Health Indicators in the European Regions

ISARE Project n° 2001/IND/2101

FINAL REPORT

June 2004

1. Introduction

In June 1997 the European parliament adopted a plan of action regarding public health across the European community. The programme itself is known as the Health Monitoring Programme (HMP) and has the remit of helping to set up a community-wide system for monitoring health in order to:

- measure health status, trends and health determinants throughout the Community;
- facilitate the planning, monitoring and evaluation of Community programmes and actions;
- provide Member State with appropriate health information to make comparisons and to support their national health policies.

To achieve these objectives three types of action have been undertaken:

- the creation of Community health indicators;
- the development of a Community-wide network for sharing health data;
- analyses and reporting on health in the European Union.

Various projects have been put forward by teams in the countries of the European Union. Some are concerned with defining a set of common indicators which would enable data concerned with health and methods for investigating health issues to be compared. Much of the work carried out prior and during the HMP is concerned with comparisons between nations as a whole. Although this approach has great value and represents a necessary first step, it does not take on board the fact that a substantial amount of analysis and decisions regarding health issues are now, more than ever, taken at sub-national level.

It is in this context that the FNORS (National Federation of Regional Health Observatories, France) has been engaged in a project focusing on the feasibility of health indicators exchange between the "regions"∗ of the European Union Member states.

A first step, conducted in 1999-2001[1] identified (in the 15 countries of European Union) the infra national level the most appropriate for the exchange of information and the comparisons of indicators (the ISARE health regions). In addition, this work assessed data availability and the data sources at this infra national level.

∗ *The term « region » is used in this report to indicate the general concept of sub-national level, which in certain countries could be designated by other terms such as county or province.*
[1] *Indicateurs de santé dans les régions d'Europe, Projet n°1998/IND/1006, Rapport final*

2. Justification of the project

Local government is developing rapidly, and the importance of the regions as units of political and administrative management is increasing in Europe. In Spain for instance, regional autonomous communities have acquired a high level of autonomy, which in some instances translates into responsibility for managing the health budget. In France, regions, where health care planning is already performed, are in charge of allocating budget to hospitals following the 1996 health care reforms. The tendency towards increasing decision-making at regional level is bound to coincide with increasing use of information for health needs assessment. Sharing such regional information would allow health professionals and decision makers to put the characteristics of their own region in the wider context of all European regions as opposed to that of their own country. Similarities and differences may raise questions and stimulate exchange about the approaches chosen for solving public health problems. Theoretically, the development of health indicators exchange at regional level within Europe opens up the perspective of maximising the opportunities for learning from one another.

Other reasons draw on the epidemiological interest of sharing regional health information. Firstly, observing health indicators at an infra national level allows the identification of epidemiological patterns, otherwise hidden by national averages. Linked to this argument, is the well-known fact that public health problems do not respect national boundaries. Thus, it is likely that more similarities exist between two neighbouring regions across national borders, than between two regions in the same country but geographically far apart.

Developing reliable data collection at a regional level will enhance information in the European Union database. This database will allow an understanding and permit analysis of the health problems at the infra national level. This database will contribute to the decision making and the orientation of the health politics at the national level and as well at the ISARE health regions.

3. Objectives of the ISARE project

3.1 General objective

The objective of this second phase of the ISARE project is to assess the feasibility of collecting data at the defined infra national levels in the countries of the European Union.

3.2 Specific objectives

- To develop a data set based on availability and decision making potential for in the regional political context .
- To set up a collection processes of two sets of variables (data and indicators): a collection of a limited number of variables for all the regions in each country, a collection of a broad list of variables for only one selected regions in each country.
- To calculate indicators derived from the data.
- To establish an analysis of the data comparisons between regions. For this purpose, information about data sources, as well as factors determining comparability were collected. This 'comparability analysis' will be accompanied by the elements about international and infra-national comparability found in other HMP projects.
- To create a database and an experimental information demonstration to illustrate these approaches.

4. Methodology

The methods undertaken in this second phase of the ISARE project is based on threefold methods:

- The creation of a partnership with the representatives of the different countries of the European Union
- The development of a survey instrument to collect the selected data
- The building of a demonstrator database and the analysis of the processes, and to provide recommendations aimed at the integration of health indicators at a regional level in the European database.

4.1 Partnership and work groups

The first step was to make contact during summer 1999 with the European Union states representatives on the Health Monitoring Programme Committee. Three groups were set up to manage this second phase of the project and based on those which were formed for the first phase of the project (ISARE I):

4.1.1 The project group

The project group was composed of representatives of the Fnors and of individual French Regional Health Observatories.

The project group developed the protocol, methods and tools, managed the budget, organised meetings, wrote the minutes, centralised the data collected, created the database and wrote the final report. The role of this group was also to maintain contacts and communicate with other HMP projects in order to take account of their conclusions.

4.1.2 The steering group

The steering group approved the main themes of the project, the methods used, the tools required and the recommendations emerging from the project. It was also in charge of monitoring the project's progress. The steering group membership included all members of the project group plus representatives from 6 European countries (Germany, Belgium, Spain, France, Netherlands, United Kingdom), two representatives from the European Commission (DG Sanco and Eurostat), one from WHO (Europe), one from the High Public Health Committee (HCSP, France).

4.1.3. The European countries group

Members of this group were representatives from 14 European Union Countries (Denmark did not participate in the second phase of this project). This group formed the network used by the project to collect the ISARE health regions data.

4.2 The ISARE survey

The general objective of the project is to check the feasibility of the data collection process at the identified infra national levels in the European Union countries. In order to reach this objective, a survey involving 14 countries has been undertaken. Several steps were necessary:

- To determine the two lists of the data to be collected at the regional levels
- To develop clear definitions for these data
- To select the year for which the data were to be collected
- To develop questionnaires including a form updating the information provided in the first phase of ISARE , forms to collect the data, a form to provide data sources and global judgements about the data use and its quality.

4.2.1 Choice of indicators and data to be collected

In the whole report, there is a distinction between raw data (for instance the number of physicians or the general population) and the indicators which are derived from the raw data (for instance the number of physicians for per 1,000 inhabitants).

In the ISARE report, a list of 130 data has been used (ECHI list). These data have been selected in order to allow the calculation of indicators covering a number of health aspects. These data were grouped into 10 groups: health professionals, health care resources, health care consumption, demographic and socio economic data, mortality data, morbidity data, health status data, biological factors and lifestyle items, living and working conditions, data on prevention.

From this list and the results of ISARE 1, an initial selection of 80 data has been developed with an essential availability criterion: the variables have to be available in all the regions of at least 7 countries (out of the 13 countries for which this information was declared available in ISARE 1).

4.2.1.1 Long list

This list of 80 data was considered by the steering group members. Each steering group member selected a list of 20 data which seemed important to them for decision-making. Three variables considered as essential for the calculation of indicators (population by age and sex, number of death, number of live birth) were selected beforehand by the project group. The individual choices of each steering group member were analysed and ranked. Two lists emerged from this ranking. The initial list, composed of 38 indicators included the variables selected at least by one steering group member. This list has been used for the data collection process associated to one selected region in each of the country. This list has been named in the report the 'Long list'.

4.2.1.2 Short list

From this list of 38 variables, a second shorter list, including indicators selected by at least 4 steering group members, has been created. This list comprises 17 indicators used for the data collection process in all the regions of the countries. This second list will be called in the report 'Short list'.

4.2.1.3 Short list and long list content and structure

In the short list, the 17 variables collected for all the regions of a country were grouped into 8 themes. This list comprises the following data.

Table 1: Short list of data[*] collected in each region of each country

Health care professionals
1.Number of physicians
2.Number of nurses (including midwives)
3.Number of nurses (excluding midwives)
4.Number of midwives
Health care services
5.Number of acute care hospital beds
6.Number of hospital in-patients admissions
Demographic and socio economic data
7.Mid year population estimate
8.Number of live births
9.Number of deaths
10. Percentage of unemployed persons (15 to 64 years old)
Mortality data
11. Number of perinatal deaths
12. Number of stillbirths
13. Age/sex breakdown of deaths by cause
Morbidity data
14. Number of new cases of AIDS patients
Risk Factors
15. Distribution of BMI in the population
16. Percentage of regular smokers aged 15 years or more
Living and working conditions at work
17. Number of persons injured or killed in road traffic accidents

[*] Some of this variables are indicators (number 10, 15, 16, 30,31, 35 to 39)

The long list of the data collected for the selected region in each country includes the 17 variables above and an additional 21 variables below:

Table 2: Long list of data* collected in a selected region for each country

Health care professionals
18. Number of general practitioners
19. Number of dentists
20. Number of pharmacists

Health care services
21. Number of hospital beds, acute care, gynaecology or obstetrics or maternity beds
22. Number of bed days, acute care/year
23. Number of bed days, acute care/year, gynaecology or obstetrics or maternity
24. Number of hospital in-patients admissions, gynaecology or obstetrics or maternity
25. Number of caesarean sections
26. Number of cataract operations
27. Number of hip replacements
28. Number of induced abortions

Demographic and socio economic data
29. Percentage of the adult population (25 to 64 years old) that has completed upper secondary education
30. Percentage of the adult population (25 to 64 years old) that has completed tertiary education

Morbidity data
31. Number of tuberculosis cases
32. Number of female breast cancers

Living and working conditions
33. Number of cases of accidents related to work

Prevention data
34. Percentage of infants vaccinated against diphtheria
35. Percentage of infants vaccinated against tetanus
36. Percentage of infants vaccinated against pertusiss
37. Percentage of infants vaccinated against poliomyelitis
38. Percentage of infants vaccinated against measles

4.2.2. Variables definitions

To assure the coherence of the data collection process, it was necessary to establish a list of the variable definitions for the partners involved in the project. We did not wish to create new definitions and choose to use the definitions already in usage by international organisations. These definitions are mainly based on those proposed by WHO in its 'Health For All database'. When no definition was found in' 'Health For All' database, we used the definitions from the OECD, and the ILO definition for unemployment. This list of definitions was agreed by the steering group members (annexe).

