have shown that truly comparable data and indicators between EU countries are rare. This remains the case even though most EU countries carry out Health Interview Surveys. Some comparisons can be made on such aspects as smoking habits, obesity, self-reported diseases and use of medicines, or on some diagnoses drawn from health care utilisation data, but only in analyses limited to a few selected countries. However, comparisons cannot be done between all the EU countries or between a wider range of health-related issues. In the future, EHIS may help to improve the situation.

Health policy actions need to be grounded in information on, for instance, risk and protective factors of major public health problems, on functioning and on care needs in different countries and over time. Examples of risk factors include hypertension and

hyperlipidemia as well as behavioural factors. Some of the necessary data can only be drawn from the national health examination surveys, which are now under development. Although there are examples of using special studies for such comparisons (e.g. the WHO MONICA study and possibly EHES in the future), so far these only concern a few countries. In the long run EHES may improve this situation.

A complete information system should use data and indicators on mortality, morbidity (registers and self-reported data), risk and protective factors, functioning, consequences of ill health and also forecasts. Furthermore, it should comprise information on the need for and use of services, treatment and rehabilitation, as well as on the characteristics of services and their quality. In all the above cases it should be possible to obtain breakdowns by age, sex/gender, region and socio-economic status.

The health information system should also produce easily retrievable health data and indicators as well as interpretations of the comparisons and developments over time. In fact, once the foundations of the system are in place, the first priority is to be able to serve all those in need of health indicators and health information.

8.   RECOMMENDATIONS

1)   Modern health policy requires a high quality health information system that comprises valid data as well as mechanisms for processing and interpreting those data.

2)   In most EU Member States it is necessary to expand existing health information systems so that they cover the necessary information. At the same time, steps are needed to ensure their quality and comparability. In some countries there is need for only minor modifications, but in others for quite substantial.

3)   The process of creating a comprehensive health information system is going to take a long time to complete, as has been made clear by the development of the ECHI indicator system, which was initiated in 1998. The system also requires continued maintenance to maintain the relevance and the stability of the structure over the years to come.

4)   The structure for implementing and maintaining the European health information system must involve central EU expertise mainly from Eurostat and DG SANCO, and international expertise from the WHO and the OECD. Most importantly, all the participating countries must be represented by one or several national experts.

5)   The main duties of the structure for implementing and maintaining the European health information system are best summarised by the proposal for Joint Action for ECHIM, which foresees the following main tasks for the next three years (2009–2011): development of indicators, improving the Documentation Sheets, helping countries to improve their data sources (EHIS and EHES) and indicators, and implementing all ECHI shortlist indicators, if possible.

6)   Indicator development comprises both the inclusion of new indicators and the deletion of some older indicators. Some new indicators need to be added to the present ECHI system in order to improve its coverage. Examples can be found in the areas of health promotion, treatment needs, quality of care, environmental health, as well as new protective and risk factors.

7) When a suitable set of data and indicators can be compiled in a large number of countries, the next step is to plan and implement a temporary system for data and indicator gathering from a number of countries, processing, analysis and interpretation to simulate and test the core functions of the future EU information system.

8) It is important to accept that the ECHIM structure will continue to have important functions in the longer term as well, since the full implementation of the information system will not be an easy task. This applies above all to the development of indicators, contacts with the Member States and analysis and interpretation of the findings.

9) There is a great need for continuity in the development and implementation of a health information system. New ways of funding and contracting must be used to allow for much longer term work and better funding than the current projects and actions under the Public Health Programme.

10) In the long term it is clear that a permanent arrangement must be made concerning the tasks of the ECHIM structure. Once the maintenance phase gets underway some tasks may be transferred to Eurostat, and a permanent health monitoring capacity should take on the majority of the work. Nevertheless, many of the current tasks will need to be carried out on a working group basis in the future, too. Examples are provided by the development and maintenance of the indicator set, part of the expert help needed by Member States, analysis and reporting of the findings, and the system for liaison between various organisations and the Member States.

ANNEXES

ANNEX 1: A new release of the ECHI shortlist (June 2008)

The new ECHI shortlist contains 88 indicators which are numbered in the same order as in the Documentation Sheets (Annex 2). This version also shows the new additions and a few major changes in relation to the 2005 version. As explained in Chapter 3, these include:

- The former three sections (ECHI shortlist version 2005) were condensed to only two sections (see below)
- The list given here highlights the additions and a few major changes in the context of the entire 2005 shortlist. Those are explained separately below the shortlist.
- The additions and changes were generated in the 2006–2008 discussion rounds in the ECHIM Core Group, the Working Party Indicators and other groups.
- For the existing and new shortlist indicators, all specifications are given in the Documentation Sheets in an extended and improved manner.

In the 2005 version of the shortlist, a distinction was made between three different degrees of data availability. "Section 1: For these indicators, data are readily available and reasonably comparable, mostly based on assessment by Eurostat. Section 2: For these indicators or topics, data are partly available and/or sizeable comparability problems exist, mostly based on assessment by Eurostat. Section 3: For these indicators or topics, data are not available and there is need for development".

In the 2008 version, the former Sections 1 and 2 have been merged into the "Section for implementation". The reasons were that there is a more or less continuous gradient from "perfectly available" to "large data problems", and that for some items in the former section 2 there has been notable improvements. The former section 3 remains as the "Section for development". At the same time, some items in the former section 2 for which not much progress was seen concerning indicator definition or data availability, were moved to the development section. The full descriptions of the new two sections are:

- Section 1: List for implementation on the short or medium term. Definitions are sufficiently clear, data are more or less readily and regularly available and reasonably comparable, in many cases harmonisation can still be improved.
- Section 2: Development section. High policy relevance, limited availability or poor indicator definition

The following table presents the ECHI shortlist release of June 2008 with additions and major changes highlighted. In the column "Section", only indicators that fall to section 2 are indicated by "2". All others fall to section 1. In the column "Notes", indicators added in 2008 are indicated by "A", indicators that have undergone significant changes are indicated by "C" and indicators moved to other section are indicated by "M". The additions and changes are clarified in a separate table below the shortlist.

ECHI shortlist, release of June 2008

TOPIC/INDICATOR	SECTION	NOTES
A) Demographic and socio-economic factors (9)		
1. Population by sex/age		
2. Birth rate, crude		
3. Mother's age distribution		
4. Total fertility rate		
5. Population projections		
6. Population by education		
7. Population by occupation		
8. Total unemployment		
9. Population below poverty line and income inequality		C
B) Health status (32)		
10. Life expectancy		
11. Infant mortality		
12. Perinatal mortality		
13. Disease-specific mortality; Eurostat, 65 causes		
14. Drug-related deaths		
15. Smoking-related deaths		
16. Alcohol-related deaths		
17. Excess mortality by heatwaves	2	A
18. Selected communicable diseases		A
19. HIV/AIDS		
20. Cancer incidence		C
21. Diabetes		
22. Dementia		
23. Depression		
24. AMI		
25. Stroke		
26. Asthma		
27. COPD		
28. (Low) birth weight		
29. Injuries: home/leisure, violence		
30. Injuries: road traffic		
31. Injuries: workplace		
32. Suicide attempt	2	M
33. Self-perceived health		
34. Self-reported chronic morbidity		
35. Long-term activity limitations		
36. Physical and sensory functional limitations		
37. General musculoskeletal pain	2	M
38. Psychological distress		
39. Psychological well-being	2	A
40. Health expectancy: Healthy Life Years (HLY)		
41. Health expectancy, others		
C) Determinants of health (14)		
42. Body mass index		
43. Blood pressure		
44. Regular smokers		

45. Pregnant women smoking
46. Total alcohol consumption
47. Hazardous alcohol consumption
48. Use of illicit drugs
49. Consumption/availability of fruit
50. Consumption/availability of vegetables
51. Breastfeeding
52. Physical activity
53. Work-related health risks 2 M
54. Social support
55. PM10 (particulate matter) exposure

D) Health interventions: health services (29)

56. Vaccination coverage in children
57. Influenza vaccination rate in elderly A
58. Breast cancer screening
59. Cervical cancer screening
60. Colon cancer screening 2 A
61. Timing of first antenatal visits among pregnant women 2 A
62. Hospital beds
63. Physicians employed
64. Nurses employed
65. Mobility of professionals 2
66. Medical technologies: MRI units and CT scans
67. Hospital in-patient discharges, limited diagnoses
68. Hospital daycases, limited diagnoses
69. Hospital daycase/in-patient discharge ratio, limited diagnoses
70. Average length of stay (ALOS), limited diagnoses
71. General practitioner (GP) utilisation
72. Other outpatient visits
73. Surgeries: PTCA, hip, cataract
74. Medicine use, selected groups
75. Patient mobility 2
76. Insurance coverage
77. Expenditures on health
78. Survival rates cancer C
79. 30-day in-hospital case-fatality AMI and stroke A
80. Equity of access to health care services
81. Waiting times for elective surgeries
82. Surgical wound infections
83. Cancer treatment quality
84. Diabetes control

E) Health interventions: health promotion (4)

85. Policies on environmental tobacco smoke (ETS) exposure
86. Policies on healthy nutrition 2
87. Policies and practices on healthy lifestyles 2
88. Integrated programmes in settings, including workplaces, schools, hospitals 2

Additions and major changes in the ECHI shortlist by indicator, marked by "ADDED", "CHANGED" or "MOVED".

9. Population below poverty line and income inequality – CHANGED
Definition, comments connected to the proposed additions or major changes: The change is the explicit inclusion of children in this indicator. The CHILD project definition:% of children living in households with income below 60% of the national median, in at least two of the previous three years; 5y age groups <17. According to Eurostat the situation for children can be derived from the same data source as for adults (EU-SILC).
Origin and rationale of selection: "Children in poverty" was proposed by WP Lifestyles and the CHILD project. Poverty is an important issue among the wider determinants of health. Children are especially vulnerable. The indicator was rated very high in the selection process. It was proposed to include it in the existing indicator 9. Population below poverty line and income inequality.

17. Excess mortality by heatwaves – ADDED
Definition, comments connected to the proposed additions or major changes: Indicator calculation based on day-by-day regional mortality analysis. Data are basically available but analysis is time-consuming.
Origin and rationale of selection: Indicator suggested by DG SANCO and supported by several Member State. Important in the frame of health effects of climate change. Placed in development section for its policy relevance.

18. Selected communicable diseases – ADDED
Definition, comments connected to the proposed additions or major changes: The issue has been decided to cover the incidence of selected communicable diseases, including vaccine-preventable diseases. The first proposal was to minimally include the diseases of the highest incidence and/or disease burden (according to recent ECDC reporting: Chlamydia, Hepatitis C, Tuberculosis), and a set of vaccine-preventable diseases with variable coverage of vaccination: Pertussis, Measles, Hepatitis B. A recent DG SANCO proposal extends this list. In all cases the data will be available through the surveillance systems covered by ECDC. The incidence of vaccine-preventable diseases is also included in the initial indicators of the OECD Health Care Quality Indicators.
Origin and rationale of selection: This issues "incidence of selected communicable diseases" and "incidence of vaccine-preventable diseases" (or parts of them) were proposed by WP Lifestyles, DG SANCO, EMCDDA and ECHIM, to fill an evident gap in the ECHI shortlist, and to monitor the effectiveness of childhood vaccination Programmes. They both received the highest rating in the selection process.

20. Cancer Incidence – CHANGED
Definition, comments connected to the proposed additions or major changes: To include incidence of: all cancers (without non-melanoma skin), lung, breast, colorectal, prostate, stomach, melanoma, cervical, leukaemias/lymphomas, all childhood. If a cancer register is present, these data will all be available.
Origin and rationale of selection: The WP Mortality/morbidity suggested the extension from only lung and breast cancer to nine specific cancers and all cancers combined, arguing the importance of these additional cancers in terms of disease burden and (often) prevention possibilities.

32. Suicide attempt – MOVED
Definition, comments connected to the proposed additions or major changes: Moved to development section because of continued debate on the feasibility and reliability of data collection.
Origin and rationale of selection: Originally added by ECHI team. Highlights mental health priority.

37. General musculoskeletal pain – MOVED
Definition, comments connected to the proposed additions or major changes: Moved to development section because of continued lack of good and agreed measuring instruments.
Origin and rationale of selection: Originally added by ECHI team, to cover the issue of musculoskeletal disorder as a high-burden health problem.

39. Psychological well-being – ADDED

Definition, comments connected to the proposed additions or major changes: Definition is clear: it implies the Energy-vitality scale from the SF-36 questionnaire, which is also included in the EHIS. Data available for about half the EU. Included in this development section because Eurostat considers revising the instrument, together with the indicator 38. Psychological distress.

Origin and rationale of selection: Indicator suggested by WP Mental Health and MINDFUL project, as a core item to cover the mental health issue.

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53. Work-related health risks – MOVED

Definition, comments connected to the proposed additions or major changes: Moved to development section to stimulate work on further precise definition of feasible indicators. This cluster originally would include 1) subjective risk assessments (data European Survey on Working Conditions), 2) physical/ psychological working conditions (survey data) and 3) job transitions (survey data).

Origin and rationale of selection: Originally suggested by NCA, Working Party Mental Health, Workhealth project. Workplace conditions are important for health.

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57. Influenza vaccination rate for elderly – ADDED

Definition, comments connected to the proposed additions or major changes: Defined as the proportion of the population over 65 receiving influenza vaccination in a given year. OECD presented data for 22 member countries.

Origin and rationale of selection: This indicator was proposed by ECHIM on the basis of its inclusion in the OECD Health Care Quality Indicators and its importance for reducing the disease burden by influenza. It was rated very high in the selection process.

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60. Colon cancer screening – ADDED

Definition, comments connected to the proposed additions or major changes: Data collection is not regular, in view of different national policies; can be assessed by Eurobarometer.

Origin and rationale of selection: Indicator suggested by DG SANCO, as related to EU prevention policy.

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61. Timing of first antenatal visits among pregnant women – ADDED

Definition, comments connected to the proposed additions or major changes: Indicator needs development of operational definition.

Origin and rationale of selection: Indicator suggested by WP Lifestyles and Peristat project, as a comprehensive indicator for the adequacy of the important area of perinatal care. Rated rather high in selection process.

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78. Survival rates cancer – CHANGED

Definition, comments connected to the proposed additions or major changes: To include incidence of: all cancers (without non-melanoma skin), lung, breast, colorectal, prostate, stomach, melanoma, cervical, leukaemias/lymphomas, all childhood. If a cancer register is present, these data will all be available. OECD health care quality project: 5-years observed and relative survival rates. IARC, cancer registers.

Origin and rationale of selection: The WP Mortality/morbidity suggested the extension from only cervical and breast cancer to nine specific cancers and all cancers combined, arguing the importance of these additional cancers in terms of disease burden and possibilities for improvement of prevention and treatment.

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79. 30-day in-hospital case-fatality AMI and stroke – ADDED

Definition, comments connected to the proposed additions or major changes: Defined as proportion of deaths in hospital within 30 days after admission with primary diagnosis ICD-10 I21, I22 (AMI), I61–I64 (stroke), among all such admissions. OECD reported data for 23–24 countries. EUPHORIC project proposes slightly different definition for AMI survival.

Origin and rationale of selection: Indicator proposed by the WP Mortality/morbidity and Eurociss project. Rather high rating in selection process. Also in the OECD Health Care Quality Indicators. Good indicator for the adequacy of AMI and stroke treatment, for AMI especially in the acute phase.

ANNEX 2: Documentation Sheets (short form) for the ECHI shortlist indicators

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1. POPULATION BY SEX/AGE

Definition: Total population by country, broken down by sex and age. The total population of the country consists of all persons falling within the scope of the census.

Calculation: Absolute numbers by sex, preferably presented at least by 10-year age bands 0, 1–4, 5–14, 15–24, 25–34, 35–44, 45–54, 55–64, 65–74, 75–84, 85+ (ICD-10 optional recommendation with 85+ added, being the Eurostat grouping). Minimally presented by sex and by age groups 0–14, 15–44, 45–64, 65–84, 85+ (ICD-10 minimal recommendation, without the 1-year limit and with the 85+ limit added).

1) Eurostat: Calculated as the number of inhabitants of a given area on 1 January of the year in question.

2) (OECD: Data from Eurostat)

3) WHO: Estimate of resident (de jure) population on 1 July of given calendar year. Usually, it is calculated as an average of end-year estimates.

Both end of year and mid year populations (which can be calculated from the end of year figures) are needed for calculations of different indicators (prevalence and incidence).

Notes: Both absolute numbers and percentages are needed. The latter can be calculated from the former. In the broadest sense, the total population may comprise either all usual residents of the country or all persons present in the country at the time of the census. The total of all usual residents is generally referred to as the de jure population and the total of all persons present as the de facto population.

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2. CRUDE BIRTH RATE

Definition: Crude Birth Rate is defined as the number of all live births in a given year per mean population in the same year. Usually multiplied by 1000.

Calculation: Eurostat: Number of all live births in a given year divided by the number of person-years lived by the population in the same period, expressed per 1000 persons.

Notes: Instead of mean population also number of person-years lived by the population in the same period can be used as the denominator.

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3. MOTHER'S AGE DISTRIBUTION

Definition: Age distribution of mothers, in years, at delivery.

Calculation:

1) Eurostat: Live births by mother's age at last birthday, total number and % of total. Presented by age groups 0–14, 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50+. (Eurostat data is available by single age)

2) WHO: % and number of all live births to mothers, age under 20 years, % and number of all live births to mothers, age 35+ years

3) Peristat project recommendation: Distribution of age in years at delivery for women delivering a live or stillbirth. Recommended presentation by age groups: percent of deliveries for under 20 years olds and for 35 years or older women (age at birth). Optionally by age groups of 10–14, 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45+.

Alternatively: a) Distribution of age in years at December 31 of the year of delivery for women delivering a live birth. b) Distribution of age in years at conception for women delivering a live birth.

Notes: Teenage pregnancies, aged mothers. Some civil registers record the age of mother at the end of the year of delivery and not her age at delivery. This creates significant bias, especially among women in the youngest and oldest age groups.

4. TOTAL FERTILITY RATE

Definition: Total Fertility Rate is defined as the mean number of children per woman at the end of childbearing age, based on one calendar year data.

Calculation: Eurostat, WHO, OECD: The mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years (conventionally 15–44, sometimes 15–49) conforming to the fertility rates by age of a given year. It is therefore the completed fertility of a hypothetical generation, computed by adding the fertility rates by age for women in a given year (the number of women at each age is assumed to be the same).

Notes: Total fertility rate (TFR) calculated as a period indicator (e.g. assuming that age-specific fertility levels remain constant in the future), not by birth cohorts. Completed fertility rate by birth cohort (CFR) refers to the average number of children at the end of reproductive period. TFR and CFR differ significantly if the timing of childbearing differs by time or by country.

5. POPULATION PROJECTIONS

Definition: Population projections up to 2050, baseline variant. Population projections are estimates of total size or composition of populations in the future.

Calculation: Eurostat: Population projections baseline variant – 1st January population. Population divided into age groups covering intervals of 1 year and a group of all ages. Projections beginning with 1995 and then every fifth year. Projections are based on assumptions on total fertility rate, life expectancy and migration.

Notes: Eurostat projections may differ from national estimates due to different assumptions of fertility, mortality and migration. However, Eurostat projections are recommended because Eurostat uses the same harmonized calculation methods for all countries

6. POPULATION BY EDUCATION

Definition: Total number and proportion (%) of population divided up into 3 classes of educational attainment (low, middle and high education). Attainment profiles are based on highest completed specified level of education. The International Standard Classification of Education (ISCED-97) is used to define the levels of education.

Calculation: Total number and percentage of total population in the 7 classes of ISCED (International Standard Classification of Education 1997), aggregated into three attainment groups comprising of:

Low or Basic education: 1) no formal education or below ISCED1, 2) Primary or 3) Lower secondary;

Middle or Secondary education: 4) (Upper) secondary, or 5) Post-secondary non-tertiary;

High or Tertiary education: 6) First stage of tertiary, or 6) Second stage of tertiary education.

Notes: Usually calculated for the population aged 25 to 64. Ideally calculated for the whole population, but unfortunately the educational level of the non-active population and the deceased is seldom known / recorded.

7. POPULATION BY OCCUPATION

Definition: Total number and proportion (%) of population by occupational group. Classification is based on the current or last (main) occupation. Last (main) occupation is preferred, but that information is seldom available. If not available, use current occupation instead.

Calculation:

1) SES project recommends 6 occupational groups: upper non-manual, lower non-manual, skilled manual, unskilled manual, self employed, farmer/entrepreneur.

2) A new "European Socio-Economic Classification (ESeC)" scheme is in preparation (Eurostat project).

Notes: Current and last occupation. Ideally the current or the last (main) occupation of the non-active population and the deceased is recorded. Only by using the last (main) occupation can e.g. the retired be classified into an occupational group.

8. TOTAL UNEMPLOYMENT

Definition: Proportion of unemployed persons in active population in %. The active population (labour force) is the total number of people employed and unemployed. Unemployed persons are all persons who were not employed during the reference week, had actively sought work during the past four weeks and were ready to begin working immediately or within two weeks.

Calculation: Eurostat: Proportion of unemployed persons in active population in %, derived from The European Union Labour Force Survey. Average number in a given year.

Notes: Active population is usually defined as 20–64 year-olds or 15–74 year-olds. "Unemployment rate by gender" is one of the EU structural indicators.

9. POPULATION BELOW POVERTY LINE AND INCOME INEQUALITY

Definition:

1) Population at risk of poverty rate is defined as share of persons with an equivalised disposable income below national poverty line, i.e. below 60% of the national median equivalised disposable income.

2) Income inequality is defined as the income quintile share ratio S80/S20, which is the ratio of total income received by the 20% of the country's population with the highest income (top quintile) to that received by the 20% of the country's population with the lowest income (lowest quintile). Income is understood as equivalised disposable income.

Calculation:

1a) Population at risk of poverty rate is calculated as the percentage of persons in the total population with an equivalised disposable income below the "national poverty line" (i.e. below 60% of the national median equivalised disposable income) over the total population. Total population is all persons living in private household on the national territory. Personal equivalised income is obtained by dividing the total household disposable income by the equivalised size of the household, using modified OECD scale: 1 for the first person aged 14 or more; 0.5 for any subsequent person aged 14 or more; and 0.3 for persons aged less then 14.

1b) Children in poverty: percentage of children (out of all children) living in households with an equivalised disposable income below the "national poverty line" (i.e. below 60% of the national median equivalised disposable income). Presented for age groups 0–4, 5–9, 10–14 and 15–17. Precise operationalisation of how to derive the indictor from EU-SILC to be formulated.

2) Income inequality is calculated as the ratio of the sum of equivalised disposable income received by the 20% of the country's population with the highest equivalised disposable income (top inter-quintile interval) to that received by the 20% of the country's population with the lowest equivalised disposable income (lowest inter-quintile interval).

Notes: Age groups: total, 0–17, 18–64, 65+. Equivalised income takes account of the size and composition of the household, and is attributed to each household member (including children). Related concepts are: "At-persistent-risk-of-poverty rate" and "Any time at-risk-of poverty". Disposable income can be calculated before social transfers (original income including pensions but excluding all other social transfers) and after social transfers (total income). "Population at risk of poverty" and "Income inequality" are EU structural indicators

10. LIFE EXPECTANCY

Definition: Life expectancy at birth is a summary measure of the age-specific all cause mortality rates in an area in a given period. It is the average number of years a new-born baby would survive, were he or she to experience the particular area's age-specific mortality rates for that time period throughout his or her life. Life expectancy can be calculated starting at different ages. Here we present minimally: 1) Life expectancy at birth and 2) Life expectancy at age 65.

Calculation: Life expectancies are calculated using (abridged) life tables presenting age specific mortality rates.

1) Eurostat: Life expectancy tables are calculated based on death probabilities according to Farr's death rate method: $qx = Mx / (Bx + (Mx/2))$ where Mx = the number of deaths at the age of x to under x+1 years in the reported period; Bx = average population aged x to under x+1 in the base period; qx = death probability from age x to x+1.

2) WHO: Calculated for all countries which report detailed mortality data to WHO, using Wiesler's method. Age disaggregation of mortality data: 0, 1–4, 5–9, 10–14, etc, 80–84, 85+. Presentation by ages 1, 15, 45, 65, by gender and total population.

3) OECD: Calculated at birth and at various ages (40, 60, 65, 80).

ECHIM prefers 1.

Notes: Different calculation methods of abridged life-tables produce slightly different results. Farr's method of calculation of abridged life-tables assumes that there is a constant mortality within the age intervals and thus the years of life lived by a person dying in the interval is (on average) half of the length of the interval. Wiesler's method does not assume constant mortality through the age interval, but rather function of survival. The method uses specified values for time by age groups. These values for the calculation of average "survival" during the period were originally derived from comparisons of many countries with complete data (in the early 1950s). Wiesler's method is a simple method that can be used with incomplete and/or aggregated data. It is not as precise regarding the calculation of survival as most other methods. However, the difference in life expectancy calculated by these two methods is neglectable.

11. INFANT MORTALITY

Definition: Infant Mortality Rate is defined as the number of deaths of infants (younger than one year of age at death) per 1000 live births (based on one year data).

Calculation:

1) Eurostat: Number of deaths under one year of age (day 0–364) in a given year, per 1000 live births in that year.

2) Peristat: Number of infant deaths (day 0 through 364) after live birth at or after 22 completed weeks of gestation in a given year , per 1000 live births in the same year.

3) WHO: Number of deaths in a year of children less than 1 year of age per number of live births in the same year, per 1000.

ECHIM prefers 1.

Notes: For variant 2, records of gestation time are needed. For live births the variation of registration criteria effects less than for perinatal mortality. However, the registration of the infants with very short gestation may cause variation between countries.

12. PERINATAL MORTALITY

Definition: Perinatal Mortality Rate is defined as the number of fetal deaths plus early neonatal deaths after live birth in a given year, per 1000 live and stillbirths.

Calculation:

1) The number of fetal deaths and deaths in the early neonatal period (up to 6 completed days after birth) after live birth (weighting 500 grams or more) at or after 22 complete weeks of gestation in a given year, expressed per 1000 live and stillbirths in the same year.

2) WHO recommendation for international comparisons is 1000 grams or more.

Notes: Perinatal mortality death rate can be sub-divided by timing of death into fetal deaths and early neonatal deaths (at 0–6 days after live birth).

WHO definition for international comparisons recommended: WHO calculates perinatal mortality for stillbirths and live births weighting 1000 grams or more, to minimize the variation in registration criteria (some countries start the registration of fetal deaths from 24 or 28 weeks of gestation).

OECD calculates perinatal mortality as the ratio of deaths of children within one week of birth (early neonatal deaths) plus fetal deaths of minimum gestation period 28 weeks or minimum fetal weight of 1000g, expressed per 1000 births.

WHO definitions: Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live-born. The number of live births includes all live births during the given calendar year, irrespective of registration of the date of birth.

Fetal death is death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

13. DISEASE-SPECIFIC MORTALITY; EUROSTAT 65 CAUSES – EXAMPLE: SUICIDE

Definition: Deaths caused by suicide (an example of Eurostat, 65 causes of death) per 100 000 inhabitants.

Calculation: Number of deaths (by age group) **caused directly by intentional self-harm, including purposely self-inflicted poisoning or injury, completed suicide (**ICD-10 codes X60–X84) per 100 000 resident population (by age group).

Notes: Accuracy of the data could suffer from inaccurate coding of cause of death. In some cases it may be difficult to discriminate between accident, self-harm and assault. Thus it is often meaningful to contemplate the suicide and deaths of undetermined intent figures together. Some studies have shown that suicides may be under- or misreported and could affect rates in some countries where undetermined death are relatively high.

14. DRUG-RELATED DEATHS

Definition: Drug-related deaths per 100 000 inhabitants. The definition refers to those deaths that are caused directly by the consumption of drugs. These deaths occur generally shortly after the consumption of the substance(s).

Calculation:

1) The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) definition ("SelectionB"): the following ICD-10 codes: Harmful use, dependence, and other mental and behavioural disorders due to: opioids (F11), cannabinoids (F12), cocaine (F14), other stimulants (F15), hallucinogens (F16), multiple drug use (F19). Accidental poisoning (X41, X42), intentional poisoning (X61, X62), or poisoning by undetermined intent (Y11, Y12) by: opium (T40.0), heroin (T40.1), other opioids (T40.2), methadone (T40.3), other synthetic narcotics (T40.4), cocaine (T40.5), other and unspecified narcotics (T40.6), cannabis (T40.7), lysergide (T40.8), other and unspecified psychodysleptics (T40.9), psychostimulants (T43.6).

Deaths per 100 000 resident population; age-standardised by the European standard population.

2) Eurostat: of the list of 65 causes of death, ICD-10: F11–F16

3) the Nordic Medico-Statistical Committee (NOMESCO) definition is following ICD-10 codes: ICD-10: F11–F16, F18–F19, O35.5, P04.4, X40–X49, X60–X69, Y10–Y19, T40.0–T40.3, T40.5–T40.9, T43.6.

ECHIM prefers 1.

Notes: For variant 1, the number of deaths is an extract ion of cases from existing General Mortality Registries according to the above mentioned criteria. This selection was agreed by the EMCDDA Expert Group on Drug-related deaths. It was called "Selection B" for General Mortality Registries based on ICD-10. A selection of ICD-9 codes is also available for countries who haven't yet implemented ICD-10. Numbers from different countries are not directly comparable because differences remain in case definition and recording methods, although in recent years it is considered that quality, validity and therefore comparability have increased considerably. National definitions usually refer to acute deaths directly related to drug consumption ("overdoses", "poisonings" or "drug-induced").

15. SMOKING-RELATED DEATHS

Definition: Deaths caused by smoking. The definition refers to deaths from combined, selected causes of death which are known from literature to be related to smoking, per 100 000 inhabitants.

Calculation:

1) WHO: Deaths from all ICD-causes in which smoking is implicated, per 100 000 inhabitants. Includes malignant neoplasms of mouth and pharynx (C00-C14), larynx, traxea, bronchus, lung (C32-C34) and oesophagus (C15); Ischaemic heart disease (I20-I25); Cerebrovascular diseases (I60-I69); Chronic obstructive pulmonary disease (J40–J47).

2) Smoking attributable deaths. Assuming that relative risks from the US Cancer Prevention Study (II) can be applied across the EU, then the only added info required is smoking prevalence by gender (and, ideally, broad age group).

Notes: Recognising the multi-factorial nature of disease causation, this assumes that smoking acts as an independent and fairly important risk factor/cause of death for each health problem included.

Differences and changes in the smoking-related deaths indicator may be unduly distorted by lifestyle factors other than smoking, leading to misinterpretation, thus some argue that smoking attributable deaths would yield a much more robust indicator.

Approach 1) is the quick-and-dirty one, simple and practical. Approach 2) based on attributable fractions is certainly more appropriate but it is also more demanding requiring also more specific information on tobacco frequency use by age groups. Peto R, Lopez AD, Boreham J et al. (2nd ed 2005) have calculated estimates for all MSs.

16. ALCOHOL-RELATED DEATHS

Definition: Deaths caused by the use of alcohol per 100 000 inhabitants. The definition refers to those deaths that are caused by long-term use, as well as sudden poisonings directly related to the use of alcohol.

Calculation:

1) WHO: selected alcohol-related causes, i.e. mortality from combined, selected causes of death which are known from the literature to be related to alcohol consumption, per 100 000 resident population. Includes: cancer of oesophagus and larynx, alcohol dependence syndrome, chronic liver disease and cirrhosis; all external causes. ICD-10: C15, C32, F10, K70, K73, K74, K76, V00–V99, W00–W99, X00–X99, Y00–Y99.

2) Working Party Mental Health: Deaths per 100 000 resident population, age-standardised by the European standard population. The following ICD-10 codes are included: Mental and behavioural disorders due to use of alcohol (F10), degeneration of nervous system due to alcohol (G31.2), Alcoholic polyneuropathy (G62.1), Alcoholic myopathy (G72.1), Alcoholic cardiomyopathy (I42.6), Alcoholic gastritis (K29.2), Alcoholic liver disease (K70), Alcohol-induced chronic pancreatitis (K86.0), Maternal care for (suspected) damage to fetus from alcohol (O35.4), Fetus and newborn affected by maternal use of alcohol (excludes: fetal alcohol syndrome) (P04.3), Accidental poisoning by and exposure to alcohol (X45).

3) Eurostat: of the list of 65 causes of death, ICD-10: F10, "Alcoholic abuse (including alcoholic psychosis)"; only a minor part of alcohol-related mortality, thus not preferable.

4) 3) the Nordic Medico-Statistical Committee (NOMESCO) definition is following ICD-10 codes: ICD-10: E244, F10, G312, G621, G721, I426, K292, K700–709, K860, O354, P043, Q860, X45, Y15.

Notes: Recognising the multi-factorial nature of disease causation, this assumes that alcohol use acts as an independent and fairly important risk factor/cause of death for each health problem included.

WHO preferred, partly in order to follow the calculation of Smoking-related deaths (indicator 15) and readily available data. Although it can be argued that because the definition includes all external causes of mortality and morbidity (ICD-10 V–Y), it is thus not preferable.

Working Party Mental Health approach would be based on causes with relatively few number of cases (except K70) and limit its applicability for assessing trends. In addition, it would miss a very large fraction of chronic liver diseases and accidents and violence that are very relevant in the context of some countries.

These two approaches could be merged, if at least motor vehicle accident, homicide, suicide, accidental poisoning by alcohol and drowning (the bulk of the problem) would be included in the Working Party Mental Health definition.

17. EXCESS MORTALITY BY HEATWAVES

Definition: Measurement of the effect of elevated temperatures on mortality in a region / Member State / European Union.

Calculation: Indicator needs more development. Its calculation is based on day-by-day regional mortality and temperature analysis in the (common) summer period: Daily number of observed deaths in a region during a heatwave in relation to expected number of deaths in that time, expressed as number of a) excess deaths and b) excess death rates due to heatwaves. Expected number of deaths at a certain day is estimated from past number of deaths or past daily death frequencies or both.

The oldest age group is often limited to age 85+, and thus data are presented as: all, below 65, 65-84 and 85+.

Notes: Heat-related deaths are not well defined and heat is usually not listed on death certificates as causing or contributing to death. Heat is recorded from other sources.

In principle, the daily excess mortality in summer (well as in winter) can be computed almost live, i.e as soon as the number of deaths of the day in question is known. It is much more complex and need more time to calculate excess death rates, as one needs estimates of the size of exposed population in the year in question. Therefore the death rates of summer Y cannot be computed before you get the population estimates by January fist of the year Y + 1.

18. SELECTED COMMUNICABLE DISEASES

Definition: The indicator for selected communicable diseases consists of two indicators:

1) "Incidence of selected communicable diseases", which comprises of the diseases of the highest incidence and/or disease burden, minimally Chlamydia, Hepatitis C and Tuberculosis.

2) "Incidence of vaccine-preventable diseases", which comprises of a set of vaccine-preventable diseases with variable coverage of vaccination, minimally Pertussis, Measles and Hepatitis B.

Calculation: The incidence of a disease per year is calculated as the total number of reported new cases of the disease in a specific year divided by the population of the country in question in the same year, expressed per 100 000 population.

Notes: The data will be available through the surveillance systems covered by The European Centre for Disease Prevention and Control, ECDC.

19. HIV/AIDS

Definition: Incidence of a) HIV-infected and b) AIDS cases, in a calendar year. A case of HIV infection and AIDS are defined following the European AIDS and HIV surveillance case definitions.

Calculation: The rates are calculated as the number of newly diagnosed cases (of HIVand AIDS) per million inhabitants, based on the number of reported cases reported by national surveillance systems (as reported to the European Centre for the Epidemiological Monitoring of HIV and AIDS). Rates are calculated in year x for the year x-1 to account for delayed reporting.

Notes: National case definitions are applied and have been harmonised to a large extent. The indicators are calculated by the European Centre for the Epidemiological Monitoring of HIV and AIDS (EuroHIV). EuroHIV is also the primary dataholder in Europe. For the calculation EuroHIV considers the characteristics of country specific surveillance systems..

European AIDS and HIV surveillance case definitions:

HIV infection: A case of HIV infection is defined as an individual with HIV infection confirmed by laboratory according to country definitions and requirements, diagnosed at any clinical stage including AIDS, and not previously reported in that country. For children aged under 18 months at diagnosis, at least one direct detection HIV test (non-antibody based) is also required. Adult/adolescent cases are defined as those aged 13 years and over, and paediatric cases as those under 13 years.

AIDS: Cases are reported according to a uniform AIDS case definition originally published in 1982 and revised in 1985, 1987 and, for adults and adolescents (13 years and over), in 1993. The 1993 European AIDS surveillance case definition differs from the definition used in the USA in that it does not include CD4 lymphocyte count criteria. For children (less then 13 years), the case definition used in Europe is essentially the same as that used in the USA.

20. CANCER INCIDENCE

Definition: Total cancer incidence and incidence of the most important cancers, per 100 000 population, in a given year.

Calculation: Number of patients with newly diagnosed cancer during the given calendar year divided by person-years at risk (specific per sex, geographical area, period and age group), expressed as per 100 000 population. The 10 categories to be included are (ICD-10): 1) all cancers combined without non-melanoma skin (C00–C97), 2) trachea, bronchus or lung (C33–34), 3) breast (C50), 4) colorectal (C18–C21), 5) prostate (C61) , 6) stomach, 7) melanoma, 8) cervical (C53), 9) leukaemias/lymphomas, 10) all childhood cancers (0–14).

Notes: In some MSs Cancer Registry covers the entire population, in others one ore more Cancer Registries cover a fraction of the population. The European Network of Cancer Registries (ENCR) and the International Agency on Research on Cancer (IARC) produce cancer incidence estimates at national level, where missing, by mathematical models.

21. DIABETES

Definition: Proportion of persons with (any types of) diabetes. Diabetes (diabetes mellitus) is a metabolic disorder causing chronically increased levels of glucose in the blood. Complex metabolic changes lead to damage of many organs. Most common complications include blindness, heart and blood vessel disease, stroke, kidney failure, amputations, and nerve damage. There are three main types of diabetes. Type 1 is diagnosed early in life and is due to decrease in insulin production. Type 2 diabetes is the most common form and is due to the development of insuline resistance. Gestational diabetes occurs during the pregnancy.

Calculation:

1) Proportion of individuals reporting to have been diagnosed with diabetes which occurred during the past 12 months, derived from EHIS questions HS.4/5/6: HS.4: Do you have or have you ever had any of the following diseases or conditions? (11. Diabetes) (yes / no). If yes: HS.5: Was this disease/condition diagnosed by a medical doctor? (yes / no). HS.6: Have you had this disease/condition in the past 12 months? (yes / no)

2) EUDIP/BIRO: Prevalence of diabetes mellitus per 1000 population / Prevalence of persons with impaired glucose tolerance (i.e. including previously unknown diabetes) and/or diet only, derived from HES.

3) WHO: Cumulative number of patients with diabetes (ICD-10: E10–E14) at the end of the calendar year.

4) Child Health Indicators of Life and Development (CHILD) project: annual incidence of Type 1 insulin-dependent diabetes per 100 000 population, in age-groups 0–4, 5–9, 10–14, 15–17 and in total

ECHIM prefers 1.

Notes: Different definitions give vastly different estimates because they mean different things

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22. DEMENTIA

Definition: Proportion of persons with clinically diagnosed dementia. The term "dementia" refers to the progressive decline in cognitive and intellectual functions (such as thinking, concentrating, remembering and reasoning) of such severity that they affect person's daily activities, due to brain diseases which result in the damage and loss of brain cells. The most common form of dementia is Alzheimer's disease.

Calculation:

1) The European Community Concerted Action on the Epidemiology and Prevention of Dementia -group (EURODEM): Prevalence rate of diagnosed cases of dementia (DSM-III or equivalent) or Alzheimer.

2) Prevalence rate of diagnosed cases of dementia or Alzheimer, deriver from ad hoc epidemiological surveys, where the sample is representative of the general national population.

3) Number of diagnosed dementia/Alzheimer cases done into a clinical environment (hospitals or other bodies devoted to diagnosis, care and prevention), expressed as hospital discharge standardised rate per 100 000 inhabitants.

Notes: EURODEM: Only population-based studies in which dementia was defined by DSM-III or equivalent criteria and in which all subjects were examined personally were included. Studies in which institutionalized subjects were not investigated were excluded. Studies should include people with dementia who were living at home as well as those in institutions, nursing homes and residential care.

Prevalence in the MSs can only be estimated, as no register exists and due to methodological reasons population based surveys usually are not feasible

23. DEPRESSION

Definition: Proportion of persons who have had episode(s) of major depression during the past 12 months. Major depression is a mental disorder characterised by sustained depression of mood, anhedonia, sleep and appetite disturbances, and feelings of worthlessness, guilt, and hopelessness.

Calculation:

1) Proportion of individuals reporting to have been diagnosed with chronic depression which occurred during the past 12 months, per 100 000 survey population, derived from EHIS questions HS.4/5/6: HS.4: Do you have or have you ever had any of the following diseases or conditions? (19. Chronic depression) (yes / no). If yes: HS.5: Was this disease/condition diagnosed by a medical doctor? (yes / no). HS.6: Have you had this disease/condition in the past 12 months? (yes / no).

2) Recommendation by Mindful/Working Party Mental Health: Age and sex adjusted prevalence of cases fulfilling the criteria of major depression for at least two weeks during past 12 months. Instrument to be used is The World Health Organisation Composite International Diagnostic Interview Short Form, CIDI-SF. Diagnostic criteria for a major depressive episode (MD; DSM-IV) include a depressed mood, a marked reduction of interest or pleasure in virtually all activities, or both, lasting for at least 2 weeks. In addition, the following 7 further questions are asked: losing interest, feeling tired, change in weight, difficulty sleeping, trouble concentrating, feeling down, and thoughts about death (present and lasting for at least 2 weeks). The respondent's score is then calculated as the sum of positive responses to these additional seven questions (range 0–7). The cut-off point for a major depressive episode is 3, in the range of 0 to 7.

3) EPIC Elderly NAH recommendation: Self-perceived depression for people 60+ years of age. Calculated as the number of persons who reported major depression divided by total target population x 100.

ECHIM prefers 1.

Notes: The World Health Organisation Composite International Diagnostic Interview, CIDI, is a comprehensive psychiatric diagnostic interview designed to be used by trained nonclinician interviewers to diagnose more than 40 mental disorders among adults from different cultures according to the definitions and criteria of both ICD-10 and the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) diagnostic systems. The cut-point chosen for major depression depends on the aim of the study, in general population studies cut-point usually is between 3 and to 5.

CIDI-SF is preferred to CIDI, because CIDI-SF takes much shorter time to administer. CIDI-SF is also reported to give 93% accuracy for depression compared with the full CIDI. CIDI is not in wide use, no comparable data for variant 2 exist at the moment.

Self-perceived depression is liable to be affected by individual, social and cultural expectations.

24. AMI

Definition:

1) Incidence/attack rate of acute myocardial infarction or coronary death in the population.

2) Mortality from ischaemic heart disease in the population

3) Prevalence of past AMI in the population

Calculation:

1) Age-standardised incidence/attack rate by sex in age group 35–74 in the population, based on hospital discharge and mortality data.

2) Age-standardised mortality by sex in age group 35–74 in the population

3)) No. of persons with past MI, per 100 000 population, based on health interview survey. Here: proportion of individuals reporting to have been diagnosed with Myocardial infarction which occurred during the past 12 months, per 100 000 survey population, derived from EHIS questions HS.4/5/6: HS.4: Do you have or have you ever had any of the following diseases or conditions? 3. Myocardial infarction (yes / no). If yes: HS.5: Was this disease/condition diagnosed by a medical doctor? (yes / no). HS.6: Have you had this disease/condition in the past 12 months? (yes / no).

Notes:

1) A wider group of diagnoses is proposed for the fatal cases than for the non-fatal cases, because it is often impossible to tell whether the death was caused by a myocardial infarction or other coronary event. Incidence refers to person's first event. Ideally the denominator should be those who have not had an AMI before, but in practise this in not possible. The total population in the denominator gives a good approximation. Attack rate counts the first and recurrent events, whenever there is at least 28 days between the onset of the events. Incidence is more interesting than attack rate, although both bring very similar information. Data for the attack rate are more widely available.

2) Here and for the incidence/attack rate the age range is limited because the disease is extremely rare in younger ones. On the other hand, co-morbidity and identification of the cause of death in the old people would complicate the interpretation of the results if these were included. It should be noted that the accuracy of the mortality diagnosis of ischaemic heart disease varies considerably between countries.

3) The respondents reporting AMI ever (EHIS question HS.5). More reliable data on different forms of ischaemic heart disease may be available from a HES (questions + ECG Minnesota codes).

25. STROKE

Definition:

1) Incidence/attack rate of stroke in the population

2) Mortality from cerebrovascular diseases in the population

3) Prevalence of past stroke in the population

Calculation:

1) Age-standardised incidence/attack rate by sex in age group 35–84 in the population, based on hospital discharge and mortality data

2) Age-standardised mortality by sex in age group 35–84 in the population

3) No. of persons with past stroke, per 100 000 population, based on health interview survey. Here: proportion of individuals reporting to have been diagnosed with Stroke which occurred during the past 12 months, per 100 000 survey population, derived from EHIS questions HS.4/5/6: HS.4: Do you have or have you ever had any of the following diseases or conditions? 6. Stroke (cerebral haemorrhage, cerebral thrombosis) (yes / no). If yes: HS.5: Was this disease/condition diagnosed by a medical doctor? (yes / no). HS.6: Have you had this disease/condition in the past 12 months? (yes / no).

Notes:

1) Incidence refers to person's first stroke event. Ideally the denominator should be those who have not had a stroke before, but in practice this is not possible. The total population in the denominator gives a good approximation. Attack rate counts the first and recurrent events, whenever there is at least 28 days between the onset of the events. Incidence is more interesting than attack rate, although both yield very similar information. Data for the attack rate are more widely available. Distinction between a first stroke event and a recurrent one is practically impossible in many countries without intelligent follow-up and data linkage across several years of hospital discharge records. Only local registers with active follow-up can capture those stroke attacks that never reach the hospital (estimated between 5% and 10% by the US Burden of Disease). Routine data linkage of hospital and mortality data is not possible in many countries because of privacy rules and data protection legislation.

2) Here and for the incidence/attack rate the age range is limited because the disease is rare in younger people. On the other hand, co-morbidity in the older people would complicate the interpretation of the results if this were included. Ad hoc studies to validate of estimates of deaths due to stroke from routinely collected mortality data have shown that this source of information is of varying quality (from 70% to 90% are confirmed by registers).

3) Respondents reporting past stroke ever (EHIS question HS.5). Interview surveys are an inaccurate source of information, here because self-report data tend to involve substantial misreporting.

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26. ASTHMA

Definition: Prevalence of persons with asthma in the population, with specification for children.

Calculation:

1) Proportion of individuals reporting to have been diagnosed with asthma which occurred during the past 12 months, per 100 000 survey population, derived from EHIS questions HS.4/5/6: HS.4: Do you have or have you ever had any of the following diseases or conditions? 1. Asthma (allergic asthma included) (yes / no). If yes: HS.5: Was this disease/condition diagnosed by a medical doctor? (yes / no). HS.6: Have you had this disease/condition in the past 12 months? (yes / no).

2) Number of hospital discharges for asthma in a year, per 100 000 population

3) Number of asthma-diagnosed patients in primary care, in a given year, per 100 000 survey population

4) Number of persons complying to specified asthma symptoms, per 100 000 survey population, in special surveys.

5) Number of children with asthma, per 100 000 of the respective age group.

Notes: ECHIM preference is as follows: Professionally, 4 gives the best estimate of population prevalence, followed by 3. In practice, 1 and 2 will be the only sources available in most countries. 2 will give an underestimate of population prevalence since many asthma patients will never be hospitalised. ICD-10 category: J45. IMCA proposes to include also asthma severity.

27. COPD

Definition: Prevalence of persons with chronic obstructive pulmonary diseases (COPD) in the population. COPD is characterised by chronic airway obstruction resulting in airflow limitation that is not fully reversible. Diagnostic criteria for COPD include the following symptoms: coughing, sputum production and/or dyspnoea, as well as a history of exposure to risk factors for COPD. The diagnosis is confirmed by a post-bronchodilator FEV1/FVC < 0.7 in spirometry, as sign of the airflow limitation that is not fully reversible.

Calculation:

1) Proportion of individuals reporting to have been diagnosed with COPD which occurred during the past 12 months, per 100 000 survey population, derived from EHIS questions HS.4/5/6: HS.4: Do you have or have you ever had any of the following diseases or conditions? 2. Chronic bronchitis, chronic obstructive pulmonary disease, emphysema? (yes / no). If yes: HS.5: Was this disease/condition diagnosed by a medical doctor? (yes / no)

HS.6: Have you had this disease/condition in the past 12 months? (yes / no).

2) Number of hospital discharges for COPD in a year, per 100 000 population.

3) Number of COPD-diagnosed patients in primary care, in a given year, per 100 000 survey population.

4) Number of persons complying to specified COPD symptoms (airway obstructions, measured by FEV1/FVC ratio), per 100 000 survey population, in special surveys.

Notes: ECHIM preference is as follows: Professionally, 4 gives the best estimate of population prevalence, followed by 3. In practice, 1 and 2 will be the only sources available in most countries. IMCA recommends 4 indicators: specific symptoms, chronic bronchitis, airway obstruction, physician diagnosed COPD. ICD-10 category: J40–J47.

28. LOW BIRTH RATE

Definition: Proportion of live births of low birth weight per 100 live births in a given year.

Calculation: Number of live births weighting less than 2500 grams in a given year, expressed as a percentage of total number of live births of any birth weight.

Notes: Birth weight is an accurately measured indicator. Babies can be low birth weight because they are born early, because they are growth restricted or both. Information on gestational age is essential for distinguishing between these groups. Peristat recommends:

1) Proportion of births within 500 g intervals, expressed as a proportion of all registered live and stillbirths. (Also by vital status at birth, gestational age, plurality). Classify gestational age by (live and stillbirths) 22–36 weeks (preterm), 37–41 weeks (term), 41+ weeks (post-term).

2) Proportion of births under 1500 grams, expressed as a proportion of all registered live and stillbirths.

29. INJURIES: HOME/LEISURE, VIOLENCE

Definition: Incidence of accidents at home and/or on freetime (e.g. school, leisure and sport injuries).

Calculation:

1) European Injury Database (IDB): the number of accidents recorded in the sample of hospitals participating the IDB project; the number of cases extrapolated at national level; expressed as the number of accidents per 1000 inhabitants.

2) Number of respondents having had a home and leisure accident during the past 12 months, derived from EHIS: question HS.7 and HS.8: HS.7 In the past 12 months, have you had any of the following type of accidents resulting in injury (external or internal)? 4. Home and leisure accident (yes / no). If yes: HS.8 Did you visit a doctor, a nurse or an emergency department of a hospital as a result of this accident? (Yes, I visited a doctor or nurse / Yes, I went to an emergency department / No consultation or intervention was necessary).

3) Hospital treated injuries due to home and leisure accidents. Based on hospital discharges. WHO-HfA has "Hospital discharges, injury and poisoning per 100 000" (chapter XIX of ICD-10). EUROSTAT has Hospital discharges due to injury, poisoning and certain other consequences of external causes (S00–T98). Further work needed.

Notes: Often the incidence rates are presented as 3-year average rates. EHIS does not discriminate between causes of accidents, but IDB does, in a very detailed way. Hospital discharges (greatly) underestimate the number of accidents at home and/or freetime.

30. INJURIES: ROAD TRAFFIC

Definition: Incidence of persons injured in road traffic accidents. A road traffic accident is any accident which occurred or originated on a public road/street or on a private road to which the public has right of access, in which at least one moving vehicle has participated and which resulted in one or more persons being injured. Injured means any person who was not killed but sustained one or more serious or slight injuries as a result of the accident. Hospitalisation or medical treatment not necessarily required.

Calculation:

1) OECD: Number of people injured in road traffic accidents per 100 000 persons. Road traffic accident is an accident which occurred or originated on a way or street open to public traffic and resulted in one or more persons being killed or injured, and at least one moving vehicle was involved. Injured means any person who was not killed but sustained one or more serious or slight injuries as a result of the accident.

2) WHO: Road traffic accidents with injury per 100 000 persons (indicator 3150; 110301)

3) Proportion of respondents having had a road traffic accident during the past 12 months, calculated from EHIS questions HS.7 and HS.8: HS.7 In the past 12 months, have you had any of the following type of accidents resulting in injury (external or internal)? 1. Road traffic accident (yes / no). HS.8 Did you visit a doctor, a nurse or an emergency department of a hospital as a result of this accident? (Yes, I visited a doctor or nurse / Yes, I went to an emergency department / No consultation or intervention was necessary).

Notes: Often the incidence rates are presented as 3-year averages. The indicator is meant to deal only with non-fatal events, since deaths from traffic accidents are under the 65 causes of deaths. Road traffic accidents should include drivers and passengers of motorised vehicles and pedal cycles as well as pedestrians. Seriousness of the accident: fatal – injury – serious injury – slight injury (OECD, CARE).

31. INJURIES: WORKPLACE

Definition: Incidence of accidents at work. An accident at work is a discrete occurrence that occurs during working hours in connection with wage-earning employment or independent business which leads to physical or mental harm. Occurrences having only a medical origin, and occupational diseases are excluded. The indicator can be divided into a) serious and b) fatal accidents. A serious accident is one that causes more than three days absence from work. A fatal accident is defined as an accident which leads to the death of a victim.

Calculation:

1) Eurostat/ESAW: a) The incidence rate of serious accidents at work is the number of accidents at work resulting in more than 3 days' absence per 100 000 persons in employment. b) The incidence rate of fatal accidents at work is the number of fatal accidents at work hat occurred during the year per 100 000 persons in employment.

2) Number of respondents having had an accident at work during the past 12 months, derived from EHIS questions HS.7 and HS.8: HS.7 In the past 12 months, have you had any of the following type of accidents resulting in injury (external or internal)? 2. Accident at work (yes / no). If yes: HS.8 Did you visit a doctor, a nurse or an emergency department of a hospital as a result of this accident? (Yes, I visited a doctor or nurse / Yes, I went to an emergency department / No consultation or intervention was necessary).

3) WHO: a) Number of persons injured/died/diseased due to work-related accidents per 100 000 (indicator 4060; 110502); b) Number of deaths due to work-related accidents per 100 000 (indicator 4070; 110503)

Notes: Often the evolution of the incidence rate of serious accidents at work is expressed in comparison to a reference year (which has the value of 100) to minimize the influence of differences between national data collection systems.

1) Eurostat/ESAW: Serious accidents. An accident at work includes accidents in the course of work outside the premises of his/her business, even if caused by a third party, and cases of acute poisoning. It excludes accidents on the way to or from work, occurrences having only a medical origin, and occupational diseases.

2) Surveys: Only (serious) accidents, it not possible to estimate the number of fatal accidents.

3) WHO: All accidents. Occupational injuries include deaths, personal injuries and diseases resulting from work accidents. Work accidents are accidents occurring at or in the course of work which may result in death, personal injury or disease. All industries are included. Commuting accidents on the way to or from work are excluded.

32. SUICIDE ATTEMPT

Definition: Proportion of persons having ever attempted suicide.

Calculation:

1) Percentage of those who gave a positive answer to the CIDI question: "Have you ever attempted suicide?" (variant 1a is preferred)

a) question about suicide attempts asked from all respondents

b) question about suicide attempts asked only if depression sieve is passed.

2) Child Health Indicators of Life and Development (CHILD) project: Annual incidence of attempted suicide, defined by inpatient hospital stays with a discharge diagnosis of attempted suicide, per 100 000 population, in age-groups 10–14 and 15–17.

Notes: Availability of the suicide attempt data is quite poor. Reporting bias has to be considered. Hospital data is usually considered not appropriate. Few national HIS use CIDI.

33. SELF-PERCEIVED HEALTH

Definition: Self perceived health is a subjective assessment that people make about one's own health state, more commonly called subjective health or self-perceived health. Subjective health is a global measurement including several health dimensions (physical, social and emotional). It is influenced by the presence of symptoms or specific complaints and by the diagnosis made by a physician of a possible disease. The reference is to health in general rather than the present state of health, as the question is not intended to measure temporary health problems. It omits any reference to age and it is not time limited.

Calculation: Proportion of persons who assess their own health to be good to very good, measured by means of health interview survey using representative population sample, using the (WHO recommended) question, derived from EHIS question HS.1: How is your health in general? Is it: very good / good / fair / bad / very bad?

Notes: Indicator "self-perceived health" is focusing on positive aspects of health. It is also included in one of the WHO health targets. It is not a substitute for more objective indicators but rather complements these measures.

34. SELF-REPORTED CHRONIC MORBIDITY

Definition: Self-reported chronic morbidity includes longstanding illnesses and longstanding health problems that are declared by the persons themselves. Only problems of ill-health, but not solely diseases are considered.

Calculation: Proportion of persons who answer positively to the question on whether they have any longstanding chronic illness using EHIS question HS.2: Do you have any longstanding illness or [longstanding] health problem? [By longstanding I mean illnesses or health problems which have lasted, or are expected to last, for 6 months or more] (Yes / No).

Notes: Longstanding illnesses or health problems should have lasted or are expected to last for 6 months or more. The basic EHIS-question does not specify this reference time period. According to a footnote in the EHIS questionnaire this information may be added in some languages, either as an extension of the question (see above), or as an instruction for interviewers. Self reported chronic morbidity should not be derived from a question assessing whether the respondent has any of the diseases/conditions mentioned in a list of specified chronic diseases presented to the respondent.

The indicator measures if people have a condition, not necessarily if they really "suffer from it". Also conditions that are not diagnosed by a doctor are included.

35. LONG-TERM ACTIVITY LIMITATIONS

Definition: The percentage of the population that indicates to be limited in their usual daily activities due to a longstanding illness or health problem, declared by the persons themselves.

Calculation:

1) EHIS: Percentage of persons who answer "severely limited" or "limited but not severely" to the EHIS question HS.3: For at least the past 6 months, to what extend you have been limited because of a health problem in activities people usually do? Would you say you have been: Severely limited / limited but not severely / not limited at all.

2) Percentage of persons who answer "yes, severely" or "yes to some extent" to the Euro-REVES General Activity Limitation Indicator (GALI): "For at least the past 6 months, are you limited because of a health problem in activities people usually do? Yes severely/ yes to some extent/no."

Notes: The analysis will be limited to the age group 15+; it is the usual age category proposed in the framework of the EHIS. Also calculated for age groups 65+. The reference period of "at least 6 months" is used to underline the "longstanding" character of the limitation and not as a mere limit in time. The severity of the limitation is evaluated by the respondent and does not have a strict "objective" component. By activities people usually do, reference is made to the "day in day out" activities in "normal" situations. Yet this concept is defined by the respondent and it is in the framework of this definition that respondents are asked to estimate their capacities/limitations.

36. PHYSICAL AND SENSORY FUNCTIONAL LIMITATIONS

Definition: The percentage of people who have physical and sensory functional limitations (on seeing, hearing, mobility, speaking, biting/chewing, and agility), declared by the persons themselves.

Calculation: Prevalence of physical and sensory functional limitations measured by The European Health Interview Survey (EHIS) instrument derived from the following questions PL.1–PL.11:

PL1. Do you wear glasses or contract lenses? (Yes / No / I am blind cannot see)

PL2: Can you see newspaper print?

PL3: Can you see the face of someone 4 metres away (across a road)?

PL4: Do you wear a hearing aid? (Yes / No / I am profoundly deaf)

PL5: Can you hear what is said in a conversation with several people

PL6: Can you walk 500 metres on a flat terrain without a stick or other walking aid or assistance?

PL7: Can you walk up and down a flight of stairs without a stick, other walking aid, assistance or using a banister?

PL8: Can you bend and kneel down without any aid or assistance?

PL9: Using your arms, can you carry a shopping bag weighting 5 kilos for at least 10 metres without any aid or assistance?

PL10: Can you use your fingers to grasp or handle a small object like a pen without any aids?

PL11: Can you bite and chew on hard foods such as firm apple without any aid (for example, denture)?

Answer categories: Yes, with no difficulty / With some difficulty / With a lot of difficulty / Not at all.