4.2.3 Choice of year of data

To harmonise the data collection process, it was necessary to determine the year for which the data were to be collected. The project group considered several possibilities:

- the last available year for each data in each country
- a specific year for each data but identical for all the regions and all the countries
- the same year for all the variables and all the regions

The third option was chosen in order to obtain a homogeneous data collection and allow a coherent and robust calculation of indicators combining different data. In addition this choice made comparisons more robust.

The reference year for the ISARE 2 project was chosen according to the available year indicated by the country representatives during the first phase of the project (1997). As the actual data collection process occurred two years after the first phase of the project, 1999 was chosen as reference year for the data collection during the second phase of the project. When data were not available for 1999 data for the closest year was requested (before or after 1999).

4.2.4 Choice of the health regions for the long list data collection

The ISARE project team had previously made recommendation on the appropriate ISARE health region for 13 countries out the 15 EU members states. These are shown in the following table with the corresponding NUTS level (or nearest corresponding). All recommended levels have responsibilities in the field of health promotion and all but one performs the function of public health reporting. Ten out of the 13 recommended regions correspond to a level of local democracy and 9 correspond exactly to one of the levels of the NUTS classification (1, 2 or 3). No recommendation for a regional level could be made for Finland and for Greece.

In ISARE 2, it was necessary to determine regions for Finland and Greece. For Greece, the new health regions defined in autumn 2001 were retained because the corresponded to a political level. For Finland, ''Hospital districts'', a level of organisation of hospital care, were chosen.

We also took account of reforms which had occurred in England and United Kingdom. There is a responsibility for public Health at Government Office Regions. Then this level has replaced the previous level selected: the Health Authorities.

The following table shows the different levels examined in the ISARE 2 project and the corresponding NUTS levels.

Table 3: Selected isare Health region and NUTS level

Country	Recommended Health Region	NUTS level
Austria	Bundesländer	2
Belgium	Province	2
England	Government office regions	1
Finland	Hospital Districts	(3)
France	Regions	2
Germany	Land	1
Greece	Health regions (regroupées)	2
Ireland	Health Board	(3)
Italy	Regioni	2
Luxemburg	National level	1
Netherlands	GGD	(3)
Portugal	Health care region	(2)
Spain	Autonomous Communities	2
Sweden	County	3

For each country, it was necessary to select one health region (e.g. one Land in Germany) for which the data in the long list was collected. In these 14 regions (one for each participating country) the data set included in the long list were collected, but for the other regions, only the data in the short list were collected. The health region selected for the long list was chosen according to the views of the representative of the corresponding country. Each correspondent proposed either his own region, either another region of his country. The choice depended on the characteristics of the health regions of his country. Regions were chosen to be relatively representative. The selected regions had to be a typical region in respect of area, population and with no unusual features regarding informative system.

There were two possibilities :

- Countries for which the representative region appeared to conform to the selection criterion: England, Belgium, Spain, France, Greece, Italy, Portugal
- Countries for which the representative had no responsibility at regional level: Austria, Ireland, Netherlands, Sweden, Luxemburg and Finland. In these cases the region was identified in agreement with the country representative and local staff.

The following table presents the selected health region for the long list data collection and the corresponding population size

Table 4: Selected Isare Health region and population size

Country	Selected Isare Health region	Population
Austria	Oberösterreich	1 377 054
Belgium	Hainaut	1 279 947
England	North East	2 580 900
Finland	Kanta-Häme	164 900
France	Aquitaine	2 914 923
Germany	Nord Rhein Westphalia	17 984 452
Greece	Crete	566 619
Ireland	Southern	536 900
Italy	Venice	4 526 284
Luxemburg	Luxemburg	432 450
Netherlands	GGD Zuidelijkzuid-Limburg	185 825
Portugal	Norte	3 132 879
Spain	Pais vascos	2 102 817
Sweden	Skane	1 122 277

4.2.5 Questionnaires

Two questionnaires allowed were designed for data collection from each region. These two questionnaires were designed in Excel.

The first questionnaire requested for data on the short list for all the different health regions of the country.
This consisted of 24 Excel spreadsheets to be completed. The first spreadsheet showed the information obtained through the ISARE I project and allowed this information to be corrected if necessary. The information concerned the geographical coverage (is the data available in all the regions, a part of the regions or no health regions of the country?) and timeliness (what is the most recent year for which the data is available?).

The second spreadsheet concerned the availability and quality of the data.
The third spreadsheet concerned the sources of the data entered in the second spreadsheet. The remaining sheets were used to enter the specific data values, each sheet corresponding to one variable.

The second questionnaire was for collecting the additional data list for the health region selected. The first spreadsheet contained the information compiled from the ISARE I project for correction or amendment.
The second spreadsheet was for collecting information concerning the availability and quality of the data
The third spreadsheet requested information concerning the sources of the data entered in the second sheet.

4.2.6 Definitions and questionnaires validation

The agreed definitions and the questionnaires (long list and short list) were sent to the steering group members. Comments were received on the proposals before the beginning of the survey.

4.3 Organisation of the Survey

Prior to the distribution of the questionnaire, each country representative was contacted by telephone by a member of the project team to provide information about technical points and to discuss possible difficulties with the data collection. The survey required a number of contacts between representatives and project group members. The country correspondents had also contact with other experts in their own country and with professionals of the selected region to collect data. Information and contacts between members of the different groups took place during the organised meetings of the project.

The questionnaires were sent by email to the country representatives during the two last weeks of December 2002. The deadline was the end of January 2003. Contact was made with each country in mid January 2003 to assess the state of data collection. Reminders were sent regularly to the representative.

Completed questionnaires were received between January 2003 and December 2003.

On receipt of the files, complementary information was sought from the representatives as necessary.

4.4   Analysis

To analyse the availability, conformity to the proposed definition and the quality of each of the data items, we have established criteria number of criteria to assess these. Firstly a score has been attributed to each of the data items to judge its availability. The availability score is calculated as follows:

Availability score
=
Number of countries for which data are fully available (all regions, 1999)
+
0.5 x number of countries from which the data is fully available, but only for certain regions and/or for a year other than 1999

13 countries having participated in the project, the availability score can vary from 0 to 13. Availability has been qualified as:
- Very high (++) for a score greater than or equal to 11
- High (+) for a score between 9 and 10.5 inclusive
- Moderate (+ / -) for a score between 7 and 8.5 inclusive
- Low (-) for a score between 5 and 6.5 inclusive
- Very low (--) for a score less than or equal to 4.5

As regards the complementary list (short list), the responses covering only 12 countries, availability is considered as:
- Very high (++) for an availability score greater than or equal to 10.5
- High (+) for a score between 8.5 and 10 inclusive
- Moderate (+ / -) for a score between 6.5 and 8 inclusive
- Low (-) for a score between 4.5 and 6 inclusive
- Very low (--) for a score less than or equal to 4.

The question "*do these data correspond to the proposed definition*" only concerned the countries having at their disposition the data requested. For this reason the number of responses obtained varies from field to field. Because of this, the score for "conformity to the definition" of data is not a function of the number of positive replies, but of the proportion of positive replies. Conformity to the proposed definition is classed as:

- Very good (data in conformity in more than 80 % of the countries responding) (++)
- Good (data in conformity in 71 to 80 % of the countries responding) (+)
- Moderate (data in conformity in 61 to 70 % of the countries responding) (+ / -)
- Poor (data in conformity in 51 to 60 % of the countries responding) (-)
- Very poor (data in conformity in 50 % or less of the countries responding) (--)

Similarly, utilisation is considered as:

- Very frequent (data in conformity in more than 80 % of the countries responding) (++)
- Frequent (data in conformity in 71 % to 80 % of the countries responding) (+)
- Moderate (data in conformity in 61 % to 70 % of the countries responding) (+ / -)
- Rare (data in conformity in 51 to 60 % of the countries responding) (-)
- Very rare (data in conformity in 50 % or less of the countries responding) (--)

Finally, two questions relating to the quality of the data :

- "*Do you consider that the quality of the data is sufficient to make comparisons between the regions of your country*"
- "*Do you consider that the quality of the data is sufficient to make comparisons within your region of your country*"

We considered that data was judged to be of sufficient quality to make intra-national or temporal comparisons by:

- Very large proportion of the responders (data in conformity in more than 80 % of the countries responding) (++)
- Large proportion of the responders (data in conformity in 71 % to 80 % of the countries responding) (+)
- Moderate proportion of the responders (data in conformity in 61 % to 70 % of the countries responding) (+ / -)
- Small proportion of the responders (data in conformity in 51 to 60 % of the countries responding) (-)
- Very small proportion of the responders (data in conformity in 50 % or less of the countries responding) (--)

4.5 Indicators construction

From the data collected during the ISARE 2 and according to the indicators list proposed by the ECHI 2 project, the project group has established a list of 79 indicators. This list, validated by the steering group, is organised in chapters as following :

Table 5: List of indicators

Health care professionals
No. of Physicians per 100 000 population
No. of general practitioners per 100 000 population
No. of Nurses (including midwives) per 100 000 population
No. of Nurses (excluding midwives) per 100 000 population
No. of Midwives per 100 000 women of 15 to 49 years
No. of Dentists per 100 000 population
No. of Pharmacists per 100 000 population

Health care services

No. of acute care Hospital beds per 100 000 population

No. of acute care Hospital care of which obstetrics or maternity beds per 100 000 women (15 to 49 years)

No. of Hospitals in-patient admissions / year : acute care per 100 000 population

No. of Bed days : acute care / year per 100 000 population

Acute care beds occupancy (number of bed days acute care / 365) / number acute care beds * 100

No. of Hospitals in-patient admissions / year of which obstetrics or maternity beds per 100 000 women (15 to 49 years)

No. of Bed days : acute care / year of which obstetrics or maternity beds per 100 000 women (15 to 49 years)

Acute care beds occupancy of which obstetrics or maternity

Caesarean sections on residents per 1 000 live births

Cataract operations on residents per 100 000 population > 65 years

Hip replacements on residents per 100 000 population > 65 years

Induced abortions by all hospitals per 100 000 women aged 15 to 49 years

Induced abortions by all hospitals per 1 000 (live birth + induced abortions + stillbirths)

Demographic and socio-economic data

Total population

Population sex ratio

% population aged less than 20 years

% population aged 75 years or more

No. of live births per year

No. of live births per year per 100 000 population

No. of deaths per year

Crude death rate by sex per 100 000 population

SMR by sex per 100 000 population (Std European pop WHO 2 sex)

Percentage of unemployed persons (14 to 64 years old)

% of the adult population (25 to 64 years old) that has completed upper secondary education

% of the adult population (25 to 64 years old) that has completed tertiary education,…

Mortality data

Number of perinatal deaths

Perinatal death rate per 1 000 (live births + stillbirths)

No of stillbirths

Mortinatality per 1 000 (live births + stillbirths)

Infant mortality per 1 000 live births

Early neonatal death

Early neonatal mortality per 1 000 live birth (Perinatal- stillbirth) / live births

Crude death rate by cause and by sex per 100 000 population

SMR by cause and by sex per 100 000 population (Std European pop WHO 2 sex)

Data on morbidity

AIDS Incidence

AIDS Incidence per 100 000 population

Tuberculosis Incidence

Tuberculosis Incidence per 100 000 population

Breast cancer Incidence

Breast cancer Incidence per 100 000 women

Risk Factors

Obesity rate (%)

Overweight rate (%)

Normal weight rate (%)

Underweight rate (%)

% of regular daily smokers aged 15 years or more

Living and working conditions

No of persons injured or killed in road traffic accidents

No of persons injured or killed in road traffic accidents per 100 000 population

No of accidents related to work

No of accidents related to work per 100 000 active population

Data on prevention
% of infants reaching their first birthday fully immunised against diphtheria.
% of infants reaching their first birthday fully immunised against tetanus
% of infants reaching their first birthday fully immunised against pertussis
% of infants reaching their first birthday fully immunised against polio
% of infants reaching their first or second birthday who have been against measles

4.6 Web based demonstration tool

This part of the project aimed to validate the data collection process and also to improve the dissemination of the indicators derived from these data. For this purpose, a database demonstrator, accessible via Internet, has been developed. It allows interrogation of the database in two ways. Firstly the user selects a theme secondly an indicator. The user then obtains the value of this indicator for either the whole of the regions, either a subset of regions.

The second interrogation mode provides a synthetic view about the regional situation for a set of indicators. The user firstly has to select in country, secondly a region of the country and thirdly a theme. The demonstrator generates a synthetic table showing for each indicator of this theme:
- The value of the selected region
- The minimum and maximum values observed in the regions of the country associated to the selected region
- The minimum and maximum values observed in the whole European Union
- The rank of the region in the country associated and in the whole European union

Whichever interrogation mode is selected, the resulting tables can be exported to EXCEL or text format.

The database contains only raw data, from which indicators are dynamically calculated on each occasion. This tool required a lengthy development phase, but allows rapid access to the information and allows simple interrogation of new data from new regions or countries.

Because of the experimental aspect of this tool, access to the database is limited and requires a password. However there is a public access on the ISARE website (http://www.isare.org) when information about ISARE can be found and the two ISARE reports can be downloaded.

4.7 Data quality analysis

The question of the comparability is complex and multifactorial (data quality, international definitions with different certification practices, no international definitions, different health care systems……..). ISARE project addressed more specifically regional comparability.

The comparability analysis has been tackled in two ways:
- By asking to the regional representatives to provide in one hand the regional data but also some information about these data (source, collection process, data comparability between regions within their country,….),
- By comparing the reports of other HMP projects dealing with the similar comparability problems

4.7.1. Data comparability and ISARE 2 questionnaires

In the questionnaires three questions allowed us to judge the data quality:
- Is the data used to analyse the regional situation?
- From your point of view, is the data quality good enough to perform comparisons between the regions of your country?
- From your point of view, is the data quality good enough to perform time comparisons in your regions?

It is important to underline that the information gathered concerns only comparability between regions of the same country, and not regions of different countries.

The questionnaire did not include questions about the comparability between countries. To take account of this aspect, the project group found information in the reports written by other teams involved in the HMP.

4.7.2. Data comparability and HMP projects

Research about data comparability has been performed by analysing the intermediate and final reports of the HMP projects which were available on the European Commission website.

Firstly, from the list of the projects funded by the Commission, those related to some indicators selected in the ISARE project were identified. We then download the corresponding reports from the European Commission website. Secondly, we looked for data or comparable indicators between European countries and within European countries. A report was written for each of these parts of the project and a summary has been included in this final report.

4.8 Complementary survey

In order to improve the information emerging from the data collection process in each country, a complementary questionnaire was developed at the end of the 2003 and sent to each country representatives. The aim of this questionnaire was to describe the data collection process in each country, the difficulties encountered and the comments of those involved. This questionnaire is found in the annexe.

These data were collected at the beginning of the 2004.

5. Results

5.1 Data collected during the Isare 2 survey

Of the 14 countries participating in the Isare 2 project, we have had responses from 13 countries (Austria, Belgium, England, Finland, France, Germany, Greece, Ireland, Luxemburg, the Netherlands, Portugal, Spain & Sweden) for the section of the questionnaire relating to all regions. Three countries are slightly different: Finland and the Netherlands have only been able to provide information on a limited number of topics, and Spain, which has only been able to provide information for a limited number of regions.

As regards the complimentary list of data, to be gathered only for one region in each country, (short list) replies have been received from 12 countries : Austria, Belgium, England, Finland, France, Germany, Greece, Ireland, Luxemburg, Portugal, Spain & Sweden.

In this chapter we will present a summary of the results obtained from Isare 2. These results are organised by major themes (health professionals, health services, utilisation of health services, demographic & socio-economic data, mortality, morbidity, biological factors and life habits, working & living conditions and prevention). For each of the major themes we will firstly deal with the data requested for all the regions of each of the participating countries, then those complimentary data requested for just one region (short list). The availability of data, their accessibility, their conformity with the definitions and required dates, and the evaluation of their quality will be described.

Tables have been constructed using all of the collected information and is found in the appendix. Organisations that our partners have indicated as being sources where it is possible to gather these data are also listed, classed by theme and by data.

The group of indicators calculated from the collected data has been integrated into a 'web based tool' accessible on the Internet[2] (http://www.isare.org). At the end of the results, examples of how to use this tool are presented.

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[2] *Because of its experimental nature, access to this web tool requires a password. Please refer to the procedure as described on the website.*

5.1.1 Health Professionals

The following data were requested for all regions:
- Number of doctors;
- Number of nurses (including midwives);
- Number of nurses (excluding midwives);
- Number of midwives.

In addition, for one region of each country, the following data were requested:
- Number of General Practitioners;
- Number of Dentists;
- Number of Pharmacists.

Results

Table 6: Health professionals – availability of data

	Number of	Availability (all the regions – 1999)	Partial availability			Not available	Conformity to the definition
			All the regions – other year	Some regions - 1999	Some regions – other year		
Data collected for all the regions (n= 13)	Physicians	10	1	0	1	1	10
	Nurses (including midwives)	7	1	1	1	3	7
	Nurses (excluding midwives)	7	2	1	1	2	8
	Midwives	7	1	1	1	3	8

	Number of	Availability (1999)	Partial availability (selected region - other year)	Not available	Conformity to the definition
Data collected for one region (n= 12)	General practitioners	9	1	2	10
	Dentists	10	0	2	9
	Pharmacists	9	1	2	10

Table 7: Health professionals – source of data

	Number of	Number of answers usable	Sources		
			National for all the regions	Regional for all the regions	National and regional
Data collected for all the regions	Physicians	11	10	0	1
	Nurses (including midwives)	10	9	0	1
	Nurses (excluding midwives)	11	10	0	1
	Midwives	10	9	0	1

	Number of	Number of answers Usable	Sources	
			National	Regional
Data collected for one region	General practitioners	8	8	0
	Dentists	8	8	0
	Pharmacists	9	8	1

Table 8: Health Professionals – quality of data

	Number of	Number of answers usable	Quality		
			Used data	Geographical analyses	Temporal analyses
Data collected for all the regions	Physicians	10	10	8	7
	Nurses (including midwives)	9	8	8	7
	Nurses (excluding midwives)	10	10	8	7
	Midwives	9	8	8	7
Data collected for one region	General practitioners	9	8	7	8
	Dentists	8	8	8	8
	Pharmacists	9	9	8	9

Number of Doctors

The number of doctors is data which is frequently available, and corresponds in most cases to the definitions. These data are used frequently in local analyses. A high proportion of the respondants considered the quality of the data to be sufficient to undertake geographical comparisons (between regions of their country) and temporal comparisons.