In the calculation of the indicator, the questions on the use of glasses/contact lenses (PL1) and of a hearing aid (PL4) are not considered. People are considered as

a) not limited if the responses for all the remaining questions is always "Yes, with not difficulty",

b) moderately limited in case the response of at least one question is "Yes, with some difficulty" (and for none of the questions the response is "With a lot of difficulty" or "not at all").

c) severely limited if the response of at least one question is "With a lot of difficulty" or "Not at all".

Notes: The analysis will be limited to the age group 15+; it is the usual age category proposed in the framework of the European Health Interview Survey (EHIS). Also calculated for age groups 65+.

The aim of the questions is to measure long-term (chronic) limitations, temporary limitations are not taken into account. Physical and/or sensory functional limitations are measured through reference to some actions/situations (walking 500 meters, carry shopping bags, seeing newspaper print, etc.). These actions/situations are only there to help to assess the level of functioning and should not be taken literally. Since it is possible that respondents are not obliged to do the listed actions/are not confronted with the listed situations, the functional limitation is measured in terms of capacity to undertake the task, rather than the performance.

In the questions, it is stressed that the capacity to undertake the task without any aid should be estimated (to be sure that the limitation is not due to financial restrictions). Yet, for the sensory functional limitations (seeing and hearing), the capacities are estimated with the normal use of aids (glasses or contact lenses, hearing aid).

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37. GENERAL MUSCULOSKELETAL PAIN

Definition: Prevalence of general musculoskeletal pain, measured by means of health interview survey using representative population sample.

Calculation: Topic needs further developing.

Project musculoskeletal disorders recommendation: 1. During the last week, have you had any pain affecting your muscles, joints, neck or back which has occurred on most days and which has affected your ability to carry out the activities of daily living? If Yes, please tick the region(s) in the grid (column a). 2. Has this pain (or pains) lasted for 3 months or more? If Yes, please tick the region(s) in the grid (column b). Head – Neck – Shoulder(s) – Upper back – Elbows – Wrist(s) / hand(s) – Low back – Hip(s) / thigh(s) – Knee(s) – Ankles / foot/ feet.

Notes: Data on general musculoskeletal pain is not currently available from international databases. No instruments for monitoring musculoskeletal problems in HISs have been properly validated in an international setting. For example SF-36 includes pain in general, not musculoskeletal pain. Also EHIS has no question on musculoskeletal pain, just a general question on any physical pain or discomfort. Some HISs include specific questions on diagnosis, as "have a doctor ever told you that you have osteoporosis?", but such questions are not considered relevant for monitoring unspecified musculoskeletal problems.

38. PSYCHOLOGICAL DISTRESS

Definition: Occurrence and extent of psychological distress during past month, measured by the Mental Health Index (MHI-5) scale of the RAND Short Form 36. Perceived psychological distress is a non-specific dimension of psychopathology and it indicates that something is wrong but has not yield diagnostic assessment. It does not necessarily involve a mental illness or require services from the mental health system. However, cultural variations in experiencing and expressing the inner feelings and emotions have to taken into account when interpreting the results.

Calculation:

1) An index or a score indicating a case of mental ill-health, derived from EHIS questions (corresponding to the Mental Health Index (MHI-5) score from the RAND Short Form 36), SF.2–SF.10: How much of the time, during the past 4 weeks: SF.3 Have you been very nervous? SF.4 Have you felt so down in the dumps that nothing could cheer you up? SF.5 Have you felt calm and peaceful? SF.7 Have you felt down-hearted and depressed? SF.9 Have you been happy? The five response categories are: 1. All of the time; 2. Most of the time; 3. Some of the time; 4. A little of the time; 5. None of the time. The precise operationlisation to be defined later.

2) Recommendation by Mindful/Working Party Mental Health: A mean score of 56 or less on the Mental Health Index (MHI-5) score (from the RAND Short Form 36 (SF–36 v1.0) questionnaire) is taken to indicate a case of mental ill-health. MH-5 score is based on the following five questions: How much of the time in the previous 4 weeks: 1. Have you been a very nervous person? 2. Have you felt so down in the dumps that nothing could cheer you up? 3. Have you felt calm and peaceful? 4. Have you felt downhearted and blue? 5. Have you been a happy person? The six response categories are: 1. All of the time; 2. Most of the time; 3. A good bit of the time; 4. Some of the time; 5. A little of the time; 6. None of the time.

The score for the MHI-5 is computed by adding the scores of each question item and then transforming the raw scores to a 0–100-point scale.

Notes: The MHI-5 is one of the eight scales that constitute the RAND Short Form 36. The MHI-5 consists of three depression-related items and two anxiety-related items. It has a score of 0 to 100, where a score of 100 represents optimal mental health.

The suggested population norm for the mean score is 76 and 56 for the cut-point. However, each country may be advised to define national cut-points, because the results from the pilot study and Eurobarometer imply culture based differences in the responses (MINDFUL). In most studies the cut-point has been between 52 and 60.

The EHIS questions SF.2–SF.10 differ slightly from the questions of the original Mental Health Index (MHI-5). Thus the scoring of MHI-5 defined in calculation (2) may be applied as such. The same applies also to the Special Eurobarometer survey 248 on Mental Well-Being, question QA5.

39. PSYCHOLOGICAL WELL-BEING

Definition: Occurrence and extent of psychological well-being during past month, measured by the Energy and Vitality Index (EVI) scale of the RAND Short Form 36. Perceived experience of energy and vitality is an important indicator of psychological well-being and positive mental health. However, cultural variations in experiencing and expressing the inner feelings and emotions have to taken into account when interpreting the results.

Calculation:

1) An index or a score indicating psychological well-being, derived from the EHIS questions SF.2–SF.10: How much of the time, during the past 4 weeks: SF.2 Did you feel full of life? SF.6 Did you have a lot of energy? SF.8 Did you feel worn out? SF.10 Did you feel tired?

The five response categories are: 1. All of the time; 2. Most of the time; 3. Some of the time; 4. A little of the time; 5. None of the time. The precise operationlisation to be defined later.

2) Recommendation by Mindful/Working Party Mental Health: a mean score of 62 or less on the Energy and Vitality Index (EVI) score (from the RAND Short Form 36 (SF–36 v1.0) questionnaire) is taken to indicate Psychological well-being. Energy and Vitality Index score is based on the following four questions: How much time during the past month? 1. Did you feel full of life? 2. Did you have lots of energy? 3. Did you feel worn out? 4. Did you feel tired? The six response categories are: 1. All of the time; 2. Most of the time; 3. A good bit of the time; 4. Some of the time; 5. A little of the time; 6. None of the time. The score for the MHI-5 is computed by adding the scores of each question item and then transforming the raw scores to a 0–100-point scale.

Notes: The Energy and vitality index (EVI) one of the eight scales that constitute the SF-36. It has a score of 0 to 100, where a score of 100 represents optimal mental health. The suggested population norm for the mean score is 70 and 62 for the cut-point (MINDFUL).

The EHIS questions SF.2–SF.10 differ slightly from the questions of the original The Energy and vitality index (EVI). Thus the scoring of MHI-5 defined in calculation (2) may not be applied as such. The same applies also to the Special Eurobarometer survey 248 on Mental Well-Being, question QA5..

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40. HEALTH EXPECTANCY: HEALTHY LIFE YEARS (HLY)

Definition: Eurostat structural indicator defined as expected remaining years lived at a particular age without long-term activity limitation. It is computed by the Sullivan method based on life table data and the Euro-REVES General Activity Limitation Indicator (GALI).

Calculation: Computed by the Sullivan method: life tables combined with age-specific period prevalence data on long-term activity limitations (Documentation Sheet 34): Prevalence of persons who answer "severely limited" or "limited but not severely" to the EHIS question HS.3.: "For at least the past 6 months, to what extent you have been limited because of a health problem in activities people usually do? Severely limited / limited but not severely / not limited at all."

Notes: Healthy Life Years can also be called "Life expectancy without activity limitations", and belongs under the more general concept of "Health Expectancy". It is one specific health expectancy and others can be calculated based on for example self perceived health or self-reported chronic morbidity. Healthy Life Years is a different concept to the Health-Adjusted Life Expectancy (HALE, number of expected years of life equivalent to years lived in full health) or Disability-Adjusted Life Expectancy (DALE, which use disability weights in the calculation, thus part of the life expectancy with disability is added to disability free life expectancy to obtain the latter), which are based on quite different premises and calculations. HLY is one of the Eurostat structural indicators.

41. HEALTH EXPECTANCY, OTHERS

Definition: Expected remaining years lived at a particular age a) in good perceived health and b) without chronic morbidity. It is computed by the Sullivan method based on life table data and the age group-specific prevalence of the health state in question.

Calculation:

a) Computed by the Sullivan method: life tables combined with age group-specific period data on prevalence of good self perceived health (Documentation Sheet 32): Proportion of persons who assess their own health to be good or very good in the EHIS question HS.1: How is your health in general? Is it: very good / good / fair / bad / very bad?

b) Computed by the Sullivan method: life tables combined with age group-specific period data on prevalence of Self-reported chronic morbidity (Documentation Sheet 33): Prevalence of persons who answer positively to the EHIS question HS.2: Do you have any longstanding illness or [longstanding] 2 health problem? [By longstanding I mean illnesses or health problems which have lasted, or are expected to last, for 6 months or more] (Yes / No).

Notes: Health expectancies extend the concept of life expectancy to self perceived health, morbidity and disability in order to assess the quality of years lived. It is a composite indicator that combines mortality data (life tables) with data referring to a health indicator, such as disability, poor self-perceived health and ill-health. Health Expectancy is a different concept to the Health-Adjusted Life Expectancy (HALE, number of expected years of life equivalent to years lived in full health) or Disability-Adjusted Life Expectancy (DALE, which use disability weights in the calculation, thus part of the life expectancy with disability is added to disability free life expectancy to obtain the latter), which are based on quite different premises and calculations.

42. BODY MASS INDEX

Definition: Proportion of adult persons who are obese, i.e. whose body mass index, BMI is ≥ 30 kg/m^2. Body mass index is defined as the individual's body weight (in kilograms) divided by the square of their height (in metres). Preferably calculated by 1) actual measurements rather than by 2) self-reports. Overweight and obesity refer to the condition in which excess fat has accumulated in the body. This condition is a risk factor for a range of diseases and disorders.

Calculation:

1a) European Health Risk Monitoring, EHRM: Percent of persons aged 15+ whose body mass index (BMI) is ≥ 30, derived from actual measurements in HES or HIS

1b) Percent of persons aged 15+ who's body mass index (BMI) is ≥ 30, derived from EHIS questions BM1 and BM.2: MI.1 How tall are you without shoes? (in cm). BMI.2 How much do you weigh without clothes and shoes? (in kg)

2) European Health Risk Monitoring, EHRM: other recommended indicators are mean and standard deviation of BMI and mean and standard deviation of waist circumference.

3) European Cancer Health Indicator Project, EUROCHIP: Recommends to use BMI distribution in the population.

Notes: Children: BMI is calculated the same way as for adults, but then compared to typical values for other children of the same age. The cut-off point for obesity is 98th percentile of the he International Obesity Task Force (IOTF) reference curves (namely those which at age 18 years intersect the 25 and 30 kg/m^2 BMI levels.) Child Health Indicators of Life and Development (CHILD) project. Overweight is usually defined as BMI ≥ 25.

43. BLOOD PRESSURE

Definition:

1) Prevalence of actual and potential hypertensives.

If the preferred indicator (1) is available, also the following additional indicators can be elicited from the HES in question:

2) Mean and standard deviation of systolic blood pressure in the population

3) Mean and standard deviation of diastolic blood pressure in the population

4) Prevalence of antihypertensive drug treatment among actual and potential hypertensives

5) Awareness of elevated blood pressure

If the preferred indicator (1), i.e. no HES is available, the following indicators can be elicited from (E)HIS:

6) Prevalence of antihypertensive drug treatment in the population

7) Awareness of elevated blood pressure in the population

8) Proportion of the population with blood pressure measurement in the past 5 years

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Calculation:

1) Numerator: number of those whose systolic blood pressure was at least 140 mmHg or diastolic blood pressure was at least 90 mmHg or who reported that they are taking medication to lower their blood pressure.

2, 3) Calculated from the mean of the second and third of three serial measurements. Denominator: Number of all survey respondents

4) Numerator: number of those who reported that they are taking medication to lower their blood pressure. Denominator: number of those who were identified as actual or potential hypertensives as defined above.

5) Numerator: number of those who reported that in the past 12 months they have been told by a health professional to have elevated blood pressure or hypertension. Denominator: number of those who were identified as actual or potential hypertensives as defined above.

6) Numerator: number of those who reported that they are taking medication to lower their blood pressure. (EHIS questions MD.1 and MD.2C). Denominator: number of all survey respondents.

7) Numerator: number of those who reported that in the past 12 months they have been told by a health professional to have elevated blood pressure or hypertension. (EHIS question HS.6). Denominator: number of all survey respondents.

8) Numerator: number of those who reported that their blood pressure was measured by a health professional in the past 5 years. (EHIS questions PA.4 and PA.5). Denominator: number of all survey respondents.

Notes: The mean of the second and third out of three sequential blood pressure measurements taken on a single occasion should be used. The second measurement is usually lower than the first, and the third is usually lower than the second, but the second and the third are already more stable than the first.

The term "actual and potential hypertensives" instead of "hypertensives " is to reflect the fact that the measurements taken on a single occasion are, whereas the diagnosis of hypertension requires high blood pressure on several occasions.

The European Health Risk Monitoring (EHRM) project has devised a standardized quality assurance protocol for blood pressure measurements.

44. REGULAR SMOKERS

Definition: Percent of regular daily cigarette smokers in the population aged 15+. Key definitions on what exactly covers the terms and concepts used in tobacco related research are given below (Ref: WHO. Guidelines for controlling and monitoring the tobacco epidemic. Geneva: 1998). Normally, any population can be divided into two categories, smokers and non-smokers.

a) A cigarette smoker is someone who, at the time of the survey, smokes cigarettes either daily or occasionally. A daily cigarette smoker is someone who smokes cigarettes at least once a day. An occasional smoker is someone who smokes, but not every day.

b) A non-smoker is someone who, at the time of the survey, does not smoke at all. Non-smokers can be divided into three categories: 1. ex-smokers, 2. never-smokers, 3. ex-occasional smokers.

Calculation:

1) EHIS: percent of respondents answering "yes, daily" to EHIS question SK.1 "Do you smoke at all" combined with answers "(manufactured or hand-rolled) cigarettes" to EHIS question SK2. SK.1: Do you smoke at all nowadays? 1. Yes, daily; 2. Yes, occasionally; 3. Not at all. SK.2: What tobacco product do you smoke each day? 1. Manufactured cigarettes; 2. Hand-rolled cigarettes; 3. Cigars; 4. Pipefuls of tobacco; 5. Other.

2) EU-SILC / national HIS: percent respondents answering yes to question on regular cigarette smoking habits or similar.

3) For children: percent of children smoking cigarettes weekly at age 11-13-15.

Notes: The analysis will be limited to the age group 15+; it is the usual age category proposed in the framework of EHIS. Only cigarette smokers to be included because pipe and cigar smoking have quite a different risk profile (less risk for the smoker by less inhaling). Furthermore, cigarettes (including self-rolled ones) are the bulk of tobacco consumption.

45. PREGNANT WOMEN SMOKING

Definition: Percentage of women who smoke during pregnancy.

Calculation: Peristat project: The number of women who smoke during the third trimester of pregnancy expressed as a percentage of all women delivering live or stillborn babies.

Notes: It is important to measure smoking at a similar point in pregnancy since many women stop smoking during pregnancy. A measure in the last trimester of pregnancy is a better measure of exposure during pregnancy than smoking in the first trimester.

46. TOTAL ALCOHOL CONSUMPTION

Definition: Litres of pure alcohol consumed per person per year (among adults, persons ≥15 years), based on trade and production data.

Calculation: WHO: Estimated amount of pure ethanol in spirits, wine, beer and other alcoholic drinks consumed in the country during the calendar year by the whole population (including children and abstainers), divided by the number of adults (persons over the age of 15). Alcohol consumed is calculated from official statistics on local production, sales, import and export, taking into account stocks and home production, whenever possible. Conversion factors used to estimate the amount of pure alcohol in beer is 4.5%, in wine 14% and in spirits 40% of alcohol.

Notes: Total alcohol consumption can be calculated also per whole population. The use of this indicator is mainly related with the existing correlation between the level of the per capita alcohol consumption and the level of the alcohol related problems and diseases in the population. The limit of this indicator is that does not allow to evaluate adequately the at risk population according to sex and age as the definition and calculation refers to all the individuals (usually aged 15+) disregarding the status of drinkers or teetotaller.

47. HAZARDOUS ALCOHOL CONSUMPTION

Definition: Hazardous alcohol consumption is as an average rate of consumption of more than 20g pure alcohol daily for women and more than 40g daily for men. Hazardous alcohol consumption is a level of consumption or pattern of drinking that is likely to result in harm should present drinking habits persist. For the individual drinker, the higher the alcohol consumption, the greater the risk.

Calculation:

1) Percentage of men/women having at least X times 6 or more drinks on one occasion during the past 12 months, derived from EHIS questions AL.1 and AL.3. AL.1: During the past 12 months, how often have you had an alcoholic drink of any kind (that is beer, wine, spirits, liqueurs or other alcoholic beverages)? 1. Never / 2. Monthly or less / 3. 2 to 4 times a month / 4. 2 to 3 times a week / 5. 4 to 6 times a week / 6. Every day. If 2 to 3 times a month or more often, then AL.3: During the past 12 months, how often did you have 6 or more drinks on one occasion? 1. Never / 2. Less than monthly / 3. Monthly / 4. Weekly / 5. Daily or almost daily. Precise operationalisation to be formulated.

2) Percentage of men/women having over the week on average ≥2 drinks/day (women) or ≥3 drinks/day (men), derived from EHIS question AL.2: How many drinks containing alcohol do you have each day in a typical week when you are drinking? Start with Monday and take one day at a time. Number of drinks of: Beer, Wine, Liqueur, Spirits, Other local alcoholic beverage. Precise operationalisation to be formulated.

3) Percent of adolescents, adults consuming > 20 g (women), or > 40 g ethanol/day (men). It is calculated from total alcohol consumption data combined with data on abstinence, sex and age groups and information on drinking patterns (WHO-CHOICE project; Rehm et al., 2004).

4a) Recommendation by Working Party Mental Health: AUDIT-5 score of ≥5 for questions 1, 2, 4, 5 and 10 of the original Alcohol Use Disorders Identification Test (AUDIT-10) indicates hazardous alcohol consumption.

4b) AUDIT-C score >5 for man and >4 for women for questions 1–3 of the Alcohol Use Disorders Identification Test (AUDIT-10) indicates hazardous alcohol consumption (to be confirmed by mean of the full AUDIT).

Notes: Threshold for "hazardous" alcohol consumption is usually considered higher for men than for women. According to the WHO, morbidity and mortality due to alcohol consumption rises when the limits of 21 drinks/week (3 glasses/day) for men and 14 drinks/week (2 glasses/day) for women are exceeded.

48. USE OF ILLICIT DRUGS

Definition: Prevalence for illicit use of specific psychoactive drugs (cannabis, cocaine, amphetamine, ecstasy, LSD) among adults and school students, a) Lifetime prevalence and b) last year prevalence.

Calculation:

1a) For adults: Lifetime prevalence and last year prevalence for use of the mentioned drugs among adults in nationwide surveys (reported to EMCDDA) among the general population. The recommended age range is 15–64 years for the whole adult population and 15 to 34 years for young adults.

1b) For adults: Percentage of men/women having used drugs (such cannabis, cocaine, amphetamines, ecstasy or other similar substances) during the past 12 months, derived from EHIS questions CN.2 and CN.3. CN.2: During the past 12 months, have you taken any cannabis (or term best understood by respondent? (yes/no). CN.4: During the past 12 months, have you taken any other drug, such as cocaine, amphetamines, ecstasy or other similar substances? (yes/no).

2) For school students: Lifetime prevalence for use of the mentioned substances among 15–16 year-old school students collected by school surveys (ESPAD, HBSC and other national surveys). The numerator is the estimation of the number of people that declare having used specified drugs in these timeframes and the denominator is the population in their respective age groups.

Notes: Lifetime prevalence of drug use is a cumulative measure that includes individuals who have tried drugs in the past. For adults has limitations to assess the current situation, but for school students can be a valid indicator of the current situation. Despite limits, it gives a rough estimation of the extent of drug experience and exposure in the population,. It can help to estimate incidence (together with year of first use) and to compute basic use patterns (continuation and discontinuation rates).

Last year prevalence gives information on the recent situation (in particular among adults) regarding prevalence of drug use, and it is consistent with other drug and health indicators expressed as annual prevalences.

Population surveys have limitations in estimating very marginalised forms of drug use (e.g. heroin injection), or newly emerging drug trends where prevalence is too low to show up in aggregated national data.

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49. CONSUMPTION/AVAILABILITY OF FRUITS

Definition: Average amount of fruits available (excluding juice) per person, per year (in grams).

Calculation:

1) Average amount of fruits (excluding juice) consumed (grams) per person per day, as obtained from household budget surveys (HBS). And percent of population below consumption of 100 g/day. Exact amount in grams to be decided later.

2) Average amount of fruits (excluding juice) consumed (grams) per person per day, as obtained from national food consumption surveys using food diary. And percent of population below consumption of 100 g/day. Exact amount in grams to be decided later.

3) Percentage of people eating fruits (excluding juice) at least daily, derived from EHIS question FV.1. How often do you eat fruits (excluding juice)? 1. Twice or more a day / 2. Once a day / 3. Less than once a day but at least 4 times a week / 4. Less than 4 times a week, but at least once a week / 5. Less than once a week / 6. Never. Precise operationalisation to be formulated.

Notes: WHO recommendation: daily availability of at least 2 portions (approx.150 g/p/d) of fruits per day. Although food availability and consumption both provide relevant information, food availability and consumption are often not synonyms and that needs to be reported and taken into account when interpreting the data.

Monitoring Public Health Nutrition in Europe -project's recommendation is below 100 g/day.

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50. CONSUMPTION/AVAILABILITY OF VEGETABLES

Definition: Average amount of vegetables (excluding potatoes and juice) available per person, per year (in grams).

Calculation:

1) Average amount of vegetables (excluding potatoes and juice) consumed (grams) per person per day, as obtained from household budget surveys (HBS). And percent of population below consumption of 300 g/day. Exact amount in grams to be decided later.

2) Average amount of vegetables (excluding potatoes and juice) consumed (grams) per person per day, as obtained from national food consumption surveys using food diary. And percent of population below consumption of 300 g/day. Exact amount in grams to be decided later.

3) Percentage of people eating vegetables (excluding potatoes and juice) at least daily, derived from EHIS question FV.2. How often do you eat vegetables or salad (excluding juice and potatoes)? 1. Twice or more a day / 2. Once a day / 3. Less than once a day but at least 4 times a week / 4. Less than 4 times a week, but at least once a week / 5. Less than once a week / 6. Never.

Notes: WHO recommendation: daily availability of at least 3 portions of vegetables (approx.250 g/p/d) on a daily basis. Although food availability and consumption both provide relevant information, food availability (at least the way FAO collects it), and consumption are often not synonyms and that needs to be reported/taken into account when interpreting the data.

Monitoring Public Health Nutrition in Europe -project's recommendation is below 300 g/day.

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51. BREASTFEEDING

Definition: Percent of newborns breastfed exclusively or partially at the age of 6 and 12 months.

Calculation:

1) WHO: percent of infants reaching their first birthday in the given calendar year who were breastfed, at least partially, when they were a) 3 and b) 6 months of age.

2) Peristat/Nutrition projects: percent of newborns (exclusively) breastfed at first 48 hours and at 6 months.

3) Child Health Indicators of Life and Development (CHILD) project: a) Percentage of newborn children exclusively breastfed at hospital discharge or immediately after birth. b) Percentage of all 6 month old children exclusively breastfed at 6 months. c) Percentage of all 12 month old children receiving breastfeeding at 12 months.

Notes: Exclusive versus partial breastfeeding. The WHO recommends exclusive breastfeeding for the first six months of life, and subsequent breastfeeding with appropriate complementary foods while breastfeeding continues for up to two years of age or beyond. Eurodiet-project: The average population goal is around 6 months, but for individuals exclusive breastfeeding should continue for at least four months and breastfeeding should be the principal source of milk for the infant until one year of age.

Comparisons among countries are not easy; the definitions, questions, recall period and methods of data collection are different, not all countries gather regular data on breastfeeding and few has data on trends.

52. PHYSICAL ACTIVITY

Definition: This indicator is referring to the concept of "health-enhancing physical activity". It is covering a whole range of physical activities including leisure time physical activities, exercises, sport, occupational activities, commuting and daily tasks. Physical activity is defined as any bodily movement produced by skeletal muscle that results in energy expenditure.

Calculation:

1) EHIS instrument (deriving from the IPAQ) to measure the proportion of population performing moderate and vigorous physical activity (days and/or hours per week), derived from questions PE.1.–6: During the past 7 days, a) days and time devoted to vigorous physical activities. b) days and time devoted to moderate physical activities c) days and time spent walking. Precise operationalisation to be formulated.

2) The Health Behaviour of School Children Survey (HBSC, 2001/2002) includes some questions for children aged 11–13–15: % of children reporting 60 minutes or more of physical activity of at least moderate intensity on 5 or more days a week, carried out at school and/or in free-time, a) during both the previous week and b) a typical week, derived from questions:

Over the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? Over a typical or usual week, on how many days are you physically active for a total of at least 60 minutes per day? The response categories for both were: 0 days, 1 day, 2 days, … 7 days.

Notes: Population health surveys allow verifying if the respondents have effectively performed any type of physical activity. Intensity as well as frequency of the effort is taken into account. This can be done either through direct measurements (pedometer, accelerometer) or rather based on the self-declaration of the individuals

Possible operational measures of physical activity level and pattern include: a) The total amount of activity expressed either as activity energy expenditure (kcal, Joules, MET mins, etc) or physical activity level (PAL); b) Time (mins/day or week) spent at health enhancing physical activity level (i.e. activity at moderate and vigorous intensity levels); c) Time (mins/day or week) spent sitting; d) Proportion of the population reaching the threshold level for health enhancing physical activity.

European Physical Activity Surveillance System, EUPASS -project stresses 4 key dimensions of physical activity: type, frequency, duration and intensity of activity. The International Physical Activity Questionnaire (IPAQ) is considered as the most advanced international approach to operationalise the dimensions of physical activity

The EHIS questions (PE.1.–6.) are an adaptation of the IPAQ but they have not been validated.

53. WORK-RELATED HEALTH RISKS

Definition:

1) Number of employees who think that their health or safety is at risk because of work and working conditions.

2) Number of employees who think their health is affected by work and working conditions.

Calculation:

1) WORKHEALTH project: percent of respondents (employees) answering positively to the European Survey on Working Conditions question "Do you think your health or safety is at risk because of your work, or not?"

2a) WORKHEALTH project: percent of respondents (employees) answering positively to the European Survey on Working Conditions questions "Do you think your health or safety is at risk because of your work, or not?" and "Does your work affect your health, or not? If Yes, how does it affect your health?" The question about the impact of work on one's health (several answers possible) refer to: Hearing problems, problems with vision, skin problems, backache, headaches, stomach ache, muscular pains in shoulders and neck, muscular pains in upper limbs, muscular pains in lower limbs, respiratory difficulties, heart disease, injury, stress, overall fatigue, sleeping problems, allergies, anxiety, irritability, trauma, other or

"work improves health".

2b) Percent of respondents answering positively to the EHIS question HS.9 (which is asked only for respondents currently working or having worked in the past.): Is any of the diseases you had in the past 12 months caused or made worse by your job or by work you have done in the past? 1. No, I had no disease in the past 12 months; 2. No, I had one or more disease in the past 12 months but they were not caused or made worse by my job; 3. Yes, I had at least one disease in the past 12 months which was caused or made worse by my job.

2c) Percent of respondents who have at least one physical or psychological health problem caused or made worse by work, derived from 2007 Labour Force Survey ad-hoc module on accidents at work and work-related health problems indicator 214: Illness(es), disability(ies) or other physical or psychic health problem(s), apart from accidental injuries, suffered by the person during the past 12 months (from the date of the interview) and that was (were), caused or made worse by work: 1. None; 2. One; 3. Two or more. (This question is asked only for respondents currently working or having worked in the past 12 months).

Notes: Subjective assessment of risks at the workplace.

2c) Also the type of the most serious complaint caused or made worse by work is asked (10 categories), indicator 215/216.

54. SOCIAL SUPPORT

Definition: Extent of social support measured by Oslo-3 Social Support Scale (OSS-3). Social support is defined as the perceived availability of people whom the individual trusts and who make one feel cared for, loved, esteemed and valued as a person. It is a strategic concept in understanding the maintenance of health and the development of (mental and somatic) health problems, as well as their prevention. Social support is determined by factors at the individual as well as the social level. Oslo-3 is a composite scale measuring perception of both support and social network.

Calculation:

1) Age and sex adjusted means score on the Oslo-3 Social Support Scale (OSS-3). Division by strong/ moderate/ poor social support (used in Eurobarometer 58.2.) Timeframe: present. The total score is calculated by adding up the raw scores for each item. The sum of the raw scores has a range from 3 to 14. A score ranging between 3 and 8 is classified as poor support, a score between 9 and 11 as intermediate support, and a score between 12 and 14 as strong support.

2) Number of persons on whom the respondent can rely on when help is needed, as measured by EHIS question EN.4: How many people are so close to you that you can count on them if you have serious personal problem? (None / 1 or 2 / 3 to 5 / More than 5). Exact operationalisation to be formulated.

ECHIM prefers 1.

Notes: OSS-3: score for the 3 questions: 1. Number of people to count on, 2. Other people's interest, 3. Help from neighbours. Each question measures a different dimension. The OSS-3 can be used for each separate item as well as for the total score.

Cultural variations in experiencing and expressing the inner feelings and emotions have to taken into account when interpreting the results.

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55. PM10 (PARTICULATE MATTER) EXPOSURE

Definition: Annual urban population average exposure to outdoor air pollution by particulate matter (PM10). Particulate Matter (PM) is an air pollutant consisting of a mixture of solid and liquid particles suspended in the air. PM10 refers to particulates whose diameter is less than 10 micrometers. In general, smaller particles (PM10 and smaller) are more important for health effects than larger particles since they penetrate deeper into the lungs.

Calculation:

1) Eurostat, EU structural indicator Environment: Percent of urban population exposed to mean concentrations of PM10 exceeding limit value (50 microgram /m^3, 24 h average) on 35 or more days, measured at urban background stations in agglomerations. (The first Daughter Directive for sulphur dioxide, oxides of nitrogen, particulate matter and lead in ambient air; Council Directive 1999/30/EC, Annex III.) An additional limit value of 40 mg/m^3 as annual average has also been set.

2) The European Environment and Health Information System, ENHIS: Population-weighted annual means of PM10 concentrations and the total population distribution of annual PM10 concentrations. Population-weighted annual mean PM10 concentration is also an indicator recommended by Environment and Health Indicators for European Union Countries, ECOEHIS, project (indicator AIR_EX1_PM10)

3) WHO-HFA: Annual average concentrations of particulate matter (PM10) in the capital city, based on daily values monitored at the urban background stations of the capital city.

4) Child Health Indicators of Life and Development (CHILD) project: percent of children living in localities with annual mean value > 40 microgram /m^3 of PM10.

ECHIM prefers 1.

Notes: The 2005 WHO Air Quality Guideline PM10 level (AQG) level is 20 microgram /m^3 for annual mean PM10 concentrations, and 50 microgram /m^3 for 24-hour mean (not to be exceeded more than 3 days/year). The indicator relates to the target and limit values as set in EC legislation. The indicator "Urban population exposure to air pollution by particulate matter" is one of the EU structural indicators (Environment).

56. VACCINATION COVERAGE IN CHILDREN

Definition: Percentage of infants reaching their a) first and b) second birthday in the given calendar year who have been fully vaccinated (according to national immunisation schemes) against selected important diseases such as: diphtheria, tetanus (DPT), pertussis (whooping cough), measles (2nd birthday), poliomyelitis, invasive disease due to Haemophilius influenzae type b, hepatitis B, mumps (2nd birthday) and rubella (2nd birthday).

Calculation:

1) The EU Social Protection Committee indicator (HC-P6): a) Percent of infants reaching their 1st birthday in the given calendar year who have been fully vaccinated against pertussis (whooping cough), diphtheria, tetanus (DPT) and poliomyelitis; and b) Percent of infants reaching their 2nd birthday in the given calendar year who have been fully vaccinated against measles, mumps and rubella (MMR)

2) OECD: Percentage of children reaching their first birthday who have been fully immunised against a) Diphtheria, Tetanus and Pertussis (DTP) taken together; and b) seperately for measles, Hepatitis B and influenza; out of all children in the respective age group.

3) Child Health Indicators of Life and Development (CHILD) project: Immunisation rates for childhood immunisation, expressed as children aged 24–35 months inclusive having completed primary courses of immunisation as a percentage of all children in that age-group, separately for the following antigens: diphtheria, pertussis, tetanus, poliomyelitis, haemophilus influenza type b, measles, mumps, rubella, hepatitis B, meningococcus C.

Notes: Immunisation schemes are not harmonised in the EU. The age of complete immunisation differs across countries due to different immunisation schedules. The vaccination coverage in children has to be calculated according to the national schemes. The vaccination coverage is calculated as the percentage of children that have been fully vaccinated against a specific disease out of all children in the respective age group.

57. INFLUENZA VACCINATION RATE IN ELDERLY

Definition: Influenza vaccination is defined here as individuals who have received one shot of Influenza Vaccine (brand name to be verified in each country) during the 12 months preceding the interview.

Calculation: Percentage of persons aged 65 and older reporting to have been vaccinated against influenza during the last 12 months, derived from EHIS questions PA.1, PA.2 and PA.3. PA.1: Have you ever been vaccinated against flu? 1. Yes / 2. No; PA.2: When were you last time vaccinated against flu? 1. Since the beginning of this year / 2. Last year / 3. Before last year

PA.3: Can I just check, what month was that? Month (01–12).

Notes: Recall period of 12 months to count only one influenza season. The above definition excludes those who were offered a vaccination, but were in fact not vaccinated.

58. BREAST CANCER SCREENING

Definition: Indicator is defined as the percentage of women (aged 50–69) that have undergone a breast cancer screening test, measured as the coverage rate of mammography testing. Individuals are asked during a population survey if they had a breast cancer screening. The respondent is not required to produce any kind of proof that the screening was effectively performed. The statement of the respondent is thus used with all the subjectivity that may go with.

Calculation: Derived from EHIS questions PA.10 and PA.11: Percentage of women aged 50–69 reporting to have had a breast examination by X-ray (i.e. mammography) within past 2 years.

PA.10: Have you ever had a mammography, which is an X-ray of one or both of your breasts? Yes / No / Don't know / Refusal; and PA.11: When was the last time you had a mammography (breast X-ray)? Within the past 12 months / More than 1 year, but not more than 2 years / More than 2 years, but not more than 3 years / Not within the past 3 years / Don't know / Refusal.

Notes: Breast cancer screening should be performed according to defined quality criteria (e.g. certified screening centers), which is not specified in EHIS questions. While the target group for breast cancer screening is limited to women 50–69 years, it may be interesting to measure the screening coverage also in other groups such as women 40–49 years.

Breast cancer screening rather refers to the concept of preventive medicine: activities and interventions that focus on prevention and control of risk factors, prevention and early detection of disease. The use of preventive health care has been defined as that provided by professionals, as well as the use of specific devices and measures used or taken by individuals.

59. CERVICAL CANCER SCREENING

Definition: Indicator is defined as the percentage of women (aged 20–64) that have undergone a cervical cancer screening test, measured as the coverage rate of cervical smear testing. Individuals are asked during a population survey if they have had a cervical cancer screening. The respondent is not required to produce any kind of proof that the screening was effectively performed. The statement of the respondent is thus used with all the subjectivity that may go with.

Calculation: Percentage of women aged 20–64 reporting to have had a cervical smear test (pap smear) within the last 3 years, derived from EHIS questions PA.13 and PA.14. PA.13: Have you ever had a cervical smear test? Yes / No; PA.14: When was the last time you had a cervical smear test? Within the past 12 months / More than 1 year, but not more than 2 years / More than 2 years, but not more than 3 years / Not within the past 3 years.

Notes: Cervical cancer screening rather refers to the concept of preventive medicine: activities and interventions that focus on prevention and control of risk factors, prevention and early detection of disease. The use of preventive health care has been defined as that provided by professionals, as well as the use of specific devices and measures used or taken by individuals

60. COLON CANCER SCREENING

Definition: Indicator is defined as the percentage of persons (aged 50–74) that have undergone a colorectal cancer screening test, measured as the coverage rate of faecal occult blood testing. Individuals are asked during a population survey if they have had a colon cancer screening. The respondent is not required to produce any kind of proof that the screening was effectively performed. The statement of the respondent is thus used with all the subjectivity that may go with.

Calculation: Percentage of persons (aged 50–74) that have undergone a colorectal cancer screening test in the last 2 years, derived from EHIS questions : PA.16 and PA.17. PA.17: Have you ever had a faecal occult blood test? 1. Yes / 2. No; PA.14: When was the last time you had a faecal occult blood test? Within the past 12 months / More than 1 year, but not more than 2 years / More than 2 years, but not more than 3 years / Not within the past 3 years.

Notes: The screening test for colorectal cancer specified in the Council Recommendation is the faecal occult blood test (FOBT), a non-invasive test taken either at home by the screening participant and generally returned by surface mail to a laboratory for processing, or taken in the office of the general practitioner (or the specialist). Some countries use endoscopic test (colonoscopy) or flexible sigmoidoscopy, i.e., invasive, endoscopic procedures performed by medical personnel. All of those methods are efficient but with varying sensibility, specificity, cost and security.

Colon cancer screening rather refers to the concept of preventive medicine: activities and interventions that focus on prevention and control of risk factors, prevention and early detection of disease. The use of preventive health care has been defined as that provided by professionals, as well as the use of specific devices and measures used or taken by individuals

61. TIMING OF FIRST ANTENATAL VISITS AMONG PREGNANT WOMEN

Definition: The percentage of women having their first antenatal visit in 1st, 2nd, and 3rd trimester or having no visits. Antenatal visit refers to a visit to a certified health care professional, e.g. general practitioner, obstetrician, midwife and public health nurse. Only visits to examinations and/or pregnancy related advice are to be included, and mere prescription of a pregnancy test or booking in a maternity unit should be excluded.

Calculation: Peristat: Distribution of timing of first antenatal visit by trimester of pregnancy for all women delivering live or stillborn babies. Trimesters are defined as a) 1st trimester = lower than 15 weeks; b) 2nd trimester = 15–27 weeks; c) 3rd trimester = 28 weeks or more. Collect separately the percentage of women with no antenatal visits

Notes: Content, frequency and timing of visits. There is no universal recommendation for optimal timing, amount and content of antenatal care in either low- or high-risk pregnancies. However, early first visit before the end of 1st trimester is recommended in most countries.

62. HOSPITAL BEDS

Definition: The indicator is defined as the total number of hospital beds (i.e. all available beds in hospitals) per 100 000 inhabitants. A hospital bed is a regularly maintained and staffed bed for the accommodation and full-time care of a succession of inpatients and is situated in wards or areas of the hospital where continuous medical care for inpatients is provided. Total hospital beds are all hospital beds which are regularly maintained and staffed and immediately available for the care of admitted patients. Indicator can be divided into sub-categories of:

1) Acute care hospital beds,

2) Psychiatric care hospital beds,

3) Long-term care beds (excluding psychiatric care beds),

4) Other hospital beds.

Calculation: The indicator is calculated as the annual total number of hospital beds (i.e. all hospital beds which are regularly maintained and staffed and immediately available for the care of admitted patients) in given year, divided by the mid year population of that given year, expressed per 100 000 inhabitants.

Sub-categories of 1) acute care hospital beds, 2) psychiatric care hospital beds, 3) long-term care beds (excluding psychiatric care beds) and 4) other hospital beds per 100 000 inhabitants are calculated respectively, relating the total number of beds in question to the mid year population.

Notes: Total hospital beds, acute care hospital beds, psychiatric care hospital beds, long-term care beds (excluding psychiatric care beds) and other hospital beds are defined according to the Eurostat document "Definitions and data collection specifications on health care statistics (non-expenditure data) Version 31 July 2007".

Total hospital beds are all hospital beds which are regularly maintained and staffed and immediately available for the care of admitted patients. Curative care (acute care) beds in hospitals are hospital beds that are available for curative care. Psychiatric care beds in hospitals are hospital beds accommodating patients with mental health problems. Long-term care beds in hospitals are hospital beds accommodating patients requiring long-term care due to chronic impairments and a reduced degree of independence in activities of daily living. Other beds in hospitals are all other beds in hospitals not elsewhere classified.

63. PHYSICIANS EMPLOYED

Definition: The indicator is defined as the total number of physicians (medical doctors) per 100 000 inhabitants. Physicians (medical doctors) as defined by ISCO 88 (code 2221) apply preventive and curative measures, improve or develop concepts, theories and operational methods and conduct research in the area of medicine and health care. A physician is a person who has completed studies in medicine at the university level. To be legally licensed for the independent practice of medicine (comprising prevention, diagnosis, treatment and rehabilitation), (s)he must in most cases undergo additional postgraduate training in a hospital (from 6 months to 1 year or more). To establish his or her own practice, a physician must fulfil additional conditions. Indicator can be divided into sub-categories of:

1) practising,

2) professionally active,

3) economically active and

4) licensed to practise physicians.

Calculation: The indicator is calculated as the total number of physicians (medical doctors) in a given year, divided by the mid year population of that given year, expressed per 100 000 inhabitants.

Sub-categories of 1) practising, 2) professionally active, 3) economically active and 4) licensed to practise physicians per 100 000 inhabitants are calculated respectively, relating the total number of physicians in question to the mid year population.

Notes: Practising, professionally active, economically active and licensed to practise physicians are defined according to the Eurostat document: "Definitions and data collection specifications on health care statistics (non-expenditure data) Version 31 July 2007".

Practising physicians provide services directly to patients. Professionally active physicians are practising physicians plus other physicians for whom their medical education is a prerequisite for the execution of the job. Economically active physicians are practising physicians, professionally active physicians as well as physicians who do not use their medical education for the purpose of their actual job. Physicians licensed to practise are practising physicians, professionally active and

economically active physicians as well as all physicians being registered and entitled to practise as health care professionals.

Absolute number of posts (PP; "head count") versus number of full time equivalent (FTE) posts. The number of working hours per week varies between countries, but normally should not be less than 35 hours. The number of FTE should be calculated by adding the full and appropriate proportion of part-time occupied posts.

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64. NURSES EMPLOYED

Definition: The indicator is defined as the total number of nursing and caring personnel (i.e. qualified nurses, midwives, associate nurses and caring personnel) per 100 000 inhabitants. A (qualified and associate) nurse is a person who has completed a programme of basic nursing education and is qualified and authorised in his/her country to practise nursing in all settings. A midwife is a person who has completed a midwifery educational programme duly recognised in the country in which he/she is located and who has acquired the requisite qualifications to be registered and/or legally licensed to practise midwifery. Caring personnel include e.g. nursing aids and assistants.

Indicator can be divided into sub-categories of:

1) practising,

2) professionally active,

3) economically active and

4) licensed to practice nursing and caring professionals.

Calculation: The indicator is calculated as the total number of nursing and caring personnel (i.e. qualified nurses, midwives, associate nurses and caring personnel) in a given year, divided by the mid year population of that given year, expressed per 100 000 inhabitants.

Sub-categories of 1) practising, 2) professionally active, 3) economically active and 4) licensed to practise nursing and caring personnel per 100 000 inhabitants are calculated respectively, relating the total number of nursing and caring professionals in question to the mid year population.

65. MOBILITY OF PROFESSINALS

Definition: Mobility of health care professionals and personnel means the geographical movement of a health professional from one country to another in order to provide services or to establish himself/herself in another host Member State. The indicator can be designed in 2 ways:

(1) The number and proportion of health care professionals emigrating

(2) The number and proportion of health care professionals immigrating.

Calculation: To be developed.

1) Emigration: The number and proportion of health care professionals and personnel working in another than their county of origin or (permanent) resident country.

2) Immigration: The number and proportion of health care professionals and personnel working in a given country but originating from a different country (immigration)

Optionally: by profession (see below), by country-country combination(s).

Notes: Important EU-health policy issue. How to define 'country of origin' and 'country of residence' has to be decided. The EU legislation has established different

systems of recognition of professional qualifications. Dentists, medical doctors, midwives, nurses, pharmacists and veterinarians are covered by the so called "sectoral system", in which meeting the minimum common criteria of the schooling/training standards defined in the relevant sectoral directives leads to the automatic recognition of the diploma in each MS. This mutual recognition of professional qualifications is intended to simplify access to the market (right of establishment) and to facilitate the cross-border provision of services for all types of professions.

66. MEDICAL TECHNOLOGIES (CT/MRI)

Definition:

a) Number of Computer tomography scanners (CT units) per million population. CT or CAT scanner is an x-ray machine which combines many x-ray images with the aid of a computer to generate cross-sectional views and, if needed, three-dimensional images of the internal organs and structures of the body.

b) Number of Magnetic resonance imaging units (MRI units) per million population. MRI is an imaging technique designed to visualise internal structures of the body using magnetic and electromagnetic fields which induce a resonance effect of hydrogen atoms. The electromagnetic emission created by these atoms is registered and processed by a dedicated computer to produce the images of the body structures

Calculation:

a) The total number of computer tomography scanners (CT units) in hospitals and ampulatory sector registered as by 1 July or 31 December divided by the mid or end of year total population size, expressed per 100 000 inhabitants.

b) The total number of magnetic resonance imaging units (MRI units) in hospitals and ampulatory sector registered as by 1 July or 31 December divided by the mid or end of year total population size, expressed per 100 000 inhabitants.

Notes: In the past, Eurostat and OECD presented differences in high-technologies data coverage because the OECD data collection aims to collect aggregate data on the availability of these medical equipments in all health care facilities, including both the hospital sector and the ambulatory sector. As from 2006, Eurostat has expanded its data collection on high-tech equipments beyond the hospital sector, and is now also seeking data on equipments in all health care facilities, including a breakdown for those located in hospitals and those in the ambulatory sector. So Eurostat and OECD are now using the same definition.

67. HOSPITAL IN-PATIENT DISCHARGES, LIMITED DIAGNOSES

Definition: The indicator is defined as the number of hospital in-patient discharges from all hospitals during the given calendar year, expressed per 100 000 population. Calculated and presented by the categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT). A hospital discharge is the formal release of a patient from a hospital after a procedure or course of treatment. A hospital in-patient is a patient who is formally admitted (or "hospitalised") to a hospital for treatment and/or care and stays for a minimum of one night in the hospital.

Calculation: The indicator is calculated as the total number of hospital in-patient discharges from all hospitals during the given calendar year, divided by the mid year population of that given year, expressed per 100 000 inhabitants. Calculated by the categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT). Hospital in-patient discharges with principal diagnoses *not* falling into the ISHMT group of diagnoses are excluded.

A hospital discharge is the formal release of a patient from a hospital after a procedure or course of treatment. A discharge occurs whenever a patient leaves because of finalisation of treatment, signs out against medical advice, transfers to another health care institution or on death. A discharge can refer to in-patients or day cases. Transfers to another department within the same institution are excluded. Day treatment cases (patients admitted for a medical procedure or surgery in the morning and released before the evening) should be excluded

A hospital in-patient is a patient who is formally admitted (or "hospitalised") to a hospital for treatment and/or care and stays for a minimum of one night in the hospital. Inpatient care includes accommodation provided in combination with medical treatment when the latter is the predominant activity provided during the stay as an inpatient. Patients admitted as in-patients but who do not remain overnight for some reason (e.g. death) night should be included. Also patients admitted with the intention of discharge on the same day, but who subsequently stay in hospital over night should be included. Day treatment cases (patients admitted for a medical procedure or surgery in the morning and released before the evening) should not be included. Also healthy newborns should be exlcuded.

Notes: This is the Eurostat, OECD and WHO currently in use definition for the indicator measuring the utilisation of hospital services and so the burden of given diseases on health services (rate per 100 000 inhabitants). Declared discharges are an available proxy to registered discharges that may be used to test trends and differences captured by registered discharges.

68. HOSPITAL DAYCASES, LIMITED DIAGNOSES

Definition: The indicator is defined as the number of hospital daycases from all hospitals during the given calendar year, expressed per 100 000 population. Calculated and presented by the categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT). A hospital daycase is a patient who is formally admitted for day care, i.e with the intention of discharging the patient on the same day.

Calculation: The indicator is calculated as the total number of hospital daycases from all hospitals during the given calendar year, divided by the mid year population of that given year, expressed per 100 000 inhabitants. Calculated by the categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT). Hospital daycases with principal diagnoses *not* falling into the ISHMT group of diagnoses are excluded.

A hospital daycase is a patient who is formally admitted for day care. Day care comprises medical and paramedical services delivered to patients who are formally admitted for diagnosis, treatment or other types of health care with the intention of discharging the patient on the same day. Excluded are episodes of care for patients who are admitted as day-care patients and subsequently stay overnight.

Notes: Eurostat currently provides the total number of hospital daycases, although no information on daycases is disseminated by OECD nor by WHO. Declared daycases are an available proxy to registered daycases that may be used to test trends and differences captured by registered daycases.

69. HOSPITAL DAYCASE/IN-PATIENT DISCHARGE RATIO, LIMITED DIAGNOSES

Definition: The indicator is defined as the ratio of the number of hospital daycases from all hospitals, to the number of hospital inpatient discharges from all hospitals, during the given calendar year. Calculated and presented by the categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT).

Calculation: The indicator is calculated as the total number of hospital daycases from all hospitals during the given calendar year, divided by the total number of hospital in-patient discharges from all hospitals during the given calendar year. Calculated by the categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT). Hospital daycases and discharges for inpatients with principal diagnoses *not* falling into the ISHMT group of diagnoses are excluded.

A hospital daycase is a patient who is formally admitted for day care. Day care comprises medical and paramedical services delivered to patients who are formally admitted for diagnosis, treatment or other types of health care with the intention of discharging the patient on the same day. Excluded are episodes of care for patients who are admitted as day-care patients and subsequently stay overnight.

A hospital in-patient is a patient who is formally admitted (or "hospitalised") to a hospital for treatment and/or care and stays for a minimum of one night in the hospital. Inpatient care includes accommodation provided in combination with medical treatment when the latter is the predominant activity provided during the stay as an inpatient. Patients admitted as in-patients but who do not remain overnight for some reason (e.g. death) night should be included. Also patients admitted with the intention of discharge on the same day, but who subsequently stay in hospital over night should be included. Day treatment cases (patients admitted for a medical procedure or surgery in the morning and released before the evening) should not be included. Also healthy newborns should be excluded.

A hospital discharge is the formal release of a patient from a hospital after a procedure or course of treatment. A discharge occurs whenever a patient leaves because of finalisation of treatment, signs out against medical advice, transfers to another health care institution or on death. A discharge can refer to in-patients or day cases. Transfers to another department within the same institution are excluded. Day treatment cases (patients admitted for a medical procedure or surgery in the morning and released before the evening) should be excluded.

Notes: Eurostat and OECD, both institutions, are collecting the data from national sources with a common questionnaire (CARE, non-expenditure, which includes a common MDS on hospitals).

70. AVERAGE LENGTH OF STAY (ALOS), LIMITED DIAGNOSES

Definition: The indicator is defined as the average length of stay (ALOS) in a hospital per discharged inpatient, i.e. average duration of a single episode of hospitalisation. Calculated and presented by the categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT). Calculated and presented for a) all hospitals and b) acute care hospitals separately.

Calculation: Eurostat:

a) Average length of stay for all hospitals is computed by dividing the total number of hospital days (or bed-days or in-patient days) in all hospitals from the date of admission in an in-patient institution (date of discharge minus date of admission) by the total number of discharges (including deaths) in all hospitals during the given year. Calculated by the categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT). Hospital days and and discharges for inpatients with principal diagnoses *not* falling into the ISHMT group of diagnoses are excluded. Same day cases are also exluded. ALOS should preferably be provided to the accuracy of hundreds, i.e. 0.01.

b) Average length of stay for acute care hospitals is computed by dividing the total number of hospital days (or bed-days or in-patient days) in acute care hospitals from the date of admission in an in-patient institution (date of discharge minus date of admission) by the total number of discharges (including deaths) in acute care hospitals during the given year. Calculated by the categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT). Hospital daysand and discharges for inpatients with principal diagnoses *not* falling into the ISHMT group of diagnoses are excluded. Same day cases are also exluded. ALOS should preferably be provided to the accuracy of hundreds, i.e. 0.01.

Notes: Eurostat and OECD, both institutions, are collecting the data from national sources with a common questionnaire (CARE, non-expenditure, which includes a common MDS on hospitals).

OECD: average length of stay (ALOS) is calculated by dividing the number of days stayed (from the date of admission in an in-patient institution) by the number of discharges (including deaths).

WHO: average length of stay is calculated as total number of occupied hospital bed-days divided by the total number of admissions or discharges. Length of stay (LOS) of one patient = date of discharge – date of admission. If these are the same dates, then LOS is set to one day. ALOS should preferably be provided to the accuracy of hundreds, i.e. 0.01.

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71. GENERAL PRACTITIONER (GP) UTILISATION

Definition: Mean number of visits to general practitioner per capita per year. General practitioner (GP) is a physician (medical doctor) who does not limit his/her practice to certain disease categories and assumes the responsibility for the provision of continuing and comprehensive medical care or referring to another health care professional. However, in some countries, GP is treated as a specialisation..

Calculation:

1) Average number of contacts with a general practitioner (self-reports) per capita per year, derived from EHIS questions on GP visits, HC.11: During the past four weeks ending yesterday, that is since (date), how many times did you consult a GP (general practitioner) or family doctor on your own behalf? (0, 1, 2 etc).

2) Eurostat: the average number of patient contacts to GP (self reports from survey: the Eurostat European Community Household Panel, ECHP) within a calendar year.

Notes: EHIS recall period of 4 weeks is not optimal for calculating number of visits per year.

The introduction to EHIS questions (HC.10 and) HC.11 is: "The next set of questions is about consultations with your general practitioner or family doctor. Please include visits to your doctor's practice as well as home visits and consultations by telephone."

72. OTHER OUTPATIENT VISITS

Definition: Mean number of outpatient contacts per capita per year, other than GPs: e.g. physiotherapist, dentist, orthodontist, alternative practice, maternal/child care, mental health care. An outpatient contact is one episode of examination / consultation performed by a physician or by a nurse in the presence of a physician, in relation to one outpatient at one time and location, normally at the physician's office or the patient's home.

Calculation:

1) Average number of contacts with a dentist, orthodontist or specialist per capita per year (self-reports), derived from EHIS questions on outpatient visits (not GPs) HC.9 and HC.13. HC.9: During the past four weeks ending yesterday, that is since (date), how many times did you visit a dentist or orthodontist on your own behalf? (0, 1, 2 etc). HC.13: During the past four weeks ending yesterday, that is since (date), how many times did you consult a (medical or surgical) specialist on your own behalf? (0, 1, 2 etc).

2) Eurostat: the average number of patient contacts to medical specialists (self reports from survey the Eurostat European Community Household Panel, ECHP) within a calendar year.

Notes: EHIS reference period of 4 weeks is not optimal for calculating number of visits per year.

The introduction to EHIS questions (HC.12 and) HC.13 is "Next questions are about consultations with medical or surgical specialists. Include visits to doctors as outpatient or emergency departments only, but do not include contact while in hospital as an in-patient or day-patient. Also include visits to doctors at the workplace or school".

73. SURGERIES: PTCA, HIP REPLACEMENT, CATARACT

Definition: The number of main surgical operations and procedures performed in hospitals as daycases and in-patient surgery, per 100 000 population, for three groups: Percutanerous Transluminal Coronary Angioplasty (PTCA), hip replacement and cataract. In-patient surgery is defined as a surgical procedure which is performed with an overnight stay in an in-patient institution.

Calculation:

1) Eurostat: Main surgical operations and procedures performed in hospitals (by ICD-9–CM), expressed as rates per 100 000 population. 37 surgical operations and procedures to by ICD-9–CM available, including Cataract surgery (13.1–13.7), Coronary angioplasty (36) and Total hip replacement (81.51).

2) OECD and WHO: The number of invasive therapies performed as day cases (where applicable) and in-patient surgery, where in-patient surgery is defined as a surgical procedure which is performed with an overnight stay in an in-patient institution. Expressed as rates per 100 000 population (OECD per 1000). 20 surgical procedures by ICD-9–CM available, including Cataract surgery (13.1–13.7), Percutaneous coronary interventions (PTCA and stenting) (36.0) and Hip replacement (81.51–81.53).

Notes: The volume of certain surgeries is a function of the prevalence of the underlying diagnosis and the availability of appropriate medical resources. The three examples are selected as relatively standard up-to-date procedures for wide-spread health problems, and are meant here mainly as indicators for resource availability and use. The assumption is that low rates will be more likely to point at under-treatment than high rates at over-treatment.

74. MEDICINE USE, SELECTED GROUPS

Definition:

1) Percent of population who have used medication (defined medicine groups) prescribed by a physician during the past 2 weeks.

2) Amount of medicine use, per day per 1000 population, for defined medicine groups.

Calculation:

1) Percent of population who have used medication (defined medicine groups) prescribed by a physician during the past 2 weeks, measured by the EHIS instrument derived from EHIS questions MD.1–2. MD.1: during the past two weeks, have you used any medicines (including dietary supplements such as herbal medicines or vitamins) that were prescribed or recommended for you by a doctor – (for women, please also state: include also contraceptive pills or other hormones)? (yes / no). MD.2: Were they medicines for…? (15 medicine groups, i.e. for Asthma / Chronic bronchitis, chronic pulmonary disease, emphysema / High blood pressure / Lowering the blood cholesterol level / Other cardiovascular disease, such as stroke and heart attack / pain in the joints (arthrosis, arthritis) / Pain in the neck or back / Migraine / Other pain / Diabetes / Allergic symptoms (eczema, rhinitis, hay fever) / Stomach troubles / Cancer (chemotherapy) / Depression / Tension or anxiety) . Precise medicine groups to be included are to be decided later.

2) OECD / EURO-MED-STAT -project: OECD / EURO-MED-STAT -project: Pharmaceutical consumption per 1000 population, in Daily Defined Doses (DDDs) per day, by selected Anatomic Therapeutic Chemical (ATC) groups. Calculation is based on the volume of sales to pharmacies and hospitals by wholesalers. DDD is defined as the assumed average maintenance dose per day for a drug used on its main indication in adults. The MINDFUL project specifically recommends to include antipsychotics (ATC class NO5A), anxiolytics (NO5B), hypnotics (NO5C) and antidepressants (NO6A). Precise ATC medicine groups to be included are to be decided later.

Notes: The ATC system divides drugs into different groups according to the organ system on which they act and/or therapeutical, pharmacological and chemical characteristics. (created by the WHO Collaborating Centre for Drug Statistics Methodology). The sale and actual use of drugs are not always the same figure.

75. PATIENT MOBILITY

Definition: The number and proportion of patients seeking care in other than their (permanent) resident country.

Calculation: Indicator and standardised data collection to be developed.

The number of persons seeking care across national borders, as being a (permanent) resident in a specific country. By country and by (neighbouring) country-country combination(s). Both absolute numbers and in relation to the total number of people seeking care.

Notes: Meets the increasingly important EU-health policy issue of cross-border care. Can be stratified also for example by types of care (outpatient, inpatient, GP, specialist); private basis or via their public health care system. It is part of the regular (Eurostat) data collection from 2008 but not many countries can deliver these data yet.

76. INSURANCE COVERAGE

Definition: The indicator is defined as the proportion of the population covered by health insurance, taking into account both public and private insurance schemes. Public (government/social) health insurance refers to tax-based public health insurance including social security contribution schemes. Private health insurance refers to insurance schemes financed through private health premiums, i.e., payments that a policyholder agrees to make for coverage under a given insurance policy, where an insurance policy generally consists of a contract that is issued by an insurer to a covered person.

Calculation:

1) OECD: proportion (%) of the population covered by a) public and b) private health insurance.

1a) Public, i.e. government/social health insurance: Share of population (%) eligible for a defined set of health care goods and services that are included in total public health expenditure: total health care, in-patient and acute care, out-patient medical care and pharmaceutical goods. Coverage in this sense is independent of the scope of cost-sharing.