Amongst the 13 country responses in our possession, these data have been obtainable in the great majority of cases. Only in Ireland is this information not directly available: the doctors there are categorised according to their status, with no summary of their distribution being available.

In two countries, these data are only partially available: in Spain, the data was obtained for 1999 in 8 of the 17 regions, and for different years (2002 and 2003) in two other regions and, in Sweden, data was obtained for 2000.

There is conformity with the definition proposed in 10 cases out of 12: in England, data is only available for NHS doctors and GPs. (which does effectively mean the vast majority of English doctors.)

Except for Spain, where this information is gathered either from regional sources or national sources, depending on the region, this information is systematically available from national sources in all countries.

As regards the quality of the information, 10 responses out of 13 were used.. The quality assessment shows that the data are used for analysis of the local or regional situation in all cases. In two countries, the quality of these data for geographic comparisons between regions is judged insufficient : Spain and Belgium where disparities in the methods of data collection suggest caution in its use. The quality for comparisons over time is insufficient in three countries: in France on the one hand, where information methods for data gathering have recently been modified, removing the availability of sufficient chronological data, and Spain and Belgium on the other hand for reasons already explained.

Number of Nurses (Including midwives)

The number of nurses (including midwives) is available in a fairly large number of regions. Where it is available, it corresponds to the definitions and is frequently used for local analyses. A large proportion of the respondents consider that the quality of the data is sufficient to effect geographical comparisons (between regions of their country) and temporal comparisons.

These data have been obtainable as requested from 7 countries out of 13. In the Netherlands information on nurses and midwives was not available. In Austria this information was not supplied because we have the nursee number only when they work in hospital.. In Sweden, the number of midwives was not obtainable despite it seems that it could be available at the regional level in this country. From three countries these data are only partially available: they were only obtained for the year requested from some of the English (4 out of 9) regions. In Spain the information was available to us from 8 of the 17 regions for the year requested, and from 2 other regions for a different year. Finally, from Greece the information was only available for 1998, and for a different set of regional boundaries.

There is conformity with the agreed definition in 8 cases out of 10: in England and Ireland data are available only for nurses and midwives working in the public sector (which corresponds to the vast majority of English and Irish nurses & midwives). In Ireland, for one of the regions in which this information is available, it is given as a figure of equivalent full time staff.

Where this information is available, it comes in every case from national sources, even where it is only partially available. Spain is a special case, where the information is also available from local sources.

An assessment of the quality of the information shows that it is used for analysis of the local or regional situation in 8 of the 9 cases where we obtained a usable response. The Portuguese do not use these data. The quality for geographic comparisons between regions is insufficient in Belgium. For temporal comparisons, the quality is judged insufficient in two countries: along with Belgium, the second country is France, where the collection methods for these date have recently been modified, so insufficient chronological data are available.

Number of Nurses (excluding midwives)

The number of nurses excluding midwives) is available in a medium number of regions. Where it is available, it corresponds generally to the definitions and is used for local analyses. A large proportion of the respondents consider that the quality of the data is sufficient to allow geographical comparisons (between regions of their country) and temporal comparisons.

Information concerning nurses has been obtained for all regions and for the year requested from 7 of the 13 countries that replied. For two countries, Ireland and the Netherlands these data do not appear to be available. From Spain, data are provided for the year requested for 6 regions, for a different year from 2 regions, but not at all from 9 regions. From England, information is missing from 5 of the 9 regions. From Greece, information is provided for a different year and a different regional grouping. In Sweden, data were provided for the year 2000.

Except for England, where the information covers only the NHS, the data are in line with the stated definition. In Germany and in Austria, the data concerns only nurses working in institutions. There is agreement with the stated definition in the 8 other countries.

Whereas from Spain these data can be obtained from regional as well as from national sources, in the other countries, even when only partially available, the data is available from national sources.

As regards the quality, 10 responses out of the 13 were unable. Use of these data for local or regional analyses is possible in all the countries from which we have data even if in Spain the quality is judged variable between regions. The quality is judged sufficient for geographical comparisons in all countries except Spain and Belgium where the heterogeneity of these date is highlighted, and for temporal comparisons in all countries except Spain, Belgium and France. For France this is related to recent modifications to the methods of data collection, so data do not cover a sufficiently long time period.

Number of midwives

The number of midwives is data with medium availability in the European regions. When available, it almost always corresponds to the definitions and is in regular use for local analyses. A very large proportion of those who responded considered the data could be used for geographical comparisons (between regions of their country) and for temporal comparisons.

Amongst the thirteen countries that replied, the availability of the number of midwives was complete for 7 countries and partially complete from 3. These were Greece, where we were sent data from 1998, from, Spain, where the data are available for 1999 from 7 regions, a different year from 2 regions, and absent for 8 regions, and England, where these data were present for 4 of the 9 regions. The number of midwives could not be obtained for the regions of Ireland, the Netherlands and Sweden.

Data conforming to the stated definition is available from 9 countries. For England, the data covered only NHS midwives and in Germany, only those working in institutions.

In Spain these data are available at regional or national level, depending on the region, in all other countries for which the data are available, the data were obtained from national sources.

Information concerning the quality of these data was provided by 9 countries. The number of midwives is data used by 8 of the 9 countries for local or regional analyses: In Portugal it is not normally used. The quality is considered sufficient for geographic analyses in all countries except Spain where its quality is considered to be too variable between regions, and for temporal analyses in all countries except Spain and France. In Spain the variations between regions is given as the reason, and in France the absence of data covering a suitable time period, as they have recently changed their data collection methods.

**** *From hereon, the information concerns Health Professionals gathered from just one region in each country.*

Number of General Practitioners

The number of general practitioners was widely available in the regions in which we enquired. Where it was available, it always corresponded to the definitions and is very frequently used for local analyses. A large majority of the respondents considered that the quality of the data is sufficient to effect geographical comparisons (between regions of their country) and temporal comparisons.

Twelve countries replied. In nine, the information was available from the requested region for the requested year. Sweden provided the data for 2000. The numbers of GPs could not be obtained from Ireland and Luxemburg although this data exist.

Information on the source of the data were given in 7 cases: it was national.

Information on the quality of data was provided by 9 of the 10 countries where these data were available. The data are used for local or regional analyses in all the countries that replied. The quality was judged sufficient for geographical analyses in 6 cases out of the 8 (not in Belgium, and Greece did not reply on this point) and for time trend analysis time trend analysis in 7 of the 8 (not in Belgium).

Number of Dentists

The number of dentists is widely available in the regions in which we enquired. Where this information is available, it practically always corresponds to the definitions. The data are used widely and the quality of the data is very largely judged sufficient to allow geographical comparisons (between regions of the same country) and for temporal comparisons.

In ten of the twelve countries that replied, the number of dentists was available in the requested region for the requested year. Only from Ireland and Sweden could the number of dentists not be obtained . We understand that this information may be available from Sweden at the beginning of 2004.

Agreement with the proposed definition was found in 9 out 10 cases.

In the eight cases where information were given on the source of the information, it was indicated that it was national.

Information on the quality was provided by 8 of the 10 countries where the number of dentists was obtained. The data are used for local or regional analyses in all the countries that replied. The quality is judged sufficient for geographical analyses in 7 cases out of the 9 (Greece did not reply on this point) and for time trend analysis trend analysis in all of the countries that replied.

Number of Pharmacists

The number of pharmacists is widely available in agreed regions in which we enquired. Where this information is available, it practically always corresponds to the definitions. It is practically always used for local analyses. Most of the correspondents considered that the data were of sufficient quality to allow geographical comparisons (between regions of their own country) and time trend comparisons.

In nine of the twelve countries that replied, the number of pharmacists was available in the requested region for the requested year. From Ireland and Sweden the number of pharmacists could not be obtained, and for England it was supplied for a different year.

Agreement with the stated definition was present in every case.

In eight of the nine cases where information was given on the source of the data, it was stated to be national. (For Greece, these these data areare available regionally.)

Information concerning the quality of the data was given for nine of the ten cases where the number of pharmacists is available. The data are used for local or regional analyses in all the countries that replied to this question. The quality is considered adequate for geographical analyses in 8 cases out of 9 (this information was not given for Greece) time trend analysis and time trend analysis.

Summary – Health Professionals

Table 9: Health Professionals – summary

	Number of	Availability	Conformity to the definition	Use	Quality	To be included in an health regional database
Data collected in all the regions	Physicians	+ +	+ +	+ +	+	yes
	Nurses (including midwives)	+ / -	+ +	+ +	+	no
	Nurses (excluding midwives)	+	+	+ +	+	yes
	Midwives	+ / -	+ +	+ +	+ +	no
Data collected in one region	General practitioners	+	+ +	+ +	+ +	yes
	Dentists	+ +	+ +	+ +	+ +	yes
	Pharmacists	+	+ +	+ +	+ +	yes

From the study, it appears that, except data for relating to midwives, data on health professionals are widely available at the level of the European regions, even though it has not been possible to obtain them in all cases for every region in every country.

The data are mostly made available from national sources.

Even if reservations were expressed in some cases concerning the quality of the data, and on the possibility of using them in the framework of geographic or trend analysis, we note that the data were usually considered sufficient for these types of comparison. It therefore seems possible to include all data items except the number of nurses including midwives and the number of midwives in a regional European database.