1b) Private health insurance (PrHI): Total PrHI coverage (%) is a head count of all individuals covered by at least one PrHI policy (including both individuals covered in their own name and dependents). To avoid duplications, it should not refer to the number of PrHI policies sold in the country, as individuals may be covered by more than one PrHI product. Similarly, total population coverage is not necessarily the sum of PrHI coverage by different types, as an individual may hold more than one PrHI policy.

2) The EU Social Protection Committee Indicator HC-P3 (2008): "The proportion of the population covered by health insurance", defined as the percentage of the population covered by public health insurance (which is defined as tax-based public health insurance and income-related payroll taxes including social security contribution schemes) + the percentage of the population covered by private health insurance including: Private mandatory health insurance, Private employment group health insurance, Private community-rated health insurance, and Private risk-rated health insurance. Recommended data source is OECD and national data sources.

Notes:. Preferred data source is OECD (based on national data). It also the recommended source for the EU Social Protection Committee indicator. For OECD definitions and explanations concerning public and private health insurance, please see the OECD Health Data, section "Definitions, Sources and Methods".

77. EXPENDITURES ON HEALTH

Definition: Total total national health expenditure as percentage of gross domestic product. Divided into total, public and private sectors. Total national expenditure on health is the sum of general government health expenditure and private health expenditure in a given year, calculated in national currency units in current prices. Gross domestic product (GDP) is the total market value of all final goods and services produced within a country in a given period of time. This corresponds to the total sum of expenditure (consumption and investment) of the private and government agents.

Public expenditure on health care: Public funds include state, regional and local Government bodies and social security schemes. Public capital formation on health includes publicly financed investment in health facilities plus capital transfers to the private sector for hospital construction and equipment.

Private expenditure on health care: Private sources of funds include out-of-pocket payments (both over-the-counter and cost-sharing), private insurance programmes, charities and occupational health care.

Calculation:

(1) OECD: The indicator is calculated as the total national health expenditure of a country in a given year divided by the gross domestic product (as defined by the System of National Accounts, SNA-93 or ESA-95), expressed in percentages. Calculated and presented separately for total, public and private sectors.

Total expenditure on health is defined by OECD as the sum of expenditure on activities that – through application of medical, paramedical, and nursing knowledge and technology – has the goals of: (1) Promoting health and preventing disease; (2) Curing illness and reducing premature mortality; (3) Caring for persons affected by chronic illness who require nursing care; (4) Caring for persons with health-related impairments, disability, and handicaps who require nursing care; (5)Assisting patients to die with dignity; (6) Providing and administering public health; and (7) Providing and administering health programmes, health insurance and other funding arrangements.

(2) The EU Social Protection Committee Indicator "Total health care expenditure as a % of GDP" (HCP12; 2008), defined as "Total, public and private expenditure on health as % of GDP". Recommended source is Eurostat, based on system of health accounts (SHA) data.

Notes: Eurostat, OECD and WHO have adopted a common questionnaire to collect data on health expenditure, according to SHA methodology. A convergence process of national health accounting towards SHA methodology has been started. Currently, the WHO issue data on National Health Accounts, which has been design on the basis of SHA methodological framework but have some differences.

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78. CANCER SURVIVAL

Definition: The relative survival rate for cancer is an estimate of the proportion of patients who survive at least five years after diagnosis, after correction for background mortality. The 10 cancers to be included are: 1) all cancers combined without non-melanoma skin (C00–C97), 2) trachea, bronchus or lung (C33–34), 3) breast (C50), 4) colorectal (C18–C21), 5) prostate (C61) , 6) stomach, 7) melanoma, 8) cervical (C53), 9) leukaemias/ lymphomas, 10) all childhood cancers (0–14).

Calculation: Relative survival rate is calculated as the observed rate of persons diagnosed with the cancer in question surviving five years after diagnosis (specific by site, sex, geographical area, period and age), divided by expected survival rate of a group in the general population with respect to age, sex and calendar period of investigation.

Notes:

Observed survival rate is calculated as number of persons diagnosed with the cancer in question surviving five years after diagnosis, divided by number of persons diagnosed with the cancer in question.

The calculation of a survival rate is complicated by the fact that patients may die of a cause unrelated to cancer, or may still be alive. Problems of observed survival rate are due to the fact that not all deaths among cancer patients will be due to the primary cancer in question. Deaths from other causes lower the observed survival rate, and hamper comparison between groups for which probabilities of death in the general population vary. To avoid this problem of comparability, relative survival rates are calculated.

In order to have survival data, Cancer Registries have to collect data on incident cases and follow-up them for a given period from diagnosis.

79. 30-DAY IN-HOSPITAL CASE-FATALITY OF AMI AND STROKE:

Definition: Proportion of hospital in-patients with primary diagnosis of a) acute myocardial infarction (AMI) and b) stroke who died within 30 days after the admission.

Calculation:

1) OECD Health Care Quality Indicator: Numerator: The number of the patients who died in the hospital within 30 days of admission.

Denominator: Number of a) AMI (ICD-10: I21, I22) and b) stroke (ICD-10: I61-I64) patients admitted to hospital. Multiple admissions within 30 days should be counted as one

2a) EUROCISS case-fatality of AMI: Numerator: The number of persons who died within 28 days of the onset of the attack,

Denominator: number of AMI's or coronary deaths (ICD-10: I21-I22 from hospital discharge register and ICD-10: I20-I25 from mortality register). Multiple attacks within 28 days should be counted as one.

The indicator can be further divided into:

– 1-day case-fatality and

– 28-day case-fatality among first day survivors.

2b) EUROCISS case-fatality of stroke: Numerator: The number of persons who died within 7 days of the onset of the attack.

Denominator: number of strokes (ICD-10: I60-I69 or G45) from hospital discharge register or mortality register).

3) EUPHORIC: Numerator: The number of a) AMI (ICD-10: I21, I22) and b) stroke (ICD-10: I61–I64) patients who died in the hospital within 30 days of admission plus those who died after discharge from hospital within 30 days of admission.

Denominator as in the OECD definition.

Notes:

(1) The OECD indicator is most widely available because it is based on hospital discharge data only. However, its interpretation is limited for two reasons:

a) Most deaths take place before the person reaches hospital or on arrival in hospital. Therefore, good treatment of hospitalized patients decreases the case fatality, whereas early acceptance of the patients to hospital increases the case fatality. Furthermore, there is variation in the practices on the stage at which a patient is recorded as a hospital patient.

b) The indicator is sensitive to the length of the period the patients are kept in hospital.

(2) The above problems are overcome by the EUROCISS definition. However, it is available in fewer countries than the OECD definition because it requires the possibility to link the hospital discharge and mortality register. Furthermore, in some countries the diagnosis of many of the out-of-hospital deaths is vague.

(3) The EUPHORIC definition improves the OECD definition slightly but, similarly as the EUROCISS definition, it requires the possibility to link the hospital discharge register and the mortality register. When the linkage is possible, the EUROCISS definition is preferred.

As a summary, the OECD indicator should be reported for all countries in which it is available. In addition, the EUROCISS indicators should be reported for the countries for which they are available, and their availability should be promoted.

Also the conclusion of the OECD Health Care Quality Indicators Project with regard to the indicator "AMI and stroke 30-Day Case-Fatality Rate/In-Hospital Mortality Rate" is "Report in-hospital mortality for all countries for comparability reasons until the majority of countries is able to calculate the true 30-day case-fatality rate".

80. EQUITY OF ACCESS TO HEALTH CARE SERVICES

Definition: Index of self-declared unmet need for health care services, measured by the "unmet needs of healthcare" concept. Defined as the total self-reported unmet need for medical care for the following three reasons: financial barriers + waiting times + too far to travel.

Calculation:

1a) The "unmet needs of healthcare" item from The European Union Statistics on Income and Living Conditions, EU-SILC: % of people who reported that at least once in the previous 12 months they felt they needed medical care and did not receive it either because a) it was too expensive, b) they had to wait or c) it was too far away; derived from EU-SILC, in 2003, items PH040 and PH050. PH040: Unmet Need For Medical Examination Or Treatment: Was there any time during the last 12 months when, in your opinion, you needed a medical examination or treatment for a health problem but you did not receive it? (yes/no). PH050: Main Reason For Unmet Need For Medical Examination Or Treatment: What was the main reason for not consulting a medical specialist? a) Could not afford to (too expensive); b) Waiting list; c) Could not take time because of work, care for children or for others; d) Too far to travel/no means of transportation; e) Fear of doctor / hospitals / examination / treatment; f) Wanted to wait and see if problem got better on its own; g) Didn't know any good doctor or specialist; h) Other reason.

1b) % of people who reported that at least once in the previous 12 months they felt they needed medical care and did not receive it either because a) it was too expensive, b) they had to wait or c) it was too far away; derived from EHIS questions HC.14 and HC.15.

2) How equal between population groups is health care utilisation (the use of health care resources in contrast to health care availability, adjusted by health status), measured by the concentration index (CI) or other measure of inequality. Access to selected health care services is measured by the actual use of these services (self-reported or registers/hospital data). Health care utilisation variables that should be considered include: 1) consultations with doctors, breaking down visits to general practitioners and to specialists where possible; 2) hospital utilisation; and 3) consultations with dentists. Health status measures (e.g. perceived general health, self-reported activity limitations) are used to adjust for differences in morbidity or "need" across population groups.

Notes: (1) is also Social Protection Committees' Overarching portfolio indicator #8: Inequalities in access to health care, operationalised as "Self reported unmet need for medical care". Defined as "Total self-reported unmet need for medical care for the following three reasons: financial barriers + waiting times + too far to travel". To be analysed together with care utilisation defined as the number of visits to a doctor (GP or specialist) during the last 12 months.

"Inequalities in access to health care" is also considered as overarching indicators for OMC for social inclusion, health and pension.

81. WAITING TIME TO ELECTIVE SURGERIES

Definition: Average inpatient waiting time for elective (i.e. non-urgent) surgeries of Percutanerous Transluminal Coronary Angioplasty (PTCA), hip replacement and cataract operation, measured in number of days. Elective surgery is defined as when surgery is necessary, but the timing of the procedure can be scheduled and the patient can be sent home.

Calculation: Indicator needs further development.

OECD, "waiting times of the patients admitted": The time elapsed for a patient on the elective surgery waiting list from the date they were added to the waiting list to the date they were admitted to an inpatient or day-case surgical unit for the procedure (PTCA, hip replacement, cataract operation). Both mean and median times in days.

Notes: The three procedures were selected as examples from the best for data availability at OECD, and as being similar to the ones measured under the indicator 73. Surgeries: PTCA, hip, cataract.

Concepts of "waiting times of the patients admitted" versus "waiting times of the patients on the list at a census date".

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82. SURGICAL WOUND INFECTIONS

Definition: Surgical wound infection rate, as % of all surgical operations.

Calculation: Indicator needs development.

1) WHO: Average rate (in all hospitals) of inpatient surgical operations with postoperative surgical wound infection (i.e. with code for postoperative wound infections, ICD-9: 998.5 and ICD-10: T81.4) during the given calendar year, expressed as percentage of all surgical operations.

2) Safety Improvement for Patients in Europe, SImPatIE recommendation: Percent of patients experiencing a wound infection (ICD-9 998.51 and 998.52; secondary diagnosis only) out of all hospitalised patients. (Indicator PSI 11: Wound Infection)

Notes: Indicator for the safety of operative interventions. Wound infection can lead to re-operation and prolonged hospital stay, to increased morbidity and mortality for patients and to increased costs for the health care system. Amenable to interventions: the incidence of wound infection can be reduced by proper pre-, intra- and post-operative care, in particular strict hygiene.

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83. CANCER TREATMENT DELAY

Definition: Cancer treatment delay is defined as the average time (in days) between the date of first visit to general practitioner and the date of first treatment, by cancer site (breast, colon and rectal cancer).

Calculation: No calculation procedure yet, indicator being developed. EUROCHIP: Cancer treatment delay is calculated as the difference (in days) between "date of first visit to general practitioner" and "date of first treatment".

Notes: For each cancer patient, five (six) dates in his/her patient history can be distinguished: 1) First visit to general practitioner, 2) First request for a clinical/hospital appointment, 3) First clinical/hospital appointment, 4) Date of definitive diagnosis, 5) Date of first treatment (surgery, systemic therapy or radiotherapy), And for colon and rectal cancers, also 6) Information on elective or emergency surgery.

84. DIABETES CONTROL

Definition: Proportion of adult diabetics receiving appropriate care, in terms of regular retinal exams.

Calculation: Indicator being developed. OECD set Health Care Quality Indicators (HCQI): retinal exams in diabetics is defined as proportion of diabetic patients (of all patients with type I or type II diabetes) aged 18–75 who received a dilated eye exam or evaluation of retinal photography by an ophthalmologist or optometrist in a given year out of all patients with diabetes (Type 1 and Type 2) aged 18–75 years.

Notes: Among a longer series of process as well as outcome indicators, this one (a process indicator) was selected by OECD as relatively feasible and reliable for international comparisons. Also EUropean Core Indicators in Diabetes (EUCID) has among the secondary indicators an indicator :"% with eye fundus inspection in last 12 months".

85. POLICIES ON ENVIRONMENTAL TOBACCO SMOKE (ETS) EXPOSURE

Definition: The indicator refers to actions carried out by health (and other) policy makers to prevent smoking exposure at community level. A composite index of enforcement of laws and regulations on smoking restrictions in public domains and on advertisements. The existence, implementation and enforcement of instruments and measures to prohibit smoking in indoor environment (facility, room, etc.). The existence of instruments to restrict smoking in designated areas with separate exhaust ventilation.

Calculation: Topic needs further development.

1) Project Environment and Health Indicators for European Union Countries, ECOEHIS: Indicator Air_A1, defined as a "composite index of capability for implementing policies to reduce environmental tobacco smoke exposure and promoting smoke free areas". A composite index on smoking restrictions in 9 public domains and on advertisements. Index computed as a sum of 10 subset variables, including programmes to reduce smoking during pregnancy and at home; smoking prohibition at schools, day care centres, public buildings, public transport in urban areas, hospitals & clinics, cinemas & theatres & museums; smoking prohibitions or restrictions (clearly separate areas for smokers) in long distance transport, bars & restaurants; advertisement for tobacco smoke prohibition. For each variable score is: 0 if not existing, 1 if existing, clearly stated, partially implemented, 2 if existing clearly stated and substantially enforced and implemented. Unit for measurement is ordinal score of 0-20.

2) Indicators for monitoring COPD and asthma in the EU, IMCA: Interventions to prevent tobacco exposure consisting of a) Presence of smoking restriction in specific types of buildings and b) Existence and enforcement of laws and regulations to protect children from tobacco exposure in public places. No operational definition.

2) Child Health Indicators of Life and Development (CHILD) project: ECOEHIS indicator, but adapted especially for children.

3) Eurostat: information on smoking ban in public places.

4)) An indicator based on WHO-Europe's Tobacco control database. Precise operationalisation to be formulated.

Notes: Topic needs much further development

86. POLICIES ON HEALTHY NUTRITION

Definition: A composite index of laws, regulations and good practices on promoting healthier nutrition.

Calculation: Topic needs much further development.

Working Party on Information on Lifestyle and Specific Subpopulations / Monitoring Public Health Nutrition in Europe -project: they recommend indicator called "Nutrition policy", operationalised as a "Nutrition Policy with specific recommendations is set down in national or Government legislation".

Notes: Topic needs much further development.

87. POLICIES AND PRACTICES ON HEALTHY LIFESTYLES

Definition: The level of implementation of health promotion activities in healthier lifestyles, reducing alcohol consumption and its consequences as well as tobacco consumption and exposure.

Calculation: Topic needs much further development.

1a) WP Lifestyles: A composite indicator of a) Regulations, e.g. legislation, enforcement and adjudication ("Alcohol report", 2006, p283) of the alcohol market price and tax measures; b) Restrictions on availability; c) Regulations on advertising, promotion and sponsorship (p258 of "Alcohol report" (2006), e.g. alcohol advertisement restrictions (equivalent to smoking advertisement restrictions (4.1.3).

1b) WP Lifestyles: Regulations aiming at the reduction of alcohol consumption and its consequences (p240ff, p251 of "Alcohol report", 2006) including labelling of warning on containers of alcoholic products (p253, p357/8, p414 of "Alcohol report", 2006) (see chapters 7–9 of "Alcohol report", 2006)

2) WORKHEALTH-1: Health promotion activities at the workplace (with HIS recommendations).

3) EUHPID: Sunlight exposure, injury, suicide, healthy nutrition.

Notes: This is an important area of activities in health promotion. Indicators for monitoring these areas should be developed. Alcohol Report (2006) refers to: "Alcohol in Europe: a public health perspective. A report for the European Commission" (by Peter Anderson and Ben Baumberg; June 2006): http://ec.europa.eu/health-eu/news_alcoholineurope_en.htm

88. INTEGRATED PROGRAMMES IN SETTINGS, INCLUDING WORKPLACES, SCHOOLS, HOSPITALS

Definition: A composite index of integrated programmes for health promotion policy and practice in different settings, including workplace, schools, hospitals, communities, prisons and other key settings for health promotion interventions.

Calculation: Topic needs much further development.

Notes: This indicator should expand beyond "campaigns on healthy lifestyles" to include all aspects of health promotion policy at national, regional and local level, including indicators on policy formulation, implementation, infrastructure development, campaigns and programme sand their evaluation, and funding and workforce development.

This availability assessment of the ECHI shortlist indicators is based on a review of major international health databases (Eurostat database, WHO Health for All, OECD Health Data), topic-specific databases (such as ENCR on cancers) and selected project databases (such as MINDFUL on mental health, Database on accidents and injuries and others).

The following tables provide an overview of the situation regarding the availability of indicator data for the countries, which are indicated by 2-letter country codes in alphabetical order for each indicator.

There were 82 indicators on the ECHI shortlist at the time of the review. The numbering of the indicators follows that of the present shortlist of 88 indicators. Therefore there is some discontinuation in the tables. The indicators are divided in 5 tables based on the indicator grouping of the shortlist.

The colour code is as follows: Data available ■ (green), Data not available ■ (orange), Indicator not available in international data sources ■ (grey), Indicator operationalisation missing ■ (yellow).

Data availability of Demographic and socio-economic factors indicators

1. Population by sex/age

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

(all green)

2. Birth rate, crude

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

(all green)

3. Mother's age distribution

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

(all green)

4. Total fertility rate

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

(all green)

5. Population projections

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

(orange/data not available: CH, HR, IS, TR; others green)

6. Population by education

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

(all green)

7. Population by occupation

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

(orange/data not available: CH, SE, TR; others green)

9. Population below poverty line and income inequality

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

(orange/data not available: BG, CH, CZ, DK, EE, FI, FR, GR, HR, HU, IS, LT, LV, MT, NL, NO, PL, RO, SE, SI, SK, TR, UK; green: AT, BE, CY, DE, ES, IE, IT, LU, PT)

Data availability of Health status indicators

10. Life expectancy

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

11. Infant mortality

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

12. Perinatal mortality

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

13. Disease-specific mortality; Eurostat, 65 causes

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

14. Drug-related deaths

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

15. Smoking-related deaths

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

16. Alcohol-related deaths

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

19. HIV/AIDS

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

20a. Lung cancer incidence

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

20b. Breast cancer incidence

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

21. Diabetes

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

22. Dementia

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

23. Depression

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

24. AMI

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

25. Stroke

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

26. Asthma

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

27. COPD

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

28. (Low) birth weight

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

29. Injuries: home/leisure, violence

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

30. Injuries: road traffic

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

31. Injuries: workplace

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

32. Suicide attempt

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

33. Self-perceived health

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

34. Self-reported chronic morbidity

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

35. Long-term activity limitations

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

36. Physical and sensory functional limitations

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

37. General musculoskeletal pain

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

38. Psychological distress

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

40. Health expectancy: Healthy Life Years (HLY)

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

41. Health expectancy, others

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

Data availability of Determinants of health indicators

42. Body mass index

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

43. Blood pressure

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

44. Regular smokers

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

45. Pregnant women smoking

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

46. Total alcohol consumption

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

47. Hazardous alcohol consumption

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

48. Use of illicit drugs

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

49. Consumption/availability of fruits

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

50. Consumption/availability of vegetables

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

51. Breastfeeding

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

52. Physical activity

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

53. Work-related health risks

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

54. Social support

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

55. PM10 (particulate matter) exposure

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

Data availability of Health services indicators

56. Vaccination coverage in children

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

58. Breast cancer screening

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

59. Cervical cancer screening

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

62. Hospital beds

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

63. Physicians employed

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

64. Nurses employed

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

65. Mobility of professionals

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

66. Medical technologies: MRI units and CT scans

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

67. Hospital in-patient discharges, limited diagnoses

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

68. Hospital daycases, limited diagnoses

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

69. Hospital daycase/in-patient discharge ratio, limited diagnoses

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

70. Average length of stay (ALOS), limited diagnoses

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

71. General practitioner (GP) utilisation

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

72. Other outpatient visits

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

73. Surgeries: PTCA, hip, cataract

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

74. Medicine use, selected groups

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

75. Patient mobility

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

76. Insurance coverage

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

77. Expenditures on health

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

78. Survival rates cancer

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

80. Equity of access to health care services

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

81. Waiting times for elective surgeries

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

82. Surgical wound infections

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

83. Cancer treatment delay

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

84. Diabetes control

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

Data availability of Health promotion indicators

85. Policies on environmental tobacco smoke (ETS) exposure

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

86. Policies on healthy nutrition

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

87. Policies and practices on healthy lifestyles

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

88. Integrated programmes in settings, including workplaces, schools, hospitals

AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE
IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK

ANNEX 4: Country Specific Section

In this annex the information derived from the Country Reports, the ECHIM Survey and the Bilateral Discussions is compiled by country, in order to create a general view of the participating countries, as separate entities as well as in European context. The health indicator data availability is reviewed, as well as the main data sources and health reporting. The main emphasis is, however, on the prerequisites and possibilities to implement the ECHI indicator system in the countries.

The structure of the Country Specific Section is standardised for all countries. It consists of not more than two pages of text and the so-called Info Box by which the main points of the information are visualised. The countries are assorted in alphabetical order. In this introduction the structure is looked through, and the frequently used abbreviations are explained.

The Country Specific Sections (abbreviation: CSS) start with the indicator data availability figures according to both the Country Report (CR) and the ECHIM Survey (ES). The figures are not outright comparable, because the indicators in the CR and the ES were not totally correspondent. For the CR, the availability figure is the percentage of the ECHI shortlist indicators for which there are data available in the international data sources, most notably Eurostat, WHO Health for All database and OECD Health Data. The fact that for many ECHI indicators there are no datasets in those databases has been taken into account by counting these indicators out of the total number of indicators that is used as denominator. Thus, as 17 of the 82 ECHI shortlist indicators (before July 2008) are missing in the data sources, the denominator and theoretic 100% score is 65. The average score of 32 countries is 68%, the highest being 86% and the lowest 35%. The score is clarified by referring to the indicator groups of particularly high or low availability figure.

The data availability figures of the ES are based on the individual 52 indicators reviewed in the ES. They differ from the ECHI shortlist indicators so that the generally best available indicators, i.e. all demographic and socio-economic factors and many health services indicators were left out. Instead, some important health examination survey indicators were included, although they were not on the current ECHI shortlist. The European average score is 77%, ranging from 58% to 100%. The most important factors of the score are explained similarly as in the case of the CR, and in some cases some important data sources are also mentioned, particularly health interview surveys (abbreviation: HIS), health examination surveys (HES) and registers.

The differences in data availability between the CR and the ES are not completely comparable, but by observing the availability scores some remarkable findings can be made in many cases. The most frequent observation is that often the ES availability

figure is higher than that of the CR. This is mostly explained by the fact that in the CR, data needs to match completely with the indicator definitions. ES is not that strict, and because of the varying quality of the replies, all kind of "positive" indicator availability information is counted in, including cases where data are "partly available" or "expected in the near future". However, ES often shows that in many countries there are data existing while not available in the international data sources.

Data availability and its main factors in every country are also examined in European context and compared to the all-European average.

The paragraph "Overall situation of data sources" lists the national institutions involved in health data gathering and production in every country. The institutions' main remits of health data are listed and when feasible, also their quality and level of cooperation are referred to. It is specified, which institutions perform surveys and which host registers etc. The possibilities of record linkage are examined, and the anticipated future of linkage is also estimated. If record linkage is particularly problematic, it will be referred to in the later paragraph that focuses on the main problems. A typical problem concerning linkage is the strict data protection legislation, which makes linkage difficult or even impossible in some countries. Out of the main data sources, EHIS is mentioned separately. It may be also mentioned in the problems or improvements section, depending on its state.

The data gathering and producing institutions are reviewed also in terms of health reporting. The most important health reports and topic specific reports are listed, and it is also announced if they are available online and in English. In some cases, the contents of the reports are described. In addition to the reports, also some other means of presenting health data online are presented, such as databases and statistical bulletins.

The last three paragraphs concentrate on the topics of the Bilateral Discussions, and they aim at creating a picture of the situation in every country in terms of possibilities and prerequisites to implement the ECHI shortlist indicators. First, the major problems that are likely to hinder the process are examined. The most common problem European-wide seems to be the lack of resources, i.e. funding and/or manpower. Also complex administration and low awareness of ECHI on the political level are seen as problems in many countries. Concrete problems in terms of health data quality include poor health data sources, lack of HIS/HES and/or registers and limited record linkage possibilities.

The problems are counterbalanced by the ongoing and/or expected improvements in the health data field. The most frequent improvements include e.g. improved or new data sources, planning of new HIS/HES and preparation of a legal basis for record linkage. In a few countries the ECHI indicators are actually being implemented already, which is naturally the paramount improvement.

Finally, the possible solutions for implementation are speculated. They include above all administrative means, the number one being the hope for the European Commission to clearly direct the national governments to take on the implementation process. The present "Open method of co-ordination" is seen as insufficient. As the EU-level regulation is impossible at the moment, strong promotion of ECHI on the national political level and in health data producing institutions is seen as important. Additional resources are seen as vital in many countries, and conducting new HIS/HES would help to get the missing ECHI indicators in some cases. Ultimately, the ECHI shortlist and Documentation Sheets must be completed and to a certain degree stabilised in order to make the full-scale implementation possible.

Much attention was paid to make the Country Specific Section easy to absorb despite the amount of information. For that reason, the so-called Info Box was created. It shows the indicator data availability both by the CR and the ES, and also by the three divisions of the ES. Record linkage possibilities of both present and anticipated future are included, as are the one most important problem, the main improvement and the main solution to implement the ECHI indicators in the country in question. Those selections are made by the national contact persons, who also checked and approved the Country Specific sections of their own countries before publishing. Finally they rated their countries in terms of implementation preparedness on a five-class scale. The rating is visualised by a coloured cell, as are the availability figures and record linkage possibilities. That way it is easy to create a general view of the situation in every country. And also because most of the information is based on unofficial knowledge of individual persons, information is not presented in exact numbers but visualised by colours.

Below is a table of the colours and their corresponding meanings used in the Info Box. Note that concerning record linkage, most statuses have two optional colours. The reason is to present detailed information whenever available. For example, if record linkage is rated "All right" in bright green, it usually means that linkage is generally possible. If the rating is "All right" in lime, it might signify that linkage is possible, but data in the registers are insufficient.

	Availability in %	Record linkage, present	Record linkage, future	Implementation prerequisites
	85 and over	All right	Will improve	Very good
	70–85	All right	Will improve	Good
	55–70	Limited		Moderate
	40–55	Limited	Will deteriorate	Not very good
	Under 40	Not possible	Will deteriorate	Poor
			Uncertain	Uncertain

AUSTRIA

Data availability by Country Report: 77% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are most data missing are Health Status and Health Services.

Data availability by ECHIM Survey: 71% of ECHIM Survey indicators are available at the national level. Most of the data for the indicators derive from HIS, Health Insurance Database or other registers. Data for most Health Determinants indicators are produced by HIS. National HES have not been carried out on a national level, but only regional (CINDI, Vorarlberg). ECHIM Survey reveals there are more data existing than are available in international data sources. Examples include consumption of fruit/ vegetables and cancer survival rates. The difference is partly explained by the fact that some data that are not available at the moment are expected in near future, such as cancer screenings. In addition to that, some indicator data that exist based on ECHIM Survey results do not necessarily meet the definitions of the international data sources.

Data availability in European context: Data availability in Austria is slightly better than European average. Most data come from HIS or registers. There are no nationally representative HES data available, but the situation is quite similar in most European countries.

Overall situation of data sources: The Austrian Federal Ministry of Health, Family and Youth (BMGJF, www.bmgfj.gv.at) is responsible for general health monitoring. Statistics Austria (www.statistik.at) is in charge of the regular collection of administrative data, process data from health services and morbidity data from HIS. By order of the ministry Statistics Austria performs HIS. The latest HIS was performed in 2006 (ATHIS 2006), using a modified EHIS questionnaire. Other organisations gathering health data include Cancer Register, social insurance carriers and medical associations. Data for reimbursed medicines in primary care are available from social insurance carriers. At the moment record linkage is not possible because of strict data protection legislation; presumably this will not change in the future.

Health reporting: Statistics Austria publishes the extensive yearbook Health Statistics for Austria (printed and online, in German only). By order of the BMGFJ health reports are published by the Gesundheit Österreich GmbH (GÖG, Geschäftsbereich ÖBIG, Österreichisches Bundesinstitut für Gesundheitswesen, www.oebig.at) and Statistics Austria. Topic specific reports are published by Statistics Austria (Results of the ATHIS 2006, Census Results, Cancer Report, Nutrition Report) and ÖBIG (Health Report 2002 and 2004, regional health reports). These are partly available online in German. Statistics Austria and ÖBIG also host databases containing data for several dozens of

selected health indicators with time series and breakdowns which are accessible online. ÖBIG hosts a geographical information system that presents data and time trends with reference to geographical regions.

Main problems: The implementation of some indicators is difficult, as there is no political will for doing it. Apart from that budgetary restrictions make the collection of data for new indicators improbable. There are no current or future plans to perform national HES in Austria. The linkage of hospital discharge data and other data sources is problematic because a unique patient identification number does not exist. Accordingly it is not possible to link health data to population registers, others than the health data gathered by the Austrian census. By contrast indicators derived from the ATHIS 2006 can be stratified by socioeconomic variables. Child health checkups are performed in schools, but it is not possible to use them at the moment. Sentinel networks are mainly operating for infectious diseases. Austrian HIS is not exactly the current version of EHIS, but a follow-up version after 5 years maybe closer to EHIS (but EHIS may also change after the first round).