5.1.2 Health Services

The following data were requested for all regions:
- Number of acute care beds
- Number of admissions per year for short term care

Also, for one region in each country, the following were requested:
- Number of beds in gynaecology, obstetrics or maternity
- Number of hospital days per year
- Number of hospital days per year in gynaecology, obstetrics or maternity
- Number of admissions per year in gynaecology, obstetrics or maternity
- Number of Caesarean sections
- Number of cataract operations
- Number of Hip replacements
- Number of induced abortions

Results

Table 10: Health Services – Availability of Data

Data collected in all the regions (n= 13)	Number of	Availability (all the regions – 1999)	Partial availability			Not available	Conformity to the definition
			All the regions – other year	Some regions - 1999	Some regions – other year		
	Acute hospital care beds	10	2	0	1	0	11
	Hospital in-patients admissions	8	2	1	1	1	11

Data collected in one region (n= 12)	Number of	Availability (1999)	Partial availability (selected region - other year)	Not available	Conformity to the definition
	Hospital beds, acute care, gynaecology or obstetrics or maternity beds	11	0	1	8
	Bed days, acute care/year	11	1	0	11
	Bed days: acute care/year, gynaecology or obstetrics or maternity	9	0	3	7
	Hospital in-patients admissions/ year, acute care, gynaecology or obstetrics or maternity	10	0	2	7
	Caesarean sections	10	1	1	10
	Cataract operations	10	2	0	11
	Hip replacements	8	1	3	8
	Induced abortions	8	2	2	10

Table 11: Health Services – Sources of Data

Data collected for all the regions	Number of	Number of answers usable	Sources		
			National for all the regions	Regional for all the regions	National and regional
	Acute hospital care beds	13	12	0	1
	In-patients Hospital admissions	12	11	0	1

Data collected for one region	Number of	Number of answers Usable	Sources	
			National	Regional
	Hospital beds, acute care, gynaecology or obstetrics or maternity beds	9	8	1
	Bed days, acute care/year	10	9	1
	Bed days: acute care/year, gynaecology or obstetrics or maternity	8	7	1
	Hospital in-patients admissions /year, acute care, gynaecology or obstetrics or maternity	9	8	1
	Caesarean sections	11	9	2
	Cataract operations	11	10	1
	Hip replacements	9	8	1
	Induced abortions	9	8	1

Table 12: Health Services – Quality of Data

	Number of	Number of answers usable	Quality		
			Used data	Geographical analyses	Temporal analyses
Data collected for all the regions Acute care hospital beds	Acute care hospital beds	12	11	11	11
	Hospital in-patients admissions	10	9	9	9
Data collected for one region	Hospital beds, acute care, gynaecology or obstetrics or maternity beds	9	8	9	9
	Bed days, acute care/year	10	10	9	9
	Bed days: acute care/year, gynaecology or obstetrics or maternity	8	8	8	8
	Hospital in-patients admissions /year, acute care, gynaecology or obstetrics or maternity	10	10	10	10
	Caesarean sections	10	10	9	10
	Cataract operations	11	9	9	10
	Hip replacements	8	8	8	8
	Induced abortions	9	9	8	9

Number of acute care beds

The number of acute care beds is data which is readily available in the regions. In most cases it corresponds to the stated definitions. It is very often used for local analyses. In most cases it is of sufficient quality to allow geographical comparisons (between regions of their own country) and trend analysis comparisons.

This information is available for all the regions, and for the year requested in ten cases out of the 13 responses. The data are given for all regions but for a different year in 2 countries (Netherlands 2001, Greece 1998), in some of the regions in one country (8 of the 10 regions in Ireland) and, for Spain, information was gathered for 9 of the 17 regions for the year requested, and for a different year (2001) in another region.

Agreement with the definition was found for 11 countries. In Ireland, these data concern only hospital beds financed by public funds, and in Finland the data are provided from a calculation based on the number of discharges and lengths of stay, with an assumption that bed occupancy was 100%.

In 12 cases out of 13, the information is available from national sources. In Spain, depending on the region, this information was provided from either regional or national sources.

Information on the quality of the data was available in every case except Finland.. Their quality is considered sufficient for geographical analyses and for time trend analysis trend analysis in every country that replied.

Number of acute care admissions per year

The number of acute admissions is data often available in the regions. In most cases it corresponds to the proposed definitions and is very often used for local analyses. The respondents practically all consider them to be of sufficient quality to allow geographical comparisons (between regions of their own country) and time trend analysis .

In more than half of the countries that replied (8 out of 13), the number of acute admissions per year is available for all regions for 1999. This information could not be obtained from Greece. The Netherlands and Belgium provided information for all regions, but for a different year (2000 for the former, and 1999 for the latter). From Germany the information has only available for some of the regions (13 out of 16). Lastly, from Spain, information was provided to us from 1999 in 6 of the 17 regions, and for another year in three regions (one for 2000, and two for 2002).

Agreement with the stated definition was the case for 11 countries: from Ireland, these data concerns only hospital beds financed from public funds. We note that four countries indicated that this data corresponded to the number of hospital discharges, and not admissions.

In 11 of the 12 countries where these data are available, the information was obtained from national sources. In Spain, depending on the region, the information was provided from either regional or national sources.

The quality of the data was indicated for all cases except Greece and Finland. With the exception of England and Portugal, which gave no indication of the use made of this data, the number of admissions per year to acute care beds is used either at local or at regional level in every case. The quality is judged sufficient for geographical analyses and for time trend analysis temporal change in all countries that replied (except England).

**** *From hereon, we are dealing with information concerning Health Professionals gathered from just one region in each country.*

Number of beds in Gynaecology, Obstetrics or Maternity

The number of gynaecology, obstetrics or maternity beds is widely available in the regions of the countries asked. In most cases it corresponds to the proposed definitions and it is almost invariably used for local analyses. The respondents practically all consider this data to be of sufficient quality to allow geographical comparisons (between regions of their own country) and temporal comparisons. All this leads to believe that the data may be used for comparisons between the regions of the countries of Europe.

Eleven countries provided this data. Data was unavailable in only one country; Greece.

In eight cases the data conformed to the proposed definition: for Ireland, it applied only to publicly funded establishments, and for Spain and England it applied only to obstetrics beds. In Finland, data are provided derived from the number of discharges and the average length of stay assuming that the occupancy rate is 100%.

Data are available from national sources except with Spain, where the information is found from regional sources.

Information on quality is available from 10 out of the 11 countries that provided information on the number of gynaecology, obstetrics or maternity beds. Except for England, where no comment was received on this point, the data is used by all countries where it is available, for local or regional analyses and it is of sufficient quality for geographical and temporal analyses.

Number of days in hospital per year

> *The number of days in hospital per year is available in all regions of the participating countries. It nearly always corresponds to the agreed definitions. Respondents considered that the quality of the data allows geographical comparisons (between regions of their own country) and temporal comparisons.*

The number of days in hospital per year is available for the requested region in the 12 countries that responded to this question. Apart from Crete, in Greece, where this information is supplied for 1998, the responses always corresponded to the year requested.

In 11 cases the data conformed to the proposed definition: for Ireland it relates only to publicly funded establishments.

It is always available from national sources except in Spain, where the data is accessed from regional sources.

Information on quality was given by 10 of the 12 countries for which the number of days in hospital were available. These data are used by all the countries where it is available for local and regional analyses and, except for Greece, it is judged of sufficient quality for geographical and evolution analyses.

Number of days in hospital per year for Gynaecology, Obstetrics or Maternity

> The number of days in hospital per year for Gynaecology, Obstetrics or Maternity is available in all the regions of the countries asked. It practically always corresponds to the proposed definitions and it is almost invariably used for local analyses. Almost all respondents consider these data to be of sufficient quality to allow geographical comparisons (between regions of their own country) and temporal comparisons.

Nine countries out of twelve were able to provide the number of days in hospital per year for Gynaecology, Obstetrics or Maternity in the requested region and for 1999. This was not available in Luxemburg, Ireland or Greece.

Except for Spain and England, where the data only concern obstetrics, the information fits the definition.

Apart from Spain, where the information came from local sources, the information was provided from national sources.

In 8 out of 9 countries where the information was available, comments on the quality were given. The number of days in hospital per year for Gynaecology, Obstetrics or Maternity is used by all the countries where it is available for local and regional analyses, and it is judged of sufficient quality for geographical and trend analysis.

Number of admissions per year in Gynaecology, Obstetrics or Maternity

> *The availability of the number of admissions per year for Gynaecology, Obstetrics and Maternity is good. It often corresponds to the proposed definitions. Its use is general for local analyses. The respondents consider that the data allows geographical comparisons (between regions of their own country) and temporal comparisons.*

This information could be gathered for the region and the year requested in 10 out of 12 countries. The number of admissions per year in gynaecology, obstetrics or maternity could not be obtained from Luxemburg or Greece.

With the exception of Spain and England, where the figure refers only to obstetrics, and Ireland for which only admissions in the sector financed by public funds are included, the data conforms to the definition.

Apart from Spain, where the data must be sought from local sources, it is available from national sources in the other 8 countries concerned.

In the nine countries for which this figure is available, information on the quality was given. The number of admissions per year in gynaecology, obstetrics or maternity is used by all the countries where it is available for local or regional analyses, and is judged to be of sufficient quality for geographical and evolution analyses.

Number of Caesarean sections

The number of Caesarean sections is data easily available at regional level. What is more, it most often corresponds to the proposed definition. It is used in all the countries for local analyses. Respondents consider that the quality of the data allows geographical comparisons (between regions of one country) and temporal comparisons.