Ongoing and/or expected improvements: Health insurance data are becoming available and aggregated data are now provided by the insurance companies. A stroke register is starting in Austria.

Possible solutions for implementation: Due to lack of political will and budgetary restrictions, the implementation of the indicators not yet available will be difficult. A clear limitation of the indicator set and the framework regulation on public health statistics will thus be supportive: the indicators should be based on existing sources, indicators that are very expensive or available in only a few countries should be deleted. Funding by the European Commission would help.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding/manpower	
Main improvement: New HIS	
Main solution: Regulations from EC / Eurostat	

BELGIUM

Data availability by Country Report: Data availability is one of the best in Europe, 82% of ECHI shortlist indicators are available in international data sources. Thus there is no particular ECHI shortlist section where Belgium would score low.

Data availability by ECHIM Survey: 71% of ES indicators are available at the national level, which is slightly lower than European average. This is mainly due to lack of some indicators on health determinants section (serum indicators) and health care section (cancer related indicators).

Data availability in European context: Data availability in Belgium is quite good particularly concerning CR. Still, the overall situation is typical in European context: extensive registers and HIS, but no HES. The poor availability of cancer and serum related indicator data is the most important single reason for the below-average availability figures in ES. Unlike in most countries, register situation is excellent; all registers enquired exist; only cancer register having poor coverage.

Overall situation of data sources: Belgium is a federal state, thus many bodies are involved in health data gathering – the state is responsible of some data, regions of some other. Main bodies involved are Federal Ministry of Health (INAMI/RIZIV; www.inami.fgov.be), Scientific Institute Public Health (www.iph.fgov.be), Communauté Francaise (www.cfwb.be) and Vlaamse Gemeenschap (www.vlaanderen.be). Lack of cancer related data is explained by the fact that the cancer register was interrupted from 1998 for several years. Lack of serum indicators is due to there being no HES done in Belgium. Time trend of indicators derived from HISs are available from 1997 onwards. Availability of register based data is good. There is no health insurance register and e.g. an AMI register is operating only in some regions of the country. The classification of the indicators according to SES is usually not possible, as is the case in most countries. However, e.g. some hospital discharge data are available also by socio-economic status.

Health reporting: There are no national publications in Belgium, only topic specific reports on survey results.

Main problems: The central problem is the diverging interests of the regions. Too many bodies are involved in and are responsible for health reporting, thus there is no national health information system operating in Belgium, nor is there a regular health reporting on national level. Data management is dispersed over several bodies. Preparation of HISs is complex because it is to be approved by several health ministries at federal and regional level. A national HES is currently not seen as a priority, because it is seen as too

costly in comparison with the added value. Register linkage is possible, but difficult to implement in practice.

Ongoing and/or expected improvements: Mortality and cancer registers have been a problem, but they are already improving. New national cancer register has been put in place. The fourth HIS is being performed in 2008 with EHIS components.

Possible solutions for implementation: First of all, better definition of the concepts, the modalities for calculation and the data source for all the indicators are needed. It is also crucial to have a national focal point – representatives from different institutions to prepare the implementation process. ECHIM should also try to convince politicians to see the profits of implementing the ECHI indicators. Regulation by Eurostat would be a good opportunity to organise data flow and work division. Also the implementation of the social data framework directive would facilitate the implementation of the ECHI indicators in Belgium.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Complex administration	
Main improvement: Data sources improving	
Main solution: Regulations from EC / Eurostat	

BULGARIA

Data availability by Country Report: Only about half (52%) of the ECHI shortlist indicators are available in international databases, which is below European average. The ECHI shortlist sections for which there are most data missing are Health Status and Health Services.

Data availability by ECHIM Survey: 73% of the ES indicators are available at the national level, which is close to European average. Reason for not scoring higher is mainly due to lack of data on musculoskeletal symptoms (Health Status section) and screenings (Health Care section).

Data availability in European context: Data availability in Bulgaria is worse than European average, mainly because of low data availability by CR. However, data availability by ES is equivalent to European average, although there is a lack of some of the registers (e.g. accidents, ambulatory and primary care registers). Also the lack of nationally representative HES is quite typical in European context. Lack of data on screenings is not that exceptional.

Overall situation of data sources: The most important bodies gathering data and producing health statistics are National Statistics Institute (NSI; www.nsi.bg), National Centre of Health Information (NCHI; www.nchi.government.bg) and Bulgarian National Cancer Register (BNCR; www.onco-bg.com). Record linkage is possible as Bulgaria uses a 10 digit unique personal identifier (EGN – Edinen Grajdanski Nomer). Data by socio-economic status is lacking. Data at regional level is scarce. Data for most of the indicators that can be derived from HIS (NSI) are available, as well as their time trends. Of note is that some of the hospital data missing in the international databases are actually available. There has not been nationally representative HES in Bulgaria (only CINDI), as is the case in most of the European countries.

Health reporting: Health report (Zdraveopazvane, "Healthcare", 2006) by NSI and NCHI is published annually, but not in English. Annual Public Health Statistics are available also in English in printed form and online at the NCHI website.

Main problems: As the EGN contains the date of birth and sex of the person in an obvious format, some people are against using it, which may affect record linking possibilities in the future.

Ongoing and/or expected improvements: ECHI shortlist already being implemented at least partly.

Possible solutions for implementation: Regulation by Eurostat is wished for.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding / manpower	
Main improvement: ECHI shortlist already being implemented at least partly	
Main solution: Regulations from EC / Eurostat	

CROATIA

Data availability by Country Report: 46% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which almost all data are missing are Health Services and Health Determinants.

Data availability by ECHIM Survey: 88% of ES indicators are available at the national level. A remarkable part of the data for the indicators is from the Hospital Discharge Register, some from other registers. The Household Health Survey produces data for most Health Determinants indicators. Instead, in that survey blood pressure is the only HES indicator. The latest surveys for other HES indicators have been conducted over a decade ago, and new ones are not in view. Among missing indicators are some Health Status indicators, such as stroke incidence and diabetes prevalence. Also data for most control-type indicators (screenings by PSA, cancer treatment quality, diabetes control) are missing.

Data availability in European context: Data availability in Croatia by CR is worse than in average in Europe. However, data availability by ES is clearly above the European average. This suggests that there are much more data existing in Croatia than are available in international data sources.

Overall situation of data sources: Croatian National Institute of Public Health (CNIPH, www.hzjz.hr) is the main organisation responsible for health data, according to the Health Care Law and National Statistical Programme. It is responsible for gathering, analysing and publishing all data coming from the health sector. Mortality data are gathered together with the State Bureau of Statistics as a joint venture. Routine data collection is quite well settled. Register data, especially hospital data, are quite well available. HIS experience exists, but legislative frameworks lack and are badly needed. Record linkage is possible, but not completely. Hospital data are good, but not well person-oriented; personal ID is not obligatory to be kept in all health data. There is insurance ID kept for insured persons, not used by the public health. There is ongoing process of harmonisation of the data in the health sector using one unique ID for each person, regardless of insurance.

Health reporting: CNIPH publishes dozens of health reports online. Only a small part of them is available in English, though. These include The Croatian Health Service Yearbook (annual), reports from the Cancer Register (annual), and the Epidemiological news: a monthly bulletin with detailed information on all cases of communicable diseases in Croatia. Also, there is a study of the HIV/AIDS situation in Croatia. The publication Croatian Health Indicators 2008 has been published recently in English.

Main problems: There are problems on the administrative level; responsibilities are unclear and some reluctance occurs. At the moment CNIPH is almost alone responsible of all health data. The Health Insurance Institute is responsible for some data and is not obliged to share existing data with public health sector.

Ongoing and/or expected improvements: Record linkage is expected to improve and up to now no obstacles are foreseen in trying to link data from different sources, keeping in mind obligation for complete personal data protection. All Croatian primary health care units have their own patient registers and 95% of GP offices are computerised and networked. They have person-oriented data, history and case data piled together for each "episode", procedures and treatment included. Up to now only aggregated data have been delivered to public health sector, but it is envisaged that individual data at national level will be available from 2009. A pilot HIS along with EHIS requirements is planned for 2009.

Possible solutions for implementation: National level needs coordination, additional resources and organisational changes. Ministry of Health might need suggestions from Eurostat. Implementation should lead to permanent process of improvement.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding / manpower	
Main improvement: E-health records being implemented	
Main solution: Include ECHI recommendations in national health strategies	

CYPRUS

Data availability by Country Report: Only 55% of the ECHI shortlist indicators are available in international data sources, which is well below European average. The ECHI shortlist sections for which there are most data missing are Health Services and Health Determinants.

Data availability by ECHIM Survey: 58% of the ES indicators are available at the national level, which is also well below the European average. Indicators are missing from every section. The reason for low scoring is mainly the poor availability of indicators derived from registers and HES.

Data availability in European context: Data availability in Cyprus is among the lowest in Europe according to both CR and ES. The obvious reasons are the lack of HES, only one HIS and limited register data. Register situation is like in most countries; about half of the registers enquired do not exist at the moment, have poor coverage or are being built.

Overall situation of data sources: The most important health data sources and their respective remits are Statistics Cyprus (CYSTAT; www.mof.gov.cy/cystat), Ministy of Health (MOH; www.moh.gov.cy) departments MOH Health Monitoring Unit, MOH Medical and Public Health Services and MOH Cancer Register. Record linkage using the personal ID number is possible. However, there are difficulties because in many registers or databases the accuracy of recording this item is low. Also there are difficulties with linkage due to the Data Protection Law. Latest HIS is from 2003 and the next one is scheduled for 2008, thus there are no time trends of indicators derived from HIS yet. HES have not been conducted. Many of the health related registers do not exist or their quality is currently not optimal: e.g. registers on hospital discharges, ambulatory and primary care register, as well as on prescribed medicines. Medical birth register and surgery registers are lacking, but they are being built up. Currently there are no data on private health care sector (ca 60% of all). However, Cyprus is very keen on improving health data collection and quality, but guidance and support are needed on how to do it in practice.

Health reporting: Currently the health reports are mainly tables with not much analytical text, comments etc. Reports of the following ad-hoc surveys have been published by CYSTAT: Household Budget Survey 2003, Survey for people with long-standing health problems or disabilities, Social Protection in Cyprus 2002-2003. All these publications are available online and in English.

Main problems: Overall shortage of personnel and funds. Exiguity of support (e.g. from EU, Eurostat) in analysis and assessing the quality of data etc. Lack of data on private sector. Problems with data collection. Problems due to Data Protection Law.

Ongoing and/or expected improvements: Cyprus is working very hard on improving the coverage and quality of the health data gathering system: e.g. building up new registers and improving existing ones. Cancer register started functioning on a new basis in 1998. Ongoing activities include e.g. implementation of OECD SHA, medical birth register and surgical register. They also aim to regularly conduct HIS every 5 years. Cyprus is keen to conduct also HES, but currently there are not enough personnel nor funds available for it. Cyprus is also building up the health insurance system, starting 2008 (plus 5–8 years to develop). The Health Monitoring Unit is constructing a data housing system, public sector data is to be included first.

Possible solutions for implementation: Introduce appropriate national legislation for the Health Monitoring Unit to ensure that health data collection is being prepared. However, ensuring data protection may prove to be problematic from legal point of view. Improve existing registers and establish new registers, possibly with expert technical assistance. Improve skills on codification of mortality, morbidity and medical procedures and records. Expert advice and some technical assistance on data collection, quality checks, analysis and reporting is needed to help Cyprus to write and publish the first public health reports and specific reports such as mortality, perinatal health, cancer registration etc. Regular feedback from international organisations (Eurostat, WHO, OECD) would be useful.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Poor health information system	
Main improvement: Data sources improving	
Main solution: Regulations from EC / Eurostat	

CZECH REPUBLIC

Data availability by Country Report: 71% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are most data missing are Health Services and Health Determinants.

Data availability by ECHIM Survey: 94% of ECHIM Survey indicators are available at the national level. Most of data for the indicators are from registers. National health information surveys produce data for most Health Determinants indicators. Instead, there have not been national health examination surveys but only regional (HELEN).

Data availability in European context: Data availability in Czech Republic is among the best in Europe. Most data are based either on health interview surveys or registers. There are no nationally representative health examination survey data available, but the situation is quite similar in most European countries.

Overall situation of data sources: Institute of Health Information and Statistics of the Czech Republic (IHIS CZ, www.uzis.cz) is the main organisation collecting health data in Czech Republic. The institute has a leading role in practically all health statistics. Besides there is a number of other institutions (e.g. National Institute of Public Health (NIPH, www.szu.cz), Health Insurance Companies) which gather some health data. IHIS CZ hosts extensive registers of various diseases, diagnoses, treatments, manpower etc. and it also performs national HISs. NIPH has performed one HES, although not national, and is currently planning a new one.

Health reporting: IHIS CZ publishes numerous online health reports. The Czech Health Statistics Yearbook is published annually, and the Regions of Czech Republic have their own editions as well. Also health care, hospital bed care and primary health care reports are published for every region separately. There is also a large number of national level topic specific reports: activity of health care establishments, infectious diseases, balneological care, physicians, stomatologists and pharmacists, births and infant mortality, occupational diseases, cancer, diabetes, venereal diseases, abortions, respiratory diseases, terminated cases of incapacity for work for disease or injury, and deaths. These reports are published online and mostly in Czech, but commonly contain English abstracts and table headlines. The results of HIS 1999 and 2002 are also published online and in English.

Main problems: Record linkage is possible within National Health Information System, and it is also possible to link data from the state insurance company with other health data, but it is very difficult because of personal data protection legislation. The possibilities of linkage are likely to further deteriorate in the future because of that.

Annual forms from some health establishments are not filled properly, which affects the quality of data. Support and funding from the Ministry of Health are limited, which is the basic hindrance to the implementation of ECHI.

Ongoing and/or expected improvements: EHIS is being implemented, and a new HES is being planned as well as a new cancer screening programme for specific diagnoses. A new office is planned for sorting data from insurance companies.

Possible solutions for implementation: Base data for almost all ECHI indicators are available. Fine adjustments of indicator definitions and calculations towards ECHI are necessary. There is enough manpower and clear structure in IHIS CZ, but the awareness of ECHI is low on the political level. Close communication with the Ministry of Health would be the decisive action in implementing ECHI. EU-level guidelines would also be helpful.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: No political will / awareness	
Main improvement: New HIS / HES	
Main solution: Regulations from EC / Eurostat	

DENMARK

Data availability by Country Report: Data availability is one of the best in Europe, 85% of ECHI shortlist indicators are available in international data sources. Thus there is no particular ECHI shortlist section where Denmark would score low.

Data availability by ECHIM Survey: 79% of ES indicators are available at the national level, which is slightly above the European average. The reason why Denmark does not rank higher is mainly due to lack of some indicators in the health determinants section (serum indicators) and health care section (e.g. recent data on mothers/children attending health check-ups).

Data availability in European context: On the whole, data availability in Denmark is one of the best considering the ES, and close to European average considering the CR. However, availability of data by socio-economical status is not good. Unlike in most countries, register situation is very good, all registers enquired exist except the insurance register, and the accidents and injuries register has poor coverage.

Overall situation of data sources: The bodies mainly responsible for health data gathering and reporting are the Ministry of Health and Prevention (SUM; www.sum.dk) and National Board of Health (SST; www.sst.dk). Availability of register based data is very good, also on regional level. However, practically no data by socio-economical status is available, except for HIS derived data. Time trends for indicators derived from HIS are available due to regularly conducted HISs. Of course, reason for the lack of some indicators is due to there being no HES done in Denmark. At the moment, there are no concrete plans for implementation of a HES. Possibilities for record linkages are good, because the Unique Person Identification Code is used in all registers. There are no current concrete plans for EHIS.

Health reporting: There is no recent Public Health Report in Denmark as such. There are, however, some recent international publications about the Danish health system (by OECD and others). There are also websites with health data (www.sundhedskvalitet.dk: Statistics on quality indicators; and www.sundhed.dk: Danish portal about health) in addition to the above mentioned institute's sites, but they are in Danish only.

Main problems: Data are sometimes difficult to make available, due to – as is the case in many countries – lack of funding, lack of relevance and feasibility etc. Change of personnel dealing with ECHIM issues is also problematic.

Ongoing and/or expected improvements: No changes in availability of data expected in the near future.

Possible solutions for implementation: More information should be provided to decision makers on the purpose of ECHIM activities and ECHI shortlist etc. Further information and clear guidance on the usefulness and purpose of ECHIM activities and ECHI shortlist etc. would make new and more linkages to and between registers easier (e.g. SES) to justify. In the past, comparison to other Nordic countries has helped to obtain more data.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding / manpower	
Main improvement: Data sources improving	
Main solution: International comparisons of data	

ESTONIA

Data availability by Country Report: 63% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are most data missing are Health Status, Health Services and Health Determinants.

Data availability by ECHIM Survey: 90% of ECHIM Survey indicators are available at the national level. Most of the data for the indicators are from health interview surveys (national and international), health insurance funds or other registers. Instead, there have not been national health examination surveys. ECHIM Survey reveals there are more data existing than are available in international data sources. Examples include data for health status and health determinants indicators. The difference is partly explained by the fact that some data that are not available at the moment are expected in near future. In addition to that, some indicator data that exist based on ECHIM Survey results do not necessarily meet the definitions of the international data sources. However, there are much data already existing that could be derived to international databases.

Data availability in European context: According to national information, data availability in Estonia is better than European average. Most data come from surveys, registers and health care providers. There are no nationally representative health examination survey data available, but the situation is quite similar in most European countries.

Overall situation of data sources: The Ministry of Social Affairs (MSA, www.sm.ee) is responsible for general health monitoring. Different institutions are responsible for the collection of administrative data (e.g. health care providers for the hospital sector), health services and morbidity data submit annual statistical reports to the MSA (starting 2008 to the National Institute of Health Development (www.tai.ee). The National Institute of Health Development performs health interview surveys. Other organisations gathering health data are Registers (Cancer, Tuberculosis, Births), Health Insurance Fund, State Agency of Medicine, Statistics Estonia (www.stat.ee) and others.

Health reporting: MSA regularly publishes the Health Care Statistics Yearbook. Topic specific reports are published by registers, surveys and health care providers.

Main problems: Representative HES not likely to be conducted, too expensive. Patient-based statistics are limited. There is no general National health strategy in Estonia really, only sub-strategies for cardiovascular diseases, cancer, HIV, tuberculosis etc. Political awareness of ECHI is still low.

Ongoing and/or expected improvements: Developments with the aim to start collecting patient-based health care statistics with the help of Estonian E-health project. It includes 4 subprojects: electronic health record, digital registration, digital image and digital prescription. Digital health record will be used for statistical purposes, and in principle it will be possible to use the data for special projects and studies too. There is a plan for 2008–2012 on developing medical registries. In 2009 main priorities are launching register on screening (prevention) and developing existing Cancer Register (incidence, survival rates, prevalence; linking to cause of death register).

Possible solutions for implementation: Clear and detailed definitions for ECHI indicators are needed, as well as methodological guidelines from Eurostat and questionnaire to collect ECHI indicators on routine basis from MSs. Methodological guidelines and questionnaire can be used as references while necessary methodological revisions in data collection (methodological revisions or process of launching new data sources) are under discussion in particular MS.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding / manpower	
Main improvement: E-health records being implemented	
Main solution: Include ECHI recommendations in national health strategies	

FINLAND

Data availability by Country Report: 80% of ECHI shortlist indicators are available in international data sources, which is more than European average. There is no particular ECHI shortlist section where Finland scores particularly low.

Data availability by ECHIM Survey: In principal, data for every indicator covered in ECHIM Survey are available.

Data availability in European context: Data availability in Finland is among the best in Europe. Unlike in most countries, register situation is excellent; all registers enquired exist, except the Primary health care register.

Overall situation of data sources: National and relevant health data are gathered and published by several organisations, the most important ones being the National Public Health Institute (KTL, www.ktl.fi), National Research and Development Centre for Welfare and Health (STAKES, www.stakes.fi), Social Insurance Institute (KELA, www.kela.fi) and Statistics Finland (www.stat.fi). Possibilities for record linkages are good, provided that certain requirements are fulfilled. This is because Personal Identification Number is used in all registers which are allowed to keep the information and further link to other sources. All of the registers enquired in the ES exist already. Register coverages are good. Most of the register based data are available also in regional level. EHIS has not yet been conducted in Finland, and there is no definite date set for it. Of course many national HISs are, so also time trends for HIS derived indicators exist. Of note is the fact that more than one nationally representative HES have been been done, thus there is also a time series from 1978-1980 to 2000-2001 of HES derived indicators (KTL). STAKES is the focal point for providing data for EU, WHO, OECD and other international actors.

Health reporting: KTL is the institution primarily responsible for health reporting. Report "Health in Finland" by KTL (from 2006). Cancer reports are being published biennially by Finnish Cancer Register (www.cancerregistry.fi). Also many ad hoc reports have been published, e.g. on infectious diseases, health care services and reproductive health.

Main problems: As in everywhere, lack of funding and resources. Co-operation and coordination between institutes can always be improved.

Ongoing and/or expected improvements: KTL and STAKES are to be merged by January 1, 2009.

Possible solutions for implementation: Series of discussions with key players in public health and health care, especially the Ministry of Social Affairs and Health.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding / manpower	
Main improvement: ECHI shortlist already being implemented at least partly	
Main solution: More funding / manpower	

FRANCE

Data availability by Country Report: 78% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are most data missing are Health Services and Health Determinants.

Data availability by ECHIM Survey: 87% of ECHIM Survey indicators are available at a national level. Most of the data for the indicators are from Health Insurance Database or other registers. Data for most Health Determinants indicators are produced by HIS. In addition, the national health nutrition survey and the regional MONALISA surveys provide some data for health determinants indicators. ECHIM Survey reveals there are more data existing than are available in international data sources. Examples include consumption of fruit/vegetables and cancer survival rates. The difference is partly explained by the fact that some data that are not available at the moment are expected in near future, such as cancer screenings. In addition to that, some indicator data that exist based on ECHIM Survey results do not necessarily meet the definitions of the international data sources. However, there are much data already existing that could be derived to international databases.

Data availability in European context: Data availability in France is above European average. Most data come from surveys and registers. The national survey on nutrition and health (National Institute of Health Surveillance, InVS; www.invs.sante.fr) contains examination measures which can serve as a source for indicators based on measured data.

Overall situation of data sources: The French Ministry of Health (www.sante-jeunesse-sports.gouv.fr), with its agencies (in particular InVS), is responsible for general health monitoring. Within the Ministry the Direction for Research, Evaluation and Statistics (DREES) coordinates the publication of health data that are collected and analysed by a significant number of public health authorities. Within the Ministry of Economy, the National Institute for Statistics and Economic Studies (INSEE; www.insee.fr) performs regular HIS. Other major data sources include the National Information System of Health Insurance (SNIIR-AM), mortality data collected and analysed by the National Institute for Medical Research (CépiDC-Inserm) and HIS performed on a regular basis by the National Institute for Prevention and Health Education (INPES) or the Institute for Research and Documentation in Health Economy (IRDES).

Health reporting: Public Health Reports have been published by the High Committee on Public Health (www.hcsp.fr) in 1994, 1998 and 2002. A wide range of topic specific reports are regularly published by DREES and several other authorities with responsibilities in the area of public health (mainly in French). Under a contract

with the Ministry of Health, the national federation of regional health observatories (FNORS) maintains a database containing data for several dozens of selected health indicators available at regional or subregional levels (www.fnors.org/Score/accueil.htm). The National Institute for Statistics and Economic Studies (INSEE) also publishes some health data online, mainly health care and demographic data. Data are presented by predefined tables and references to analytical studies and a link to Eurostat database is well visible. Some of the reports and other publications are available in English.

Main problems: Over the years, multiple institutions have developed information systems or surveys to address their own specific information needs or agendas. While patient tracking is possible in principle (unique social insurance identifier) and record linkage is now possible within the SNIIR-AM under strict data protection legislation, it is still cumbersome due to the complexity of the health information systems. In addition, replacing existing definitions, e.g. in the use of the EHIS instrument for national HIS, creates problems for time trend analyses.

Ongoing and/or expected improvements: Digital patient medical register is planned. Reform of health insurance information system should lead to improved access to health insurance and health services data. There are ongoing efforts to better coordinate the production of health indicators to address national and regional health policy information needs.

Possible solutions for implementation: Currently the development of reliable health indicators is focused on national requirements, including those set by the 100 objectives defined in the 2004 Public Health Law. Due to this, the implementation of the ECHI indicators currently not available seems problematic. The implementation of the directive on public health statistics is expected to set common requirements for all EU countries, and may thus both support and limit the process.

Country Report, data availability
ECHIM Survey, data availability
    Health Status
    Health Determinants
    Health Care
    Record linkage, present
    Record linkage, future
Implementation prerequisites

    Main problem: Complex administration
    Main improvement: Policy / legislation in preparation
    Main solution: Regulations from EC / Eurostat

GERMANY

Data availability by Country Report: 78% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are most data missing are Health care and Health status.

Data availability by ECHIM Survey: 92% of ECHIM Survey indicators are available at the national level. Most of the data for the health care indicators are from administrative data sources and data from social insurance carriers. Data for most health determinants indicators are produced by health interview surveys. They include both national and international surveys. The last representative health examination survey was carried out in 1998; the next one will start in 2008. ECHIM Survey reveals there are more data existing than are available in international data sources. In addition to that, some indicator data that exist based on ECHIM Survey results do not necessarily meet the definitions of the international data sources. However, there are data already existing that could be derived to international databases.

Data availability in European context: Data availability in Germany is better than European average. Most data come from surveys, social insurance carriers and administrative sources.

Overall situation of data sources: The Robert Koch Institute (RKI, www.rki.de) is responsible for general health monitoring on the national level. It is specialised in health interview and examination surveys. Together with the Federal Statistical Office (FSO, www.destatis.de) the RKI is also responsible for Federal Health Reporting. The Federal Health Reporting service provides a free online information system for all health data (www.gbe-bund.de). Other organisations gathering health data include Cancer Register. Data sources are fairly complete; only data for use of prescription medicines are incomplete. Data for only reimbursed medicines are available. At the moment record linkage is not possible because of strict data protection legislation.

Health reporting: RKI published national health reports and topic specific analytical reports (www.rki.de/gbe) on a great variety of issues. Results of the national health monitoring system will be made available via an online information system and periodical publications.

Main problems: German health monitoring is based on an established set of instruments and measures. The integration of the EHIS instrument would lead to a break in the existing time series which would pose a problem for the analysis of time trends.

Ongoing and/or expected improvements: RKI has started to implement a comprehensive national health monitoring system consisting of different modules (HIS: GEDA; HIS/HES: DEGS, KiGGS). RKI is participating in the EU projects concerning the European Health Examination Survey. The European Health Interview Survey Questionnaire has been translated into German and adapted for a telephone interview scheme. The pilot EHIS will be performed as a telephone interview survey in March 2009.

Possible solutions for implementation: Integration of EHIS methodology in the existing survey modules requires resources, which are currently not available. The enforcement of a legal basis for the delivery of public health statistics to EU bodies will support the national implementation of the ECHI indicators.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding / manpower	
Main improvement: National Health Monitoring implemented	
Main solution: Complete ECHI shortlist with definitions	

GREECE

Data availability by Country Report: 75% of the ECHI shortlist indicators are available in international data sources, which is over the European average. The ECHI shortlist sections for which there are most data missing are Health Status (e.g. AMI, stroke and COPD) and Health Services (surgeries related indicators) sections.

Data availability by ECHIM Survey: Two thirds (67%) of the ES indicators are available at the national level, which is under the European average. Relatively poor performance is due to low availability of data on the sections Health Status (although more data are expected in the near future) and Health Care (e.g. screenings; children and women attending health check-ups).

Data availability in European context: On the whole, data availability in Greece is lower than the European average. Register situation is about the same than in most countries; about half of the registers enquired do not exist at the moment (cancer, ambulatory and primary care), or have poor coverage or are being built (prescription medicines).

Overall situation of data sources: The National Statistical Office (NSO; www.statistics.gr) is responsible for collecting e.g. hospital and personnel related data, the follow up of data on pharmacies as well as work accidents. Most of this data are available on the Internet. The Hellenic Center for Diseases Prevention and Control (HCDPC; www.keel.org.gr) is responsible for collecting data on infectious and parasitic diseases. Institute of Pharmaceutical Research and Technology (IFET; www.ifet.gr) is responsible for the monitoring of Greek pharmaceutical market data. University Mental Health Research Institute (UMHRI; www.ektepn.gr) is the Greek Focal Point of the European Monitoring Centre on Drugs and Drug Addiction (EMCDDA) and responsible for providing and disseminating the illegal drug use related data. Record linkage is not possible in Greece, and most likely the situation will not change in the near future. Also HIS based data are quite scarce (although the forthcoming 2009 HIS should improve the situation). Thus, on the whole, no time trends for indicators derived from HISs are available. Furthermore, there are no data by socio-ecomic status or region. Currently, there are no concrete plans for implementing HES.

Health reporting: Health Reports are not published in Greece. Some topic specific reports are published. For example, HCDPC produces annually an edition of the HIV/AIDS Surveillance Report in Greece (available online). UMHRI is publishing annually a report on the drug situation in Greece, available online.

Main problems: The lack of cancer register. Also, the fact that concerning surgeries reporting, the ICD-CM has not yet been implemented in Greece.

Ongoing and/or expected improvements: HIS will be implemented in 2009, for which NSO is the responsible body. The cancer register is being created by HCDPC.

Possible solutions for implementation: Public Authorities should be more aware of ECHIM and its aims. The collaboration with policy makers have to be considered as a precondition. Efforts to disseminate ECHIM issues to the press should be increased.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Poor health information system	
Main improvement: New HIS / HES	
Main solution: Include ECHI recommendations in national health strategies	

HUNGARY

Data availability by Country Report: 66% of ECHI shortlist indicators are available in international data sources. The availability is quite equal for all ECHI shortlist sections except for Demographic and Socio-Economic factors, in which data for almost all indicators are available.

Data availability by ECHIM Survey: 67% of ES indicators are available at the national level. The availability is generally best for Health Status indicators; for most of them there are both register and HIS data available. Most available Health Care data are from registers, while Health Determinants data are mostly derived from HIS. Instead, there have not been national HES in Hungary. Most missing indicators are particularly those based on HES, and also some control-type indicator data are missing.

Data availability in European context: Data availability in Hungary is below the European average, particularly concerning ES. Still, the overall situation is very typical in European context: extensive registers and HIS, but no HES. The poor availability of control-type indicator data is the most important single reason for the below-average availability figures.

Overall situation of data sources: The most important health data sources and their respective remits are the Central Statistical Office (CSO; www.ksh.hu, demography and mortality), National Sick Fund (OEP, www.oep.hu, primary care, outpatient and inpatient service data), National Centre for Epidemiology (OEK, www.oek.hu, infectious diseases), National Cancer Institute (www.oncol.hu, cancer register), National Centre for Health Care Audit and Inspection (OSZMK; www.oszmk.hu, National Health Survey 2000 & 2003) and the University of Debrecen; www.unideb.hu, general practitioners' morbidity sentinel station data on chronic diseases). Aggregated data from most of the institutions are reported to and published by the CSO. The cooperation between the institutions is on an ad hoc basis – there is no coordinative function in place. International reporting goes via the CSO and the National Institute for Strategic Health Research (ESKI, www.eski.hu).

Health reporting: OSZMK publishes various reports online, but in Hungarian only. The National Public Health Update is the only one in English.

Main problems: Public health and health monitoring areas are not in the focus of health policy. The developments of recent years (e.g. inclusion of health surveys in the monitoring system, regular health reporting, coordination of the activities of the different institutions) slowed down, and the necessary legal, political and finacial

support is lacking. Record linkage is not possible at the moment, and the situation is not likely to change.

Ongoing and/or expected improvements: Implementation of EHIS is planned for 2009.

Possible solutions for implementation: EC activities, legislation as external pressure would facilitate the development of the health information system.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: No political will / awareness	
Main improvement: New HIS / HES	
Main solution: Regulations from EC / Eurostat	

ICELAND

Data availability by Country Report: 46% of ECHI shortlist indicators are available in international data sources. Much data are missing in all ECHI shortlist sections, but the availability is particularly poor concerning Health Status indicators, above all prevalences of various diseases and functional limitations.

Data availability by ECHIM Survey: 60% of ES indicators are available at a national level. Health Status and Health Determinants data are largely missing, resulting from the fact that HIS have been very limited, and HES have not been conducted at all. For Health Care data availability is slightly better.

Data availability in European context: Data availability in Iceland is among the lowest in Europe according to both CR and ES. The obvious reasons are the lack of HES and narrow HIS.

Overall situation of data sources: Directorate of Health (www.landlaeknir.is), Statistics Iceland (www.statice.is), Social Security Institute, The Cancer Institute and The Icelandic Heart Association (www.hjartarannsokn.is) are the main public health data producers. In general their functionality and co-operation are fairly good. The exceptions are data collection from private practising specialists and in outpatient care. Data collection from private practising specialists is however under way at the moment. Health care centres, hospitals and nursing homes on the other hand routinely provide data. There has been a lack of standardised routine HIS in the past, one such survey was however conducted in 2007 by the Public Health Institute. The implementation of EHIS is still unclear. Record linkage is possible for the purposes of scientific research. However, permissions need to be obtained from the Data Protection Authority and The National Bioethics Committee before any links are made. The situation is likely to improve so that the permissions will be easier to obtain.

Health reporting: The Directorate of Health collects data and compiles statistics on a number of health care issues, such as the utilisation of hospital and primary health care services. It also produces statistics on communicable diseases, other diseases and causes of death, on surgical procedures, induced abortions and sterilisations, as well as collecting data on prescription drug use, patient complaints and maintaining a national register on accidents. The data can be downloaded in English. Several institutions, such as the Social Insurance Institute publish annual statistics pertaining to their activities. They include statistics on the number of contacts with private practising specialists, disability benefits, cost of drugs etc.

Main problems are of financial and structural nature. There is some lack of general, national policy making and lack of funding.

Ongoing and/or expected improvements: Data collection among private practising specialists is starting. Furthermore structural changes as a new organisational body, the Health Insurance Institute is established. It is to provide the framework for purchasing health care on behalf of the public. This institute will need a great deal of information on which to build their decisions to purchase. This will in turn hopefully lead to more funding being put into the collection of data. Cooperation between organisations has been increased e.g. with a project called Health Data Warehouse. In this project, data on the elderly have been gathered from several organisations and linked with a website that displays maps and statistics. This website will launch in 2008.

Possible solutions for implementation: The ECHI system needs to be properly presented and promoted by those responsible in the country. Step by step the system will hopefully lead to more data being collected and registers being adjusted to provide more data.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	

Main problem: Funding / manpower

Main improvement: ECHI shortlist already being implemented at least partly

Main solution: Include ECHI recommendations in national health strategies

IRELAND

Data availability by Country Report: 75% of ECHI shortlist indicators are available in international data sources. The availability is quite equal in all ECHI shortlist sections except for Demographic and socio-economic factors, in which data for almost all indicators are available. Also data for Health determinants indicators are remarkably well available.

Data availability by ECHIM Survey: 81% of ES indicators are available at the national level. The availability is generally best for Health Status indicators; for most of them there are both register and HIS data available. Health Care data are almost exclusively register data, while Health Determinants data are derived mostly from various national, regular HIS. Instead, there have not been national HES in Ireland. Most missing indicators are particularly those based on HES, and also some control-type indicator data are missing. Recently, a sub-sample of participants in the SLÁN survey completed a health examination module which included measures of BMI, cholesterol and blood pressure.

Data availability in European context: Data availability in Ireland is slightly above the European average. In general the situation is typical in European context: extensive registers and HIS, but no HES. The number of repeated HIS, though, is larger than in most European countries.

Overall situation of data sources: The most important health data sources are the Department of Health and Children (DOHC, www.dohc.ie; hospital in-patient enquiry system, national perinatal reporting system, HIS), Economic and Social Research Institute (ESRI, www.esri.ie; hospital in-patient enquiry system), Health Protection Surveillance Centre (HPSC, www.hpsc.ie; HIV/AIDS surveillance system), Environmental Protection Agency, Health Research Board (national physical and sensory disability database), National Cancer Registry, National Breast Cancer Screening Programme, Central Statistics Office (CSO, www.cso.ie; census, HIS) and SLÁN consortium (HIS; collection of academics/researchers from different universities and research institutions). Record linkage possibilities are very limited by the lack of availability of unique identification either in the public sector in general or in the health services in particular.

Health reporting: DOHC publishes online the extensive Health Statistics (latest 2008) and a wide variety of topic specific reports. Aggregated data from most of the data producing institutions are reported to and published above all by CSO, DOHC and ESRI. The Institute of Public Health (www.inispho.ie) operates an all-Ireland (North and South) population health observatory, which promotes co-ordination for public health issues. It publishes reports and provides search facilities for recently published

reports and policy papers. These are generally available from the Institute's website for direct download.

Main problems: The establishment of the Health Services Executive (HSE) in 2005 replacing the previous system of regional health boards has led to certain difficulties in the continuity of local information systems, but also provides a coherent national framework for future improvements. In common with many countries, information systems in primary and community care settings are comparatively underdeveloped. Further problems are the absence of a system of unique identification for health and the present strict data protection legislation.

Ongoing and/or expected improvements: The establishment of HSE presents interim organisational challenges but also the opportunity for improved health information at national level. The Health Information and Quality Authority (HIQA) has been established (2007) with a remit in the area of health information standards and identification of deficiencies in health information. A Health Information Bill is in the process of being prepared, which has the aim of improving the availability and use of health information while balancing this with the need to protect confidentiality and privacy. In addition, the CSO has a growing role in the collection, analysis and publication of health data. The inclusion of a health module as part of the Quarterly National Household Survey (QNHS) in the third quarter of 2007 is an example of this.

Possible solutions for implementation: The Department of Health and Children plays a key role in the development and implementation of policy in the area of health information. It is working closely with HSE, HIQA and other organisations to improve health information and to facilitate performance and outcome measurement. The forthcoming Health Information Bill is seen as a key component in enabling a range of solutions, which will contribute to improve patient care and better evidence-based decision making.

Country Report, data availability
ECHIM Survey, data availability
   Health Status
   Health Determinants
   Health Care
   Record linkage, present
   Record linkage, future
Implementation prerequisites

   Main problem: Complex administration
   Main improvement: Policy / legislation in preparation
   Main solution: Co-operation at national level

ITALY

Data availability by Country Report: 78% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist section for which there are most data missing is Health Status.

Data availability by ECHIM Survey: 71% of ES indicators are available at a national level. A remarkable part of the data for the indicators is either from regular surveys or registers. The data that are missing are almost exclusively HES data, the reason being no national HES has been conducted in Italy.

Data availability in European context: Data availability in Italy is close to the European average. Also the lack of national HES is very typical in European context.

Overall situation of data sources: National and relevant health data are gathered and published by several organisations, the most important being the Ministry of Health (www.ministerosalute.it), the National Institute of Statistics (ISTAT, www.istat.it) and the National Institute of Health (ISS, www.iss.it). Record linkage is possible partially and for selected and well identified needs under authorisation of the Ministry of Health. It will improve due to the emerging needs to better understand the evolution in the health status of the population so that much better tools related to the analysis are needed.

Health reporting: ISTAT hosts a "Regional Dataset on Health" where complete and detailed health indicator data can be downloaded as Excel tables, in English and broken down by age, sex and regions. ISTAT also manages the Italian Health for All database (www.istat.it/sanita/Health) which contains more than 4000 indicators on health: socio-demographic context, causes of death, chronic and infectious diseases, health conditions and health expectancy, disability, health care, health resources and hospital activities. Available online are also numerous topic specific reports on e.g. mortality, cancers and alcohol use, but in Italian only. ISS hosts a mortality database covering the years 1980-2002, broken down by age, sex, regions and causes of death by ICD-9.

Main problems: Integration between different data sources is lacking and gathering information on homogeneous issues related to health indicators is difficult. Some areas are not completely fulfilled due to the rapid changes in health planning priorities and due to the devolution of health issues from central government to the Italian Regions, and consequent needs for formal agreements through the Conference State-Regions. There is a renewed approach to find new instruments for cooperation between organisations formally devoted to health monitoring in Italy. Funding for the implementation of new data sources and for the creation of a new model of information flows at the regional level is insufficient.

Ongoing and/or expected improvements: The implementation and optimisation of existing registers like cancer registers at ISS based EUROCARE Project and of existing data sources is in progress. HIS/HES data sources are expected to improve through the implementation of new project like "MATTONI SSN" by Ministry of Health. Standard surveys for regional level (PASSI; www.epicentro.iss.it/passi) and their integration with the existing national one are implemented.

Possible solutions for implementation: Coordination of the organisations involved in the Health Indicator System through the creation of specific working groups aimed at the validation of the European Indicator system at the national level (SiVeAS; www.ministerosalute.it/programmazione/lea/sezOrgani.jsp?label=siveas) is progressing with a specific focus on health status and the quality of health care, which are the most flawed areas of health indicator data in Italy at the moment.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Complex administration	
Main improvement: ECHI shortlist already being implemented at least partly	
Main solution: Methodology of indicator calculation	

LATVIA

Data availability by Country Report: 62% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are most data missing are Health Status, Determinants of Health and Health Services.

Data availability by ECHIM Survey: 69% of ES indicators are available at the national level. Data availability is significantly low regarding Health Status and Health Determinants indicators. The main reason for this is that there has not been nationally representative HES after 1991, and many diseases and functional disorders have not been included in HIS conducted in Latvia. Health Care data are much better available, because those data come mainly from advanced registers.

Data availability in European context: Data availability in Latvia is slightly lower than European average, especially regarding the sections Health Status and Health Determinants. The obvious reason is that no national level HES has been conducted in Latvia in almost two decades, and HIS's have been slightly narrow. Moreover, the ES availability information follows the ECHI indicator definitions very strictly, which naturally has a negative impact on the overall availability number, since some low-quality and outdated data have been left off.

Overall situation of data sources: Health Statistics and Medical Technologies State Agency (www.vsmtva.gov.lv) and Health Compulsory Insurance State Agency (VOAVA, www.voava.gov.lv) are the most important organisations gathering health data and hosting most registers. Others include the Riga Centre of Psychiatry and Narcology, the Central Statistical Bureau (www.csb.gov.lv) and the Public Health Agency, which performs the Finbalt survey every second year. At the moment record linkage is not possible, but the legal basis for Register of Patients Diseases is in preparation, and the permission to use it from Data State Inspection is expected. EHIS is in preparation, and it will be carried out most likely in 2009 as a part of a national survey.

Health reporting: Health Statistics and Medical Technologies State Agency publishes annually the extensive report Public Health Analysis in Latvia online. Other annual reports (in English but not online) include Medical Aspects of Death in Latvia, Maternal and Infant Health Care, Statistical Overview on Health and Health Care, and Health in the Baltic Countries as a Baltic joint issue with the Ministry of Social Affairs of Estonia and the Lithuanian Health Information Centre. The Mental Health Agency and the Narcology State Agency also publish annual reports, and there is a section on health statistics and survey data in the annual report of the Central Statistical Bureau.

Main problems: Although there are good quality incidence and prevalence data available from registers, HIS and particularly HES data are problematic.

Ongoing and/or expected improvements: Next national HIS will be carried out in 2009, and it will yield new HIS indicator data since it includes EHIS. On the other hand, there is no information about a new HES yet.

Possible solutions for implementation: Promotion could be done through survey financed by government. The survey would be organised by the Central Statistical Bureau using the Eurostat methodology. Particularly, a new HES is needed. In the future a link between patient register and laboratories could be created – to get data for remaining (mostly HES based) indicators.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding	
Main improvement: New HIS / HES	
Main solution: New HIS / HES	

LITHUANIA

Data availability by Country Report: 65% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are most data missing are Health Services and Health Determinants.

Data availability by ECHIM Survey: 88% of ES indicators are available at the national level. Most of the data for the indicators are from Health Insurance Database or other registers. Data for most Health Determinants indicators are produced by HIS. They include both national and international surveys. Instead, there have not been national HES but only regional (CINDI). Some of the data that are marked as available at the moment are actually expected in near future, such as cancer screenings.

Data availability in European context: Data availability in Lithuania is better than European average. Also data quality must be considered good, since most data come from registers. There are no nationally representative HES data available, but the situation is quite similar in most European countries.

Overall situation of data sources: The Lithuanian Health Information Centre (LSIC; www.lsic.lt) is responsible for general health monitoring; it is specialised in administrative data, health services and morbidity data. Statistics Lithuania (www.stat.gov.lt) performs HIS. Other organisations gathering health data include Cancer Register, AIDS Centre, State Mental Health Centre, State Environmental Health Centre, Centre of Communicable Diseases and Kaunas University of Medicine. Data sources are fairly complete; only data for use of prescription medicines are incomplete. Data for only reimbursed medicines are available. At the moment record linkage is not possible because of strict data protection legislation. Work is being done to make linkage possible in the near future, but the outcome is uncertain.

Health reporting: LSIC publishes the extensive Health Statistics of Lithuania annually. Also topic specific report of newborn information system as well as reviews of health behaviour and environmental health are published online. Health in the Baltic Countries is a Baltic joint issue with the Ministry of Social Affairs of Estonia and the Health Statistics and Medical Technologies State Agency of Latvia. LSIC also hosts a database containing data for several dozens of selected health indicators with time series and breakdowns. The database shares the technique with that of WHO Health for All. Statistics Lithuania also publishes some health data online, mainly health care and demographic data. Data are presented both by predefined tables and a database, and a link to Eurostat database is well visible. Most of the reports and other publications of both organisations are available also in English.

Main problems: International survey data and national administrative data sources provide considerable differences for the same indicator (e.g. incidence and prevalence of diabetes or stroke). The problem is choosing the more valid source. Mortality data quality is deteriorating because decreasing number of autopsies. Primary care privatisation causes data quality to deteriorate. The funding is limited, which is the number one problem.

Ongoing and/or expected improvements: Legal basis for record linkage is in preparation.

Possible solutions for implementation: Responsibilities are clear, the structure exists. Methodological problems, concerning calculation of indicators from different sources, need to be solved. Data flow system for some data (e.g. surgeries) should be established. If the funding can be arranged, Ministry of Health is to make decisions, and the actual implementation work would be done in LSIC.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Complex administration	
Main improvement: Record linkage in preparation	
Main solution: Methodology of indicator calculation	

LUXEMBOURG

Data availability by Country Report: 69% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are most data missing are Health Status and Health Determinants.

Data availability by ECHIM Survey: 58% of ES indicators are available at the national level. Data availability is significantly low regarding Health Status section. The main reason for this is that there has not been nationally representative HIS in Luxembourg, and the ES calls for prevalence data for most of those indicators. In Luxembourg, data are mostly incidence, since hospital discharges are the main source of data. In addition to that, data for various musculoskeletal disorders are lacking almost completely. While there has not been HES either, Health Determinants indicators are also poorly available.

Data availability in European context: Data availability in Luxembourg is significantly lower than European average by ES, especially regarding the sections Health Status and Health Determinants. The obvious reason is that no national level HES or even HIS have been conducted in Luxembourg. On the other hand, data availability by the CR is very close to European average. Health Care data have higher scoring of availability, since there are register data available.

Overall situation of data sources: The administrative structure of statistical system is decentralised, responsibilities are shared by the Ministry of Health (www.ms.etat.lu), the Social Insurance System, the Ministry of Social Security via its General Inspection of Social Security (IGSS, www.mss.public.lu) and the National Statistical Institute (STATEC, www.statec.lu). IGSS hosts most registers, but the Cancer Register (www.cancer-registry.lu) is a separate organisation. Other organisations include e.g. Luxembourg Information Network on Drugs and Drug Additions (RELIS, www.relis.lu). Implementation of EHIS is planned to start in 2009, as a part of the first national HIS. Record linkage is not possible because most of the registers (causes of death, perinatal health) do not register the personal identification number. It is possible to link different health data sources with the personal identification number (matricule) but a special authorisation is required by the National Commission for Data Protection. Linking health registers with use of personal identification number would surely improve the quality of information but the data protection law makes it difficult at the moment.

Health reporting: Different organisations publish various topic specific reports online, but in French or German only: Ministry of Social Security (Social Security report), Ministry of Health (Causes of Death, Health Behaviour in School-aged Children 2001 (on WHO methodology, in German)), RELIS (Drug report), Cancer Register (various studies and statistics, also in English).

Main problems: The decentralised statistical system is itself a problem; responsibilities are shared between different administrations, awareness of ECHI vague and the structure ineffective. The number of health specialists and health events is very limited. Data protection legislation is restrictive and complex. A significant number (ca 130 000) of foreign workers come every day from France, Germany and Belgium, using Luxembourg health system and having a considerable effect on the statistics.

Ongoing and/or expected improvements: A complete website to contain all health data is in preparation. ECHI recommendations and definitions are being taken into account. First HIS will hopefully be done in 2009 by EU harmonised methodology, including EHIS.

Possible solutions for implementation: Reconstruction of the statistical system is necessary. To raise the awareness of ECHI, the most important means would be promotion in different ministries and on different levels.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Poor health information system	
Main improvement: Data sources improving	
Main solution: Cooperation at national level	

MALTA

Data availability by Country Report: 62 % of ECHI shortlist indicators were available in international data sources as at the time the country reports were compiled. The ECHI shortlist section for which there are most data missing is Health Services.

Data availability by ECHIM Survey: 81 % of ECHIM Survey indicators are available at the national level. Also according to ECHIM Survey, Health Services is the shortlist section for which data availability is below European average.

Data availability in European context: On the whole, data availability in Malta is slightly below European average. However, ECHIM Survey reveals there are more data already existing which most likely could be included in international databases than what were available in international data sources around year 2004. Of course, some indicator data that exist based on ECHIM Survey results do not necessarily meet the definitions of the international data sources. Register data namely in the field of health care services is more scarce than in most countries, most of the registers required do not exist at the moment, do not cover the whole country, or are being built up. On the other hand, data quality for mortality, cancer, obstetrics and congenital anomalies must be considered good since data come from well established registers.

Overall situation of data sources: The National Statistics Office (NSO; www.nso.gov.mt) is responsible for collection of national demographic data while the Department of Health Information and Research (DHIR; www.sahha.gov.mt) of the Maltese Ministry of Social Policy (MSP; www.msp.gov.mt) is responsible for the collection and analysis of health data. Current efforts are directed towards the improvement of health care services data for the ambulatory and in-patient services. A health interview survey was conducted in 2002, thus time trends for indicators derived from HISs will become available only after the health interview survey using the EHIS questionnaire has been done in 2008/09. There is little data by socio-economic status. There are no nationally representative health examination survey data available, but the situation is quite similar in most European countries. Record linkage is possible using national ID number, apart from census (prohibited), HIS (anonymous) and hospital records (anonymised).

Health reporting: Health monitoring and health reporting are under the responsibility of DHIR, which published the first comprehensive public health report in 2002 (in English). Topic specific reports are published regularly (e.g. cancer, obstetrics, hospital activity, mortality, congenital anomalies, injuries). All these reports are available in English and online.

Main problems: Resources, especially appropriate personnel, are limited. Also there is a lack of an adequate legal framework to guarantee the necessary data collection especially in view of the increasing restrictions due to data protection and confidentiality legislation.

Ongoing and/or expected improvements: Malta will perform the EHIS in 2008/2009. There is work ongoing on implementing a System of Health Accounts (SHA) and Health Examination Survey (HES).

Possible solutions for implementation: Work on an appropriate legal framework, developing efficient electronic data transfer systems, and more appropriate personnel.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding / manpower	
Main improvement: EHIS, work on SHA and HES	
Main solution: National legislation	

NETHERLANDS

Data availability by Country Report: 75% of ECHI shortlist indicators are available as such in international data sources. The ECHI shortlist sections for which there are most data missing are Health Services and Health Determinants.

Data availability by ECHIM Survey: 95% of ECHIM Survey indicators are available at national level. Most of the available data for Health Status and Health Care indicators are from registers. Most of Health Determinants indicators are from regular HIS. There are a couple of HES indicators for which there is no known regular source.

Data availability in European context: Data availability in the Netherlands is among the best in Europe. Also data quality can be considered good. Fine-tuning of indicator definitions at the national level would likely further improve the availability figures.

Overall situation of data sources: The number of data gathering and producing institutions is extremely large; there are more than 100 different organisations. Record linkage is possible between hospital data, municipal register and causes of death register, but it this endangered now by the breakdown of the diagnosis-related hospital information. Data are mostly not comparable as such, recalculations are needed for e.g. international databases. A centralised vision on data needs has been developed in the National Institute of Public Health and Environment (RIVM, www.rivm.nl), driven by the work on health reporting. However, for the Ministry of Health it is still not a priority to invest in a central strategy and stewardship concerning sustained data collection.

Health reporting: RIVM is the institution primarily responsible for health reporting. The National Public Health Compass (www.nationaalkompas.nl; in Dutch only) is an advanced attempt in regular health reporting, pulling together data from different sources. The Dutch National Atlas of Public Health (www.zorgatlas.nl; partly in English) is an extensive collection of indicators from all areas of public health, and the data are visualised by thematic maps. In addition to the online health reporting applications, RIVM also publishes a wide range of printed reports, most notably the Care for Health; The Dutch Public Health Status and Forecasts Report. The Ministry of Public Health, Welfare and Sports hosts a database (www.zorggegevens.nl; in Dutch only) with extensive data and metadata, yet with no close ties with the data providers.

Main problems: The hospital data system (ICD-based discharges etc.) is currently most problematic. The reason is the recent introduction of the unique Dutch approach DBC (Diagnostics-Treatment-Combination) that merges medical and administrative information and is not properly compatible with ICD. In the Dutch situation, primary care registers are considered the best source for the majority of diagnoses. For

international comparison, EHIS might be a good source too. Common problem for all data is that much data are available, but there is still not enough effort to improve international comparability.

Ongoing and/or expected improvements: The cancer register system is improving, as well as perinatal and children's health data.

Possible solutions for implementation: At the moment RIVM is working on a review by indicator, guided by the ECHI shortlist, in order to improve the data collection system in terms of international comparability. A report is being produced on this basis. The main points are: specify detailed definitions for indicators; specify "best" data for the national situation versus "best" for international comparison; organise a central responsibility for data collection, at or delegated by MoH; prevent the degradation of ICD-based health care information; adopt EHIS.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Data management	
Main improvement: Data sources improving	
Main solution: Co-operation at national level	

NORWAY

Data availability by Country Report: 72% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are some data missing are Health Services and Health Determinants.

Data availability by ECHIM Survey: 90% of ECHIM Survey indicators are available at the national level.

Data availability in European context: ECHIM Survey reveals there are more data existing than are available in international data sources. The difference can partly be explained by the fact that some indicator data that exist based on ECHIM Survey results do not necessarily meet the definitions of the international data sources.

Overall situation of data sources: Norway has a highly developed system of complementary instruments for public health monitoring. Several registers are operating (e.g. cancer, injuries) and a national patient register was established in 2007. HIS are regularly conducted by Statistics Norway (www.ssb.no) within a general survey on living conditions. While a nationally representative HES has not yet been performed, measured data from examinations are available from a large cohort. A HES using EHES methods is planned to start in 2012.

Health reporting: The Norwegian Institute for Public Health (NIPH, www.fhi.no) is responsible for public health monitoring and reporting. Moreover the institute maintains an online interactive database with selected statistics about health, disease and risk factors in the Norwegian population (www.norgeshelsa.no/norgeshelsaen). Public Health and topic specific reports are available online. Statistics Norway annually publishes a statistical yearbook where health data are also reported.

Main problems: Norwegian health monitoring is based on an established set of instruments and measures. The integration of the EHIS instrument would lead to a break in the existing time series which would pose a problem for the analysis of national time trends. Norway is planning for a gradual implementation of parts of EHIS in the national Survey on Level of Living concerning health, care and social contact (Statistics Norway). In a national perspective it is important to keep established time series in the official health statistics. Apart from leading to a break in existing time series, there are also challenges in making valid translations of EHIS questions into Norwegian. Translations of EHIS modules are currently being tested as part of a Eurostat project.

Ongoing and/or expected improvements: Possibilities to link records are already good in Norway, but will improve further when hospital and health care data from

the Norwegian Patient Register can also be linked to health registers and surveys. The Norwegian Health Register started using personal ID numbers on 1.7.2007, although it may be 1-2 years before the linkable data sets are ready for use. Norway participates in the PREHES project.

Possible solutions for implementation: The complete ECHI shortlist with extensive indicator definitions is necessary.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	

Main problem: No HES
Main improvement: New HIS / HES
Main solution: Complete ECHI shortlist with definitions

POLAND

Data availability by Country Report: 66% of ECHI shortlist indicators are available in international data sources. In all ECHI shortlist sections data are fairly evenly available.

Data availability by ECHIM Survey: 76% of ECHIM Survey indicators are available at the national level. Control type indicators in Health care section are those with the lowest availability figure.

Data availability in European context: Data availability in Poland is very close to European average by CR, and also by ES.

Overall situation of data sources: The main organisations gathering health data are the Central Statistical Office (GUS; www.stat.gov.pl) and the National Institute of Public Health/Institute of Hygiene (www.pzh.gov.pl). Data quality and data availability are slowly improving, mainly due to digitalisation, and awareness of need. There is a new project for health data systems funded 200 million Euro prepared, that is currently on the stage of preparation feasibility study. Implementation would take several years.

Health reporting: The Central Statistical Office publishes a number of reports and statistics on health.

Main problems: Political will of introducing the new data system, engagement of all actors (mainly those who really collect data), input of financial sources on implementing the system. Medical registry from family practises, even legally introduced in 2006, practically has not started due to technical problems, and no acceptance from organisations of doctors has been got. Introduction of the system did not include new financial sources for doctors, or in any way encouraged them to take part in the digitalisation of data collection.

Ongoing and/or expected improvements: Preparation of a new health information system, digitised registry from family practices, introducing DRG.

Possible solutions for implementation: Implement the ECHI shortlist in health care information system, which is now in preparation. Possible implementation of elements of the ECHI list would depend on financial and technical restrictions. Negotiations are ongoing.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	

Main problem: Poor health information system

Main improvement: Policy / legislation in preparation

Main solution: More funding / manpower

PORTUGAL

Data availability by Country Report: 80% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist section for which there are most data missing is Health Status. In other sections, data are missing for a few indicators only.

Data availability by ECHIM Survey: 79% of ES indicators are available at a national level. Most of the data for the indicators are estimates from hospitals; there are hardly any registers in Portugal. Data for most Health Determinants indicators are produced by the National Health Survey, a series of HIS which was conducted in 2005-2006 for the fourth time. The fifth one shall be done simultaneously with EHIS, but its implementation is still not scheduled.

Data availability in European context: Data availability as such in Portugal is better than European average. However, data quality must be improved.

Overall situation of data sources: National patient registers do not exist. Existing data are not extensive; they are estimated from figures of a few hospitals only. HIS and HES are being fussed by frequently changing formats and poor population estimates. Health of elderly is hardly paid attention to.

Health reporting: Ministry of Health (www.dgs.pt) publishes online various topic specific statistics and studies, but in Portuguese only. The major ECHI documents are also available on the website, if as outdated versions. Statistics Portugal (www.ine.pt) is publishing key facts on health care in English as a part of the Statistical Yearbook. The National Institute of Health (www.insa.pt) and the National Authority of Medicines and Health Products (INFARMED, www.infarmed.pt) have some topic specific studies available on their websites, but the material is almost exclusively in Portuguese.

Main problems: Hospital data are only gathered for administrative needs by public hospitals but not private. Data management is hindered by constitution and other administrative elements; record linkage is not possible because of strict data protection law. HIS and HES lack political relevance.

Ongoing and/or expected improvements: Priorities are to improve mortality data and to implement morbidity registers at first. HIS and HES are to be rebuilt and standardised. Decision has been made to provide only accurate information for international comparison.

Possible solutions for implementation: The cultural paradigm must change: from statistical approach toward an epidemiological one, and the focus should be on clinical

decisions and less on political and administrative process. Constitution must be amended to make record linkage possible. EHIS and other HIS must be executed near the census year. HES may be done by GPs. EU level support and international examples are necessary.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Poor health information system	
Main improvement: Data sources improving	
Main solution: Co-operation at national level	

SLOVENIA

Data availability by Country Report: 65% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist section for which there are most data missing is Health Services.