The number of Caesarean sections could not be obtained for the region being studied in Germany, and was provided for a different year (2000) by Portugal. In all the 10 other countries the data was collected as requested.

With the exception of Ireland, for which only the sector financed by public funds is included, the data conforms to the definition.

Apart from Spain and Greece, where the data was obtained from local sources, it is available from national sources.

Information on the quality was given for all countries where the data was available. The number of Caesarean Sections is used by all the countries where it is available for local or regional analyses, and is judged to be of sufficient quality for geographical and trend analyses. The exception to this was Greece, which for geographical analysis did not comment.

Number of Cataract operations

The number of cataract operations is data very widely available, and most often in conforms with the proposed definitions. It is quasi systematically used for local analyses. For the majority of the respondents, the quality is quite high, so geographical analyses (between regions of the same country) or temporal analyses can be undertaken.

The number of cataract operations was provided by the 12 countries that replied to this part of the questionnaire. Greece, however, provided information for a different year (1997) to that requested, as did Portugal (2000).

It conforms to the definition except in Ireland, for which only operations in the sector financed by public funds are included. Germany has not given information on this point.

This information is available from national sources in all countries except Spain, where it had to be researched from local sources.

Information on quality was given for 11 out of the 12 countries where the data were available. The number of cataract operations is used for local or regional analyses by all the countries where it is available except for Germany. The quality is judged to be sufficient for geographical and evolution analyses by all who responded (but note Greece and Germany did not respond on this point). The data is used for planning in all countries except Germany, but Austria indicated that such analyses are only possible for post 1997.

Number of Hip replacement operations

The number of hip replacements is data which has a good level of availability. It almost always corresponds to the agreed definition and when available is always used for local analyses. According to all respondents, the quality of the data permits geographical comparisons (between regions of one country) and temporal comparisons.

The number of operations for hip replacement could only be obtained in 8 countries for the region and the year requested. Portugal provided the information for a different year (2000). In the three other countries, (Germany, France & Greece), this information could not be obtained for any year for the region requested.

Except for Ireland, for which only operations in the publicly funded sector are included, these data correspond to the proposed definition.

In eight of the nine countries for which the data is available data could be obtained from national sources. In Spain it is necessary to address local sources.

Information on the quality was given for eight of the nine countries where the number of hip replacement operations was available. The data are used everywhere for local and regional analyses, and is of sufficient quality for geographical analysis and time trend analysis by all respondents. Austria indicated that such analyses are only possible for post 1997, it is the same for France.

Number of Abortions

Availability of the number of abortions is good. The data, when available, always corresponds to the proposed definition and is systematically used for local analyses. The quality of the data is judged sufficient by virtually all countries to permit geographical and temporal comparisons.

Only eight countries could provide the number of abortions for the region and the year (1999) requested. Two other countries provided it, but for a different year: Greece (1997) and Portugal (2000). This information was not given for Ireland or Luxemburg.

It always conforms to the agreed definition.

Apart from Spain, where the data must be sought from local sources, it is available from national sources in the other eight countries were information was given.

 Information on the quality was given for nine out of the ten countries where the data was available. The number of abortions is used everywhere it is available for local and regional analyses, and is judged to be of sufficient quality for geographical and time trend analysis (except for Greece, which did not comment on this point).

Summary – Health Services

Table 13: Health Services – Summary

	Number of	Availability	Conformity to the definition	Use	Quality	To be included in an health regional database
Data collected for all the	Acute hospital care beds	+ +	+ +	+ +	+ +	yes
	Hospital in-patients admissions	+	+ +	+ +	+ +	yes
Data collected for one region	Hospital beds, acute care, gynaecology or obstetrics or maternity beds	+ +	+	+ +	+ +	yes
	Bed days, acute care/year	+ +	+ +	+ +	+ +	yes
	Bed days: acute care/year, gynaecology or obstetrics or maternity	+	+	+ +	+ +	yes
	Hospital in-patients admissions /year, acute care, gynaecology or obstetrics or maternity	+	+	+ +	+ +	yes
	Caesarean sections	+ +	+ +	+ +	+ +	yes
	Cataract operations	+ +	+ +	+ +	+ +	yes
	Hip replacements	+	+ +	+ +	+ +	yes
	Induced abortions	+	+ +	+ +	+ +	yes

Results of the Isare study show that the availability of data on health services is variable. Thus we see that data on "number of acute care beds", "number of gynaecology, obstetrics or maternity beds", "days in hospital per year", "caesareans" and "cataract operations" are very highly available. Availability may be judged high for the "hospital admissions for acute care per year", and also for "days per year" and "admissions per year" in gynaecology, obstetrics or maternity, "hip replacement operations" and for "abortions".

When available, the information is most often obtained from national sources.

Reservations on the quality of the data are few as regards geographical and temporal analysis, and they are most often used in the framework of local analyses. It therefore seems possible to include all those data in a regional European database.

5.1.3 Demographic and Socio-economic data

The following data were requested for all regions:
- Population Estimate
- Number of live births
- Number of deaths
- Percentage of unemployed in age range 15 – 64 years

In addition, for one region of each country, the following data were requested:
- Percentage of adult population (from 25 to 64 years) having completed secondary education
- Percentage of adult population (from 25 to 64 years) having completed higher education

Results

Table 14: Demographic and Socio-economic Data – Availability of Data

| | | Availability (all the regions – 1999) | Partial availability | | | Not available | Conformity to the definition |
			All the regions – other year	Some regions - 1999	Some regions – other year		
Data collected for all the regions (n= 13)	Mid year population estimate	9	0	2	0	2	10
	Number of live births	11	0	1	0	1	12
	Number of deaths	11	0	1	0	1	12
	% of unemployed persons (15 to 64 years old)	10	0	0	1	2	8

	Percentage of	Availability (1999)	Partial availability (selected region - other year)	Not available	Conformity to the definition
Data collected for one region (n= 12)	% of the adult population (25 to 64 years old) that has completed upper secondary education	7	3	2	6
	% of the adult population (25 to 64 years old) that has completed tertiary education	8	3	1	6

Table 15: Demographic and Socio-economic Data – Sources of Data

| | Number of | Number of answers usable | Sources | | |
			National for all the regions	Regional for all the regions	National and regional
Data collected for all the regions	Mid year population estimate	10	10	0	0
	Number of live births	11	11	0	0
	Number of deaths	11	11	0	0
	% of unemployed persons (15 to 64 years old)	10	9	0	1

| | Percentage of | Number of answers Usable | Sources | |
			National	Regional
Data collected for one region	the adult population (25 to 64 years old) that has completed upper secondary education	9	8	1
	the adult population (25 to 64 years old) that has completed tertiary education	9	8	1

Table 16: Demographic and Socio-economic Data – Quality of Data

| | Number of | Number of answers usable | Quality | | |
			Used data	Geographical analyses	Temporal analyses
Data collected for all the regions	Mid year population estimate	9	9	9	9
	Number of live births	11	11	11	11
	Number of deaths	11	11	11	11
	% of unemployed persons (15 to 64 years old)	10	10	10	10
Data collected for one region	% of the adult population (25 to 64 years old) that has completed upper secondary education	9	7	8	9
	% of the adult population (25 to 64 years old) that has completed tertiary education	9	7	8	9

Estimation of Population

There is good availability of population estimates at the level of the Isare health regions, even if they are not totally available as one may have expected. They conform to the agreed definition in a large proportion of cases, and where they do not, they are nevertheless very close. These population estimates are widely used, and are judged comparable temporally and spatially (between regions of one country).

Estimates of the population by 5 year band and by sex could be obtained for all regions and for 1999 in 9 of the 13 countries that replied. In Greece and Spain, the information was obtained for only some regions: all but one in Greece, and 12 out of 17 in Spain. From Ireland that information was not obtained because population estimates are not routinely done between censuses in the health regions. However, the Irish partner did not rule out that such estimates could be produced. Neither was the information sent from Finland.

The information corresponded to the indicated definition in 10 of the 11 cases. In the other two cases, Germany and the Netherlands, the estimates are produced mid-year, and not on January 1st.

In all countries where the data is available, it comes from national sources. The Irish indicated that, if necessary, estimates could be produced from national sources.

Information concerning the quality was given for 9 countries. In all countries the data are used for regional and local analyses, and are of sufficient quality for the study of geographical differences and for time trend analysis over time.

Number of live births

The number of live births is a data very widely available, and corresponds in nearly every case to the agreed definitions. It is systematically used for local analyses, and the quality is considered sufficient to permit geographic comparisons (between regions of one country) and for time trend analysis.

The number of live births by region was obtained for 1999 in 11 countries. One could only provide figures for some of its regions: 11 regions out of 17 from Spain. Only Finland could not provide this information.

The number of live births conforms to the agreed definition in all countries.

These data are always available from National sources.

Eleven countries sent information on the quality of these data. All countries use the data for local and regional analyses, and it may be used for the study of geographical differences and for time trend analysis change over time.

Number of Deaths

The number of deaths is a data very widely available, and responds in every case to the proposed definitions. It is systematically used for local analyses. Geographic comparisons (between regions of one country) and evolution analyses are practically always possible.

The number of deaths by region was obtained for 1999 in 11 countries. Spain only provide figures for some of its regions: 11 out of 17. Only Finland could not provide this information.

The number of deaths conforms to the definition in all countries.

These data are quite always available from National structures.

Eleven countries sent information on the quality of these data. All countries use it for local and regional analyses, and it may be used for the study of geographical differences and (except for Belgium which did not comment on this point) for time trend analysis over time.

Percentage of unemployed in age range 15 – 64

The percentage of unemployed persons aged 15 – 64 is widely available. In numerous cases, it complies with the proposed definitions. It is quite generally used for local analyses, and the quality is almost always considered sufficient to permit geographic comparisons (between regions of one country) and evolution analyses.

Ten countries were able to provide information for all their regions and for 1999 on the percentage of unemployed in the range 15 – 64 years. Spain supplied this information for 9 of their 17 regions for the year requested, and for one other region for 2001. Ireland and Finland could not provide this information for their Isare health regions.

The percentage of unemployed in the range 15 – 64 years conforms to the definition in 8 countries. In England, it is calculated from 16 years to retirement age - 60 for women, 65 for men and in Sweden and Luxemburg, for the 16-64 years old.

In most of the countries where it is available, these data are always available from National structures. In Spain, depending on the region, the data are provided either from national or regional sources.

Ten countries provided information on the quality of the information. All countries use it for local and regional analyses. Its quality is judged sufficient for it to be used for the study of geographical differences and for time time trend analysis trend analysis.

**** From hereon, the report deals with information concerning Health Professionals gathered from just one region in each country.

Percentage of the adult population (25 to 64 years) having completed Secondary education

Availability of the percentage of the adult population having competed secondary education is good. However, when available it generally fails to comply with the agreed definitions. It is sometimes used for local or regional analyses, and the quality is considered sufficient to permit geographic comparisons (between regions of one country) and time trend analysis.

Seven of the twelve countries that responded to the questionnaire relating to just one region were able to provide information on the proportion of adults having completed secondary education for the region requested and for 1999. Three other countries provided the information, but for a different year: Ireland (1997), Greece (1991) and Portugal (2001). This information was not available from England or Belgium (from these countries the 2001 figures should soon be available).

Data does not conform to the agreed definition in four countries: Germany, where the percentage is calculated over the whole population, Ireland whence we received the actual numbers rather than the percentages and in Finland and France where data concerned all the population over 15 years old.

Where the information is available, it is derived from national sources except for Spain where local sources are used.

Nine countries commented on the quality of the data. In Luxemburg and Germany these data are not used for local or regional analyses. Except Greece, all other countries replied that these data are of sufficient quality to effect geographical analyses. On the other hand, all the nine countries suggested that quality was good enough for temporal analysis.

Percentage of the adult population (25 to 64 years) having completed Higher education

Availability of the percentage of the adult population having competed higher education is good. However, when available it seldom complies with the proposed definitions. It is only sometimes used for local or regional analyses, but the quality is considered sufficient to permit geographic comparisons (between regions of one country) and time trend analysis.

Eight countries out of twelve were able to provide information requested on the proportion of adults having completed further education for the region requested and for 1999. Three other countries provided the information, but for a different year: Ireland (1997), Greece (1991) and Portugal (2001). This information was not available from Belgium, but from this country the 2001 figures should shortly be available.

Data did not conform to the agreed definition in 5 cases: Ireland when we received the actual numbers rather than the percentages, in Germany, Finland and France where data concerned the total population over 15 years old and England where double counting was a possibility.

Where data on the information is available, it is from national sources except in Spain where data comes from local sources.

Nine countries commented on the quality of the data. In Luxemburg and Germany these data are not used for local or regional analyses. Except for Greece, the eight other countries replied that these data were of sufficient quality to effect geographical analyses. On the other hand, all nine countries declared the quality was good enough to allow temporal analysis.

Summary – Demographic and Socio-economic Data

Table 17: Demographic and Socio-economic Data – Summary

		Availability	Conformity to the definition	Use	Quality	To be included in an health regional database
Data collected for all the regions	Mid year population estimate	+	+ +	+ +	+ +	Yes
	Number of live births	+ +	+ +	+ +	+ +	Yes
	Number of deaths	+ +	+ +	+ +	+ +	Yes
	% of unemployed persons (15 to 64 years old)	+	+	+ +	+ +	Yes
Data collected for one region	% of the adult population (25 to 64 years old) who have completed upper secondary education	+	+ / -	+	+ +	No
	% of the adult population (25 to 64 years old) that has completed tertiary education	+	-	+	+ +	No

Information on demographic and socio-economic data gathered during phase 2 of the Isare study shows that availability is lower than would have been expected, even if the actual availability is relatively high. Availability of numbers of live births and deaths is very good. Data on Population estimates and percentage of unemployed rather less so and also the percentages of population having completed secondary or higher education.

Where available, the data come from national organisations.

Reservations on the data quality are few, and they are most often used for local projects and judged usable for geographic or time trend analysis except for secondary and higher education. It seems possible, therefore, to include these data in a European regional database.

5.1.4 Mortality data

Data in this chapter were requested in all cases for all regions
- Number of perinatal deaths
- Number of stillbirths
- Number of deaths by age band, sex and cause

Results

Table 18 : Mortality Data – Availability of Data

Data collected for all the regions (n= 13)	Number of	Availability (all the regions – 1999)	Partial availability			Not available	Conformity to the definition
			All the regions – other year	Some regions - 1999	Some regions – other year		
	perinatal deaths	10	1	1	0	1	9
	Stillbirths	10	1	1	0	1	9
	Age/sex breakdown of deaths by cause	8	2	1	0	2	10

Table 19 : Mortality Data – Sources of Data

Data collected for all the regions	Number of	Number of answers usable	Sources		
			National for all the regions	Regional for all the regions	National and regional
	perinatal deaths	12	12	0	0
	Stillbirths	12	12	0	0
	Age/sex breakdown of deaths by cause	12	12	0	0

Table 20 : Mortality Data – Quality of Data

Data collected for all the regions	Number of	Number of answers usable	Quality		
			Used data	Geographical analyses	Temporal analyses
	perinatal deaths	11	11	11	11
	Stillbirths	11	11	11	11
	Age/sex breakdown of deaths by cause	11	11	11	11

Number of Perinatal Deaths

The number of perinatal deaths is widely available. It frequently corresponds to the agreed definition. It is used routinely for local analyses, and its quality is judged sufficient to permit geographic comparisons (between regions of one country) and time trend analysis.

The number of perinatal deaths is a data that could be obtained for all regions and for the specific year from 10 of the 13 countries that replied to us. For Spain data were received the year requested but for only some regions (11 of 17 regions). Belgium, provided it for all regions but for a different year (1995). The Netherlands was not able to provide this information.

A different definition to that agreed was used by 3 countries: Spain, where depending on the region, the figures include stillbirths of more than 21 weeks of amenorrhoea, or those of over 25 weeks. From Germany, as from France, perinatal deaths include stillbirths of over 500 grammes.

When available, this data always comes from national organisations.

Information on the quality of the data was obtained from 11 out of the 12 countries that provided figures: perinatal deaths are used for local or regional analyses in all the countries, and are considered of sufficient quality to be used for geographical comparisons and temporal analysis.

Number of stillbirths

The availability of the number of stillbirths is high. It corresponds often to the agreed definition. It is used systematically for local analyses, and its quality is practically always judged sufficient to allow geographic comparisons (between regions of one country) and time trend analysis.

Ten countries provided the number of stillbirths for year 1999 and for all regions. Spain provided it for the year requested but for only some regions (10 of 17 regions) and one country provided it for all regions but for a different year (Belgium, 1995). One country, the Netherlands, was not able to provide this information.

Agreement with the stated definition was the case in 9 of the 12 countries that provided data. Spain explained that the definitions used can vary from region to region ("more than 180 days pregnancy", or "over 22 weeks of amenorrhoea", or "over 26 weeks"). In Germany and France, foetuses weighing between 500 & 999 grammes are included in the figures. In France the figures also include births as early as 22 weeks of amenorrhoea, whatever the weight of the foetus.

In all the countries that replied, the figures are available from national sources for their regions.

Information on the quality of the data was obtained from 11 out of the 12 countries that provided figures. These data are used for local or regional analyses in all the countries, and are considered usable for geographical comparisons and for time trend analysis.

Number of Deaths by age-band, sex and cause

The availability of the number of deaths by age-band, sex and cause is high, but not as systematic as one might have expected. On the other hand, availability and agreement with the proposed definitions is very high. The use made of these data for local analysis very high, and the quality is, adequate, to allow geographical analyses (between regions of the same country) and temporal analyses.

The number of deaths by age-band, sex and cause was requested: all causes, cancers, cardio-vascular disease and for external causes of trauma and poisoning, corresponding to three chapters of the international classification of diseases. Eight countries provided these data for all these causes, all regions and for 1999. Spain provided them for 1999 but for a variable number of regions (all causes and cancers: 13 regions out of 17, cardio-vascular and accidents: 11 regions out of 17). Belgium provided data for all the causes, all regions, but for 1997 and the Netherlands for 2001. Finland and Ireland could not provide these data, but our Irish correspondent underlined that although the data were not available by Isare health regions, they could nevertheless be extracted from mortality statistics.

Examination of information on the agreement with the proposed definitions and date showed that for all but one of the countries who provided data the definition was as proposed; in the Netherlands the age bands used differ from those proposed (between 1 & 65 years, deaths are grouped into 4 bands: 1-24, 25-44, 45-54 & 55-64, whereas the definition required five year bands).

These regional data are indicated as available from the national level in all countries.

Eleven countries gave information on the quality of these data: the data are used in all countries for local and regional analyses. The quality is judged sufficient in all countries for geographical and temporal analyses.