Data availability by ECHIM Survey: 87% of ES indicators are available at the national level. Most of the data for the indicators can be derived from surveys, particularly EHIS. Hospital data come mainly from registers. Most missing indicators are particularly control-type (e.g. screenings by PSA, cancer treatment quality, diabetes control).

Data availability in European context: Data availability in Slovenia is better than European average considering the ES, and very close to European average considering the CR. Much data come from registers. On the other hand, EHIS has been already conducted, and therefore most HIS data can be derived from it. Moreover, despite a national HES has not been conducted, much HES data can be derived from the Database on Cardiovascular Risk Factors. It is a cumulative data reserve that has been running for ca 5 years, and already contains data for about 200 000 adults, i.e. 10% of the total population.

Overall situation of data sources: The Institute of Public Health of the Republic of Slovenia (www.ivz-rs.si) is the designated organisation for health statistics that hosts most registers, is responsible of conducting EHIS and participates in the national and European statistical Systems. Other notable organisations include the Institute of Oncology (Cancer Register; www.onko-i.si), Ljubljana Health Care Centre (CINDI, Database on Cardiovascular Risk Factors) and Ljubljana University Clinical Centre (Diabetes in Children). In the health care system the health insurance identity number is used in record linkage, in some routine systems also the unique identity number. However the collection is not complete and therefore the possibilities of linkage are limited. The possibilities to link records will improve in the future mainly because of the improvement of electronic information system, the use of new health insurance card and the introduction of e-prescriptions and other e-applications.

Health reporting: The Institute of Public Health of the Republic of Slovenia publishes the Health Statistics Yearbook. Also several topic specific reports are published by the Institute of Public Health: national perinatal and maternal mortality reports, reports on foetal deaths and premature mortality, reports on alcohol use and illegal drug use, treatment demand and drug-related deaths, HIV/AIDS report, reports on communicable diseases, immunisation and prescribed drugs, and water quality statistics report. The institute of Oncology publishes regular reports on cancer. Most of the reports are

published online, but in Slovene only. The Health Statistics Yearbook is the only one that is partly in English. A national health report will be published in 2008.

Main problems: The main problems are lack of funding for developing and implementing new data sources for ECHI data, lack of funding for the projects on record linkage of health care data with data from other sectors. The existing health information system is very rigid because of several reasons: legislative framework, lack of sufficient and competent IT support, lack of cooperation between the main stakeholders to develop projects and provide funding. Regarding legislation, the procedure of adopting the Act on health care data collection has been halted and it will only continue in 2009 depending on the decision of the new government (elections in autumn 2008).

Ongoing and/or expected improvements: The main improvement has been that that EHIS was conducted in autumn 2007. The data will be available in autumn 2008. Institute of Public Health expects that the Ministry of Health will make commitment for future funding. Regarding routine data collection within the health care system, possibilities to improve data completeness, quality and timeliness are expected to improve when online health insurance project and electronic prescription are implemented. Regional pilot use is expected in autumn 2008.

Possible solutions for implementation: Promotion of the ECHI shortlist and the importance of participation with national data in the Eurostat database are very important in Slovenia. ECHI shortlist and the availability of data are being already presented at scientific meetings and conferences. The adoption of the regulation on public health statistics at the EU level is expected to increase the commitment from the Ministry of Health to prepare new national legislation on health care data as well as to sufficiently fund and support the Institute of Public Health. Cooperation of the important stakeholders at national level is essential.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding / manpower	
Main improvement: Data sources improving	
Main solution: Co-operation at national level	

SPAIN

Data availability by Country Report: Data availability is among the best in Europe, 86% of ECHI shortlist indicators are available in international data sources. Thus there is no particular ECHI shortlist section where Spain would score low.

Data availability by ECHIM Survey: 69% of ES indicators are available at the national level, which is somewhat lower than European average. This is mainly due to lack of some indicators in health determinants section (serum indicators) and health care section (screening and cancer indicators).

Data availability in European context: Data availability in Spain is much better than European average considering the CR, but very close to European average considering the ES. There are no nationally representative HES data available, but the situation is quite similar in most European countries. Register situation is like in most European countries, some of the registers enquired do not exist (e.g. ambulatory and primary care) or are only regional (cancer registers). However, new sources for those registers are expected in the near future.

Overall situation of data sources: Most important organisations involved in gathering data and producing health statistics at national level are the Ministry of Health (MoH; www.msc.es), Health Institute Carlos III (ISCIII; www.isciii.es), Ministry of Environment (MARM; www.marm.es), Ministry of Labour and Social Affairs (MTIN; www.mtas.es) and National Statistics Institute (INE; www.ine.es). Regional data are produced by autonomous communities. MoH has found the ECHI shortlist useful; it will be the basis for national as well as the regions own health indicator lists for 2008–2012. Spain is a country with many autonomous regions. Thus to get a nationwide system working and harmonised always means negotiations with regions, involvement of many institutes etc. Latest nationally representative HIS was done in 2006/2007, with many of the former version of EHIS questions taken in. These surveys are to be done every 2 years, and the 2009/2010 one will be as harmonised as possible with the EHIS. Time series of HIS derived indicators exist, but there was a change in the questionnaire in the 2006 HIS. There is practically no data available by sosio-economic status.

Health reporting: Most important national health reports (by MoH/The Institute for Health Information) are "Indicadores de Salud 2005. La Salud de la Población Española en el contexto europeo y del SNS" (Health Indicators 2005. The health of the Spanish population in the European context) and in the report "Átlas de la Sanidad en España. 25º Aniversario de la Constitución 1978–2003" (Atlas of Health in Spain. 25th Anniversary of the Constitution 1978–2003). MoH publishes annual reports on the National Health System. All these are available at MoH's website but in Spanish only.

In addition, MoH, INE, ISCIII, MARM and MTIN all have published many topic specific reports. They are available in respective institutes' websites, but the reports are usually available in Spanish only.

Main problems: Record linkage is not possible at the moment, because it is not allowed to use personal identification number, although that is in use in Spain. Furthermore, the Health Card (99,5% coverage of population) has different identifier compared to the personal ID number. Record linkage possibilities are expected to improve in the mid-long term. MoH is working on this issue to link different data sets. No national HES has been done in Spain, neither regional ones. There is some need to do it, but no concrete plans exist.

Ongoing and/or expected improvements: Nationwide electronic medical records are being planned. Electronic receipts are to be implemented first, and they are already in use in some autonomous communities. Hospital outpatients register started in 2007, it covers ca 1000 hospitals altogether, of which 40% are private hospitals.

Possible solutions for implementation: European comparability aspect is valued high in Spain, but of course high political support is needed in order to get the ECHI shortlist implemented. International comparisons are always worthwhile, thus it will be important to have easy access to these indicators through the Internet. Overall strategy is essential, focusing in the short term to the implementation of the most comparable and relevant indicators, and in the long term a clear vision of how to implement the rest of the indicators is essential. More input from member states would be helpful in implementation of course. All in all, one can say that the implementation process has started in Spain: MoH, Statistics Spain etc. are aware and are taking active part in implementation of the ECHI shortlist.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	

Main problem: Complex administration
Main improvement: ECHI shortlist already being implemented at least partly
Main solution: Include ECHI recommendations in national health strategies

SWEDEN

Data availability by Country Report: 78% of ECHI shortlist indicators are available in international data sources. Data availability is quite good in all ECHI shortlist sections.

Data availability by ECHIM Survey: 81% of ECHIM Survey indicators are available at a national level. All requested Health status indicators are available.

Data availability in European context: Data availability in Sweden is higher than European average. Also data quality must be considered good, since most data come from registers. The registers cover the entire population since many years, and can be combined with other information using the national PIDs. Statistics Sweden regularly has performed health interview surveys as part of a national survey on living conditions. The design of this survey has recently been changed in order to adapt to the SILC format. There are no nationally representative health examination survey data available, but the situation is quite similar in most European countries.

Overall situation of data sources: The main data sources in Sweden are registers and health surveys. Register data and survey data can be linked using a unique identification number. Currently it is not clear when Sweden will perform a health interview survey using the EHIS instrument.

Health reporting: The National Board of Health and Welfare (www.socialstyrelsen.se), a governmental agency of the Ministry of Health and Social Affairs, is responsible for national health reporting. The last public health status report was published in 2008 (summary available in English), the last comprehensive national public health report in 2005 (available online in English). A new comprehensive report will be published in early 2009 and a translation will be available during the Swedish presidency later in 2009. The National Board also publishes annual and comprehensive reports on health care and environmental health. In addition, The National Institute for Public Health (www.fhi.se) publishes a comprehensive report on public health policy. A new comprehensive report will be published in early 2009. In addition a great number of topic specific analytical reports are available online.

Main problems: Swedish health monitoring is based on an established set of instruments and measures. The integration of the EHIS instrument would lead to a break in the existing time series which would pose a problem for the analysis of time trends.

Ongoing and/or expected improvements: Preparations of the integration of EHIS are currently under way.

Possible solutions for implementation: The structural prerequisites are good, but more funding and manpower are needed.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Funding / manpower	
Main improvement: New HIS / HES	
Main solution: More funding / manpower	

TURKEY

Data availability by Country Report: 37% of ECHI shortlist indicators are available in international data sources. The ECHI shortlist sections for which there are most data missing are Health Care and Health Status.

Data availability by ECHIM Survey: 73% of ECHIM Survey indicators are available at a national level. According to national information most of the data are from registers (cancer, primary and in-patient care, accidents) whose quality has to be improved. In addition data from HIS and HES should be available. At present, Turkey is not a regular member state of the European Union but of OECD and WHO. This may partly explain the lack of data for Turkey in the Eurostat database.

Data availability in European context: Data availability in Turkey is below European average. Most data come from registers. There are no nationally representative HES data available, but according to national information such data should exist. The development of a strategy for the delivery of health data to European institutions could improve the availability of Turkish health data in international databases considerably. However, there should be more data available that could be submitted to international databases.

Overall situation of data sources: The Turkish Ministry of Health (MoH; www.saglik.gov.tr) is the main holder for health data in Turkey. By order of the ministry the Turkish Office for Statistics (TURKSTAT; www.turkstat.gov.tr) performs HISs. The Health Interview Survey 2008 has been implemented in 2008. This survey has been adopted from EHIS. Other topic specific data collections are under the responsibility of other ministries and institutions (e.g. accidents/injuries at the Ministry of Internal Affairs; health insurance at the Social Security Organisation; health expenditures at TURKSTAT; work related health, accidents at work at Ministry of Labour and Social Security). Health Surveys are also performed by universities.

Health reporting: Health reporting is under the responsibility of the MoH. Together with the School of Public Health a national public health report has been published in 2004 and is available online in English. Also, Health at a Glance Turkey 2007 has been published in 2007 and is available online in English.

Main problems: Like in other European countries, the development of a reliable and sustainable information system for public health is challenged by the fragmentation of the national health system. Lack of manpower (qualified and trained) and lack of coordination at national level seem to be the main problems at the moment. On the other hand, Assessment of Health Information System Project which was implemented

in 2007-2008 and financed by Health Metrics Network (HMN) remarked the two main problems; one is the lack of manpower and insufficient employment of trained staff and the other one is unrevised legislation.

Ongoing and/or expected improvements: In 23 provinces of 81, the family medicine system has been implemented and the other provinces are being suspected to be integrated to the system in two years. Related to the transformation in health a new health information system called National Health Information System is being created including Family Medicine Information System. It aims at data collection and evaluation and also at improving national cooperation for collecting and analysing data. Data collection system includes 46 different datasets and 261 data elements. Within the context of National Health Information System, the National Health Data Dictionary has been published in January 2008 and the Health Indicators Dictionary will be published by the end of 2008. In 2009, a Household Survey will be implemented by TURKSTAT and National Burden of Disease Study will be reimplemented by School of Public Health in 2010. Also, TURKSTAT, the main stakeholder of the MoH in health statistics is now implementing an extensive EU project called Upgrading Statistical System of Turkey USST-1 and USST-2 Projects, dealing with death statistics, hospital statistics and health accounts.

Possible solutions for implementation: When the ongoing activities mentioned above are implemented successfully, most of the problems are thought to be handled.

Country Report, data availability
ECHIM Survey, data availability
   Health Status
   Health Determinants
   Health Care
   Record linkage, present
   Record linkage, future
Implementation prerequisites

   Main problem: Funding / manpower
   Main improvement: Data sources improving
   Main solution: More funding / manpower

UNITED KINGDOM

Data availability by Country Report: 74% of the indicators are available in international data sources, which is above the European average. Health status is the section in which UK is placed below the European average. This needs more detailed review.

Data availability by ECHIM Survey: By ECHIM Survey, 73% of the indicators are available at the national level, which is very close to the European average. Reason for UK not ranking higher is mainly due to lack and poor coverage of many of indicators on health status section of the survey.

Data availability in European context: As in most countries, data by SES is somewhat restricted although growing. Availability of regular HES data is very exceptional from the European perspective. Unlike in most countries, all registers enquired exist, only health insurance register having limited coverage. HIS are conducted regularly in UK. Thus it is surprising that UK is not higher in the availability of data for the ECHI indicators, especially in the ECHIM Survey. Detailed review might identify alternative sources.

Overall situation of data sources: UK has a long tradition of data collection and reporting at country level, regional level and local level. The introduction of Public Health Observatories has strengthened reporting and analysis at regional level. Collection of survey data via General Household Survey has been undertaken for more than 30 years. Annual Health Survey for England (HSfE) has since 1991 ensured the availability of diverse HES data (e.g. cardiovascular diseases, ethnicity, elderly etc.). Collection of data for EHIS is under discussion. Some record linkage is possible, mainly through linking personal identifiers or NHS number. Possibilities for record linkage are likely to improve as interconnectivity improves between data collectors. However, further development of linkage will be dependent on meeting stringent confidentiality requirements.

Health reporting: The bodies mainly responsible for health data gathering and reporting are the NHS Information Centre (NHS IC, www.ic.nhs.uk), Department of Health (DH, www.dh.gov.uk), the Office for National Statistics (ONS, www.statistics.gov.uk) and Public Health Observatories (PHOs, www.apho.org.uk) plus similar bodies in devolved administrations. The NHS IC coordinates UK contributions to information requests from international organisations, as well as regularly publishing a wide range of England health and care information and reports. DH produces for England a key overview health report, The Health Profile of England. Many other health status reports, including themed reports and reports at national and/or regional level are being published regularly by ONS (e.g. Health Statistics Quarterly; UK Health Statistics), the PHOs (eg. Community Health Profiles; Indications of Public Health), DH (Chief Medical Officer's Annual Report), the HPA and various reports from devolved administrations.

Main problems: Due to UK including "devolved administrations", the collection and presentation of combined and consistent UK figures is not always possible. Government policy is to reduce the burden of data collection. International (ECHI) indicators may be viewed as lower priority than meeting national requirements. There is a strong impetus to preserve existing survey questions to ensure continuity and historic trends. Other challenges concern improving the availability of primary care data, and the collection and recording of ethnicity as well as other socio-demographic variables.

Ongoing and/or expected improvements: There are increased efforts to produce more consistent UK wide statistics, e.g. development of large sample size Integrated Household Survey (the data becoming available in 2009). Also the Quality and Outcomes Framework will provide much richer source of primary care data. Development of Secondary Uses Service will provide enhanced access to anonymised linked data. As well as the implementation of the Informing Healthier Choices information and intelligence strategy, Equality legislation and the ONS Equality Data Review will catalyse increased availability of data by ethnicity and socio-economic group.

Possible solutions for implementation: Multi-agency co-operation might enable more consistent within-country reporting and strengthen comparability with ECHI indicators. Output harmonisation would assist cross-EU comparison. Awareness of the ECHI indicators needs to be maintained and improved so that as systems develop, opportunities to provide the required information are exploited. Key players should be encouraged to get involved in this process, including policymakers and specialists. ECHIM final report should be well distributed at national level.

Country Report, data availability	
ECHIM Survey, data availability	
Health Status	
Health Determinants	
Health Care	
Record linkage, present	
Record linkage, future	
Implementation prerequisites	
Main problem: Complex administration	
Main improvement: Data sources improving	
Main solution: Co-operation at national level	

ANNEX 5: ECHIM Products website

Introduction

Within the ECHIM project there has been some debate about how to present the different ECHIM products in the best possible way. The ECHI-2 project, predecessor of ECHIM, used the International Compendium of Health Indicators part 2 (ICHI-2) website as the carrier of most of its products. However, several discussions and a structured assessment of the ICHI-2 application pointed out that the ICHI-2 website is outdated and should be reconstructed.

The discussions in August 2007 led to the development of a new website, which was later coined the "ECHIM Products" website.

In general it was agreed that the website should place much more emphasis on the ECHIM products, especially the most important product, the ECHI shortlist. Furthermore the website will have the same design as the ECHIM "work in progress" website (www.echim.org), developed at the KTL secretariat in Helsinki. In addition it was agreed that there should be additional explanatory texts at designated places in the website, to better explain the purpose of all the items within the website. A search function was also planned, but eventually not implemented as there was no actual need for it.

The first prototype of the ECHIM Products website was demonstrated at the 5th meeting of the Working Party of indicators in December 2007 in Luxembourg. The reactions were positive and the first real version of the website has been available at www.healthindicators.org since September 2008, replacing the old ICHI-2 website.

The next paragraphs describe the different elements of the ECHIM Products website, describing the different content blocks and giving a short explanation of the rationale behind the products.

Content block 1: The ECHI shortlist

The most important content of the website is the complete metadata, the Documentation Sheets, for all the 88 ECHI shortlist indicators. The information is displayed in the same structure as described in Chapter 3.6.

The indicators are listed within a simple hierarchy with the following entries which fully correspond to the ECHI shortlist division:

- Demographic and socio-economic factors
- Health status
- Health determinants
- Health interventions: health services
- Health interventions: health promotions

By clicking on one of the above items on the website, the associated indicators are shown within a flat list. By clicking on one of the individual indicators, a page opens containing the Documentation Sheet for that specific indicator.

Content block 2: The ECHIM comprehensive lists

In the final report of ECHI-2, the ECHI longlist was included, being the inventory of all indicators proposed by projects in the Public Health Programme and its predecessor, the Health Monitoring Programme. All these indicators (almost 500) were sorted in the conceptual ECHI frame and for each indicator, if available, the definition and respective data source were given. At its start, ECHIM aimed to update this information and to add new indicators developed by projects established after the ECHI-2 period. However, with the growing number of projects and the increasing number of proposed indicators in sometimes rather restricted fields, this comprehensive list became increasingly large and unbalanced. It was decided that its mere function as structured inventory of all indicator proposals, irrespective of their degree of feasibility and importance, is not useful enough to justify the substantial amount of work needed, within the available resources of ECHIM.

Therefore, as was also mentioned in Chapter 3.4., the maintenance and update of the longlist has been simplified. Instead of placing each new indicator in the conceptual structure, with its detailed information, an overview was given of those projects which had been active in health indicator development. As a consequence, under the heading "ECHIM comprehensive lists", the ECHIM Products website provides 1) the ECHI longlist, for indicators proposed up to 2005, and 2) the new list containing a list of EU funded indicator projects after ECHI-2. This is further explained below.

The ECHI longlist

The ECHI longlist, version 7 July 2005, is presented as a PDF file on the website. It is the last version issued within the frame of ECHI-2. The longlist is also available in the ICHI-2 application within the ECHI taxonomy. For each indicator, the list presents as much metadata as there are available.

User windows can also be found in the ECHI-2 report and the allocation of an indicator to one or more user windows is shown in the first column (as UW-x). As explained in the main text of that report, user windows are formulated as subsets of indicators, selected from a specific perspective.

The new ECHIM comprehensive list

As a part of the development of the ECHI shortlist, all Public Health Programme project leaders whose projects had been accepted from 2003 to 2006 (after ECHI-2 project) were asked in January 2008 if their project has developed health indicators. The ECHIM Products website provides a link to this list. The received information has been organised chronologically according to the respective strands and reference numbers in three Excel sheets. The overview gives information of 28 projects within the strand "health information", 7 projects within the strand "health threats" and 12 projects within the strand "health determinants". For each project, the sheets contain the following information:

• Project title and year
• Short description of the project
• Organisation, project leader and his/her e-mail address
• Link to the project website
• Publication report (if available)
• Project reference number

Content block 3: Link to ICHI-2

The aforementioned ICHI-2 website is linked to the ECHIM Products website. This was done for the following reasons. Earlier the ICHI-2 website was the only website containing a very broad collection of health indicators from Eurostat, OECD and WHO, together with the ECHI longlist indicators. The website is still used by a couple of hundred users a month and gives a comparative overview of the definitions of health indicators used by those organisations, until approximately July 2005. For several reasons it was decided to stop updating this website. First, as time went by the websites of the organisations involved have evolved into user-friendly websites that make their indicator information easy to access. Second, the organisations differ in their way of data presentation either as indicators (WHO), variables (OECD) or as "raw" aggregated data (Eurostat), and also in different hierarchies. All of this makes updating the database a tricky and difficult task. On the start page of the ICHI-2 website, there is a clear-cut explanation of its status. As the follow-up of the ICHI-2 compendium, the content block "Indicators on the web" (see below) will provide links to the websites of Eurostat, OECD and WHO where all background information and metadata can be found.

Content block 4: Links to indicator information on the web

This part of the website contains hyperlinks to European public health websites from indicator projects, major organisations publishing indicators (with data) and other relevant indicator websites. There are two parts: 1) links to websites of organisations and DG's within the EU involved in indicator development, notably Eurostat, OECD and WHO (as a follow-up of ICHI-2) and 2) a comprehensive list of EC health indicator projects with hyperlinks to project websites when available.

Content block 5: ECHIM project reports

This part of the website contains all the content related ECHIM reports, either produced by the ECHIM project itself, by one of the partners or by an EU health indicator project. In short it contains three main categories of reports: 1) the ECHIM content related reports, 2) the reports from the predecessor of ECHIM and 3) EU indicator project reports from all the EU projects identified by ECHIM.

Content block 6: Link to the ECHIM "work in progress" website

A hyperlink to the existing work in progress website (www.echim.org).

Content block 7: Contact information

This part of the website contains contact information to the ECHIM project management/secretariat (KTL, Finland).

URL

The website is located at www.healthindicators.org, replacing ICHI-2 which will be moved to another web address.

Technology used

The ECHIM Products website has been developed by using the Netwriter content management system (CMS). This CMS allows editors to enter and maintain content without being troubled with how this content will be displayed on the website. In other words, the CMS provides a project specific design that is completely separate from the content of the website. It also allows for work flow control and version control. It has been used for well-known Dutch public health reporting websites as the Dutch National Compass (www.nationaalkompas.nl) and the Dutch National Atlas (www.zorgatlas.nl). At the European level the EU health reporting project EUPHIX (www.euphix.org) has also been developed using the Netwriter CMS.

ANNEX 6: List of abbreviations

Abbreviation	Explanation
ALOS	Average Length of Stay.
AMI	Acute Myocardial Infarction.
CARE	Health Care statistics (Expenditure and Non-expenditure data, Eurostat).
CDR	Crude Death Rate.
CMS	Content Management System.
COD	Causes of Death statistics (Eurostat).
COPD	Chronic Obstructive Pulmonary Diseases.
CR	ECHIM Country Report.
CSS	ECHIM Country Specific Section.
CT	Computer Tomography Scanner.
Delphi Method	A systematic, interactive forecasting method which relies on a panel of independent experts. The carefully selected experts answer questionnaires in two or more rounds.
DG SANCO	European Commission's Directorate General for Health and Consumers (DG de la Santé et des Consommateurs). www.ec.europa.eu/health/
DGs	18 European Commission's Directorate Generals. http://ec.europa.eu/dgs_en.htm
Documentation Sheets	Format of presenting complete metadata for ECHI shortlist indicators.
ECDC	European Centre for Disease Prevention and Control. www.ecdc.eu.int
ECHI	European Community Health Indicators. DG SANCO funded project 1998–2001.
ECHI-2	European Community Health Indicators. DG SANCO funded project 2002–2004.
ECHI shortlist, ECHI Indicators	A list covering 88 most essential European health indicators.
ECHIM	European Community Health Indicators and Monitoring. DG SANCO funded project 2005–2008. www.echim.org
ECHIM Products website	Website containing the Documentation Sheets and other core information on health indicators. www.healthindicators.org
EDSIM	Survey module on disability and social integration.
EEA/EFTA Countries	Norway, Iceland, Switzerland and Liechtenstein.
EGOHID	DG SANCO funded project "European Global Oral Health Indicators development" 2006–2008. www.egohid.eu

Abbreviation	Explanation
EHEMU	DG SANCO funded project "European Health Expectancy Monitoring Unit" 2004–2007. Produced a database on health expectancies. www.ehemu.eu
EHES	European Health Examination Survey.
EHIS	European Health Interview Survey.
EHRM	DG SANCO funded Project "European Health Risk Monitoring" 1999–2002. www.ktl.fi/ehrm
EHSS	European Health Survey System.
EMCDDA	European Monitoring Centre For Drugs and Drug Addiction.
ENCR	European Network of Cancer Registers.
ENHIS	DG SANCO funded project "European Environment and Health Information System" 2005–2007. www.enhis.org
ES	ECHIM Survey
EU Candidate Countries	Croatia, Former Yugoslav Republic of Macedonia, Turkey.
EU Health Portal	www.ec.europa.eu/health-eu
EUHSID	DG SANCO funded project "European Union Health Surveys Information Database" 2006–2008. Hosts a database comprising all European national HISs and HESs. www.euhsid.org
EUHPID	DG SANCO funded project "European Health Promotion Indicators Development" 2001–2004. www.brighton.ac.uk/euhpid
EUPHIX	DG SANCO funded project "European Public Health Information, Knowledge and Data Management System" 2004–2008. Created a system for distribution and analysis of data and dissemination of knowledge. www.euphix.org
EUPHORIC	DG SANCO funded project "European Public Health Outcome Research and Indicators Collection" 2003–2008. www.euphoric-project.eu
EUROHIS	WHO Regional Office for Europe funded and coordinated project 1988–2002, which aimed at developing and promoting the use of common instruments for health surveys.
Eurostat	Statistical Office of the European Communities, Luxembourg. ec.europa.eu/eurostat
EUROTHINE	DG SANCO funded project "Tackling Health Inequalities in Europe: an integrated approach" 2004–2007. Gathered information on health inequalities, assessed the evidence on the effectiveness of policies and interventions and made recommendations. www.survey.erasmusmc.nl/eurothine/
EURO-URHIS	DG SANCO funded project "European Urban Health Indicators System" 2006–2008. Collected information and made proposals on Indicators for Urban Health. www.urhis.eu

Abbreviation	Explanation
EU-SILC	European Statistics of Income and Living Conditions survey.
E4SM	European System of Social Statistical Survey Modules.
FEHES	DG SANCO funded project "Feasibility of a European Health Examination Survey" 2006–2008. Designed models for health examinations in Europe. www.ktl.fi/fehes
HCQI	Health Care Quality Indicators Project funded and coordinated by OECD in 2001–2008. Examined indicators applicable for assessing quality of health care.
HDP	DG SANCO funded Hospital Data Project 2000–2003.
HES	Health Examination Survey.
HfA	WHO Health for All database. www.euro.who.int/hfadb
HIS	Health Interview Survey.
HIS/HES database	A database comprising all European national HISs and HESs. www.hishes.iph.fgov.be/
HP	Health Programme of the European Commission's Directorate General for Health and Consumer Affairs 2008–2013.
ICD	International Statistical Classification of Diseases and Related Health Problems by WHO.
ICF	International Classification on Functioning, Disability and Health.
ICHI	International Compendium of Health Indicators database. Predecessor of the ECHIM Products website. www.healthindicators.org/ICHI/general/startmenu.aspx
ISARE	DG SANCO funded project "Health Indicators in Europe's Regions" 1999–2007. Describes and characterises indicators useful and available on the regional level. www.isare.org
ISHMT	International Shortlist for Hospital Morbidity Tabulation.
ISS	Italian National Institute of Public Health.
KTL	National Public Health Institute of Finland. Coordinator of ECHIM.
LIGA.NRW	NRW Institute of Health and Work.
MEHM	Minimum European Health Module. A small module on health included in the EU-SILC.
MINDFUL	DG SANCO funded project "Mental Health Information and Determinants for the European Level" 2004–2006. info.stakes.fi/mindful/
MoH	Ministry of Health (in general).
MONICA	Multinational Monitoring of Trends and Determinants in Cardiovascular Disease project: Established in the early 1980s in many centres around the world to monitor trends in cardiovascular diseases, and to relate these to risk factor changes in the population over a ten year period. www.ktl.fi/monica

Abbreviation	Explanation
MORB	Diagnosis-Specific Morbidity Statistics (Eurostat).
MRI	Magnetic Resonance Imaging Unit.
MS / MSs	EU Member State / EU Member States.
MSDG	Morbidity Statistics Development Group. It was set up in spring 2006 in order to bring forward the methodological framework for diagnosis-specific morbidity statistics within the European Statistical System.
NCA	Network of Competent Authorities/European Commission Health Programme.
NUTS	Statistical regions of the European Union. There are three levels of Nomenclature of Territorial Units for Statistics (NUTS) defined.
OECD	Organisation for Economic Co-operation and Development. www.oecd.org
OMC	Open Method of Co-ordination. DG SANCO will ask Member States to implement ECHI shortlist and expect them to provide the requested information according to the "gentleman's agreement".
PHP	Public Health Programme of the European Commission's Directorate General for Health and Consumer Affairs 2003–2008.
PM10	Particulate Matter, diameter less than 10 micrometer.
PSA	Prostate-Specific Antigen.
PTCA	Percutanerous Transluminal Coronary Angioplasty.
R&D	Research and Development.
RIVM	Dutch National Institute of Public Health and the Environment.
RKI	Robert Koch Institute.
SDR	Standardised Death Rate.
SES	Socio-Economic Status.
SHA	System of Health Accounts (Eurostat).
SNA	System of National Accounts (Eurostat).
STAKES	Finnish National Research and Development Centre for Welfare and Health.
THL	Finnish National Institute for Health and Welfare; merged KTL and STAKES since 2009. www.thl.fi
WHO	World Health Organisation.
WHO HfA	WHO Health for All database. www.euro.who.int/hfadb
WP	A Working Party administrated by DG SANCO.
WP Indicators	Working Party Indicators. ECHIM is its Research and Development unit.