Summary – mortality data

Table 21 : Mortality Data – Summary

	Number of	Availability	Conformity to the definition	Use	Quality	To be included in an health regional database
Data collected for all the regions	perinatal deaths	+ +	+	+ +	+ +	Yes
	stillbirths	+ +	+	+ +	+ +	Yes
	Age/sex breakdown of deaths by cause	+	+ +	+ +	+ +	Yes

Mortality figures gathered in phase 2 of the Isare project show that their availability is less than one would have expected, rather like those on population seen previously.

Accessibility of these data seems good, as they are all available from national sources, even if in some countries this is not routinely the way they are obtained.

Information gathered on the quality of the data, apart from some problems of harmonisation of data linked to counting methods for stillbirths, show that a 'priori' they are of sufficient quality. Thus one can recommend their integration into the database concerned with health in the European regions.

5.1.5 Morbidity Data

The following data were requested for all regions:
- Number of new cases of AIDS

In addition, for one region of each country, the following were requested:
- Number of new cases of Tuberculosis
- Number of new cases of breast cancer

Results

Table 22 : Morbidity Data – Availability of Data

Data collected for all the regions (n= 13)	Number of	Availability (all the regions – 1999)	Partial availability			Not available	Conformity to the definition
			All the regions – other year	Some regions - 1999	Some regions – other year		
	AIDS cases	7	1	1	0	4	6

Data collected for one region (n= 12)	Number of	Availability (1999)	Partial availability (selected region - other year)	Not available	Conformity to the definition
	Tuberculosis cases	11	0	1	10
	Breast cancer cases	6	4	2	7

Table 23 : Morbidity Data – Sources of Data

Data collected for all the regions	Number of	Number of answers usable	Sources		
			National for all the regions	Regional for all the regions	National and regional
	AIDS cases	9	8	0	1

Data collected in one region	Number of	Number of answers Usable	Sources	
			National	Regional
	Tuberculosis cases	11	11	0
	Breast cancer cases	9	8	1

Table 24 : Morbidity Data – Quality of Data

	Number of	Number of answers usable	Quality		
			Used data	Geographical analyses	Temporal analyses
Data collected for all the regions	AIDS cases	8	8	8	7
Data collected in one region	Tuberculosis cases	9	9	9	9
	Breast cancer cases	10	10	8	7

Number of AIDS cases

Availability of the number of new cases of AIDS is moderate. The definition used by countries did not always conform to the agreed definition. However, in the countries that replied the quality of the data was judged sufficient to permit local analyses and geographic comparisons (between regions of one country) and time trend analysis.

The number of new cases of AIDS is data that could be obtained for all regions, and for the year 1999 7 of the 13 countries that replied. Spain provided information for 1999, but only for 12 of its 17 regions. In Finland, year 1997 was available. Four countries were not able to provide the data for all their regions for any year. These are the Netherlands, Greece, Sweden & Ireland. However, for these countries, even if the data are not routinely where available at the geographical level requested, they can be produced if necessary. It is also true for Sweden but our correspondent pointed out the low value of this information to the low number of incident cases.

Conformity to the agreed definition is real in 6 of the 9 countries that provided this data: in Austria and Finland it is not the number of new cases of AIDS that was received, but the number of new HIV positives; in Spain the numbers were given for some regions and proportions for others.

Whilst this information is usually available at national level, in Spain the data are available nationally or regionally, depending on the region in question.

Eight countries provided information on the quality of the data "number of new cases of AIDS". Overall the replies that these data are used for local or regional analyses. Apart from Belgium, it is judged of sufficient quality to be used for geographical comparisons and in time trend analysis.

**** *From here on, morbidity data are gathered from just one region in each country*

Number of new cases of Tuberculosis

Availability of data for new cases of tuberculosis is very good. It always conforms to the agreed definition. There is a wide use of these data for local analyses, associated, in the opinion of all, with sufficient quality to permit geographic comparisons (between regions of one country) and time trend analysis.

Eleven of the twelve countries that replied were able to provide the number of new cases of tuberculosis for 1999 and for the region requested. Only Ireland could not do this.

The data conformed to the agreed definition in every case except for Sweden where incidence rate for 100 000 inhabitants was provided in place of the number of incident cases. These data are always available from national sources.

Out of ten responses regarding the quality, it emerges that these data are always used for local analyses, and can be used for geographical comparisons and time trend analysis.

Number of new cases of breast cancer

Availability of the number of new cases of breast cancer is moderate in the regions. In 30 % of the cases the data does not conform to the definition. Reservations were expressed as regards whether the quality allows temporal analyses.

The number of new cases of breast cancer in one region could be obtained in 10 of the 12 countries that replied to this part of the questionnaire. Four of these countries provided the information for a different year: Ireland (1997), France (1995), Belgium (1998) and Portugal (2000). Greece was not able to provide this information. It is the same for Spain althought data exist in some region.

In seven of the ten countries that were able to provide this information, there was conformity to the agreed definition. In the three other countries, the following problems were encountered: Finland submitted data for an average taken over 5 years, in Portugal the figures were taken from hospital admissions and in Germany a partial figure was supplied, as only a portion of the region concerned was covered by the register (13% of the population). Note that the figures submitted by France relate to estimates calculated from the 13 Departments having cancer registers (out of 96 French Departments in mainland France).

Access to these data is usually through national sources. For Finland and Germany access is either through national or regional sources, depending on the type of cancer. Although not provided, it is possible to obtain data on a regional level for Spain.

Some reservations were expressed amongst the ten responses concerning the quality of this data. Where data available, are used for local or regional analyses. Geographical comparisons were felt to be possible in 8 countries out of 10, the two exceptions being Belgium and Germany, who highlight the limited usefulness of such geographical comparisons given the only partial availability of this regional data. Finally time trend analysis were said to be possible in two thirds of the cases: apart from Belgium, England indicated that quality data have only been available since 1999. In France, data concerning incidence of cancer at regional level are estimates calculated every 5 years.

Summary – morbidity data

Table 25 : Morbidity Data – Summary

	Number of	Availability	Conformity to the definition	Use	Quality	To be included in an health regional database
Data collected for all the regions	AIDS cases	+ / -	+ / -	+ +	+ +	No
Data collected in one region	Tuberculosis cases	+ +	+ +	+ +	+ +	Yes
	Breast cancer cases	+ / -	+	+ +	+	No

The study of the availability of morbidity data in the Isare 2 project shows that the availability is very good as regards tuberculosis and moderate as regards AIDS and breast cancer.

In this section information, whilst mostly available from national sources, must sometimes be sought at regional level.

Comments made on the quality of the morbidity data are positive for the incidence of tuberculosis and breast cancer, but misgivings were expressed concerning data on the incidence of AIDS.

Thus it seems possible to recommend the integration of the data on tuberculosis into the European regions health database. But one must be more cautious as regards the data on new cases of breast cancer and AIDS.

5.1.6 Risk Factors

Data in this chapter was requested in each case for all regions
- Distribution of body mass index
- Percentage of smokers aged over 15

Results

Table 26 : Risk factors – Availability of Data

Data collected in all the regions (n=13)		Availability (all the regions – 1999)	Partial availability			Not available	Conformity to the definition
			All the regions – other year	Some regions - 1999	Some regions – other year		
	Distribution of BMI in the population	5	3[3]	0	1	4	8
	% of regular daily smokers aged 15 years or more	5	3[3]	0	1	4	7

Table 27 : Risk factors – Sources of Data

Data collected in all the regions		Number of answers usable	Sources		
			National for all the regions	Regional for all the regions	National and regional
	Distribution of BMI in the population	8	7	0	1
	% of regular daily smokers aged 15 years or more	8	7	0	1

Table 28: Risk factors – Quality of Data

Data collected in all the regions		Number of usable answers	Qualité		
			useable data	geographic analysis	time trend analysis
	Distribution of BMI in the population	8	7	4	4
	% of regular daily smokers aged 15 years or more	8	8	6	6

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[3] *Les données pour les Pays-Bas correspondent à un découpage géographique différent : 55 régions au lieu de 40.*

Distribution of body mass index

Availability of the distribution of body mass index in the regions of Europe is moderate. There seems to be no problem regarding conformity with the definition, but the quality is often judged insufficient to allow time trend analysis.

Distribution of the body mass index (percentage of under weight, normal weight, overweight and obese) could only be obtained as required in 5 countries, that is to say for all regions and for 1999. In three other countries, they were provided for a different year: Belgium (2001), Netherlands (95-99 and for a different range of regions from that used for other data) and France (2000, and only for the percentage of obese). Spain provided information applicable to 7 out of 17 regions and for differing years (2 regions for 1999, 1 for 1998, 1 for 2000, 2 for 2001 and 1 for 2002). Four countries were not able to provide these data: Ireland, Finland, Greece and Portugal. In the case of the latter, only the average body mass index of the population is available. In Sweden, an average three year value adjusted on the requested year (1998-2000) was provided.

In the nine countries that submitted data, problems of conformity with the definition were only found in one country, France, where only the percentage of obese is available.

Apart from Spain, where the data must be sought, depending on the region, from national or regional sources, it is always national organisations that provide the information.

Information on the quality of the data was obtained from 8 of the 9 countries where distribution of body mass index is available. Seven countries out of eight said they used it for regional or local analyses, Luxemburg do not know to what extent it may be so used. Use for spatial and temporal comparisons is even more limited as four countries estimate the quality is insufficient for that purpose (Luxemburg, France, Germany & England). Spain expresses reservations on the quality of the data, even though they say it is used.

Percentage of smokers aged over 15

The percentage of smokers is data of moderate availability in the regions of Europe. Conformity with the definition is good and the data is frequently used for regional analyses. The quality is often judged sufficient to allow geographical analyses between regions of the same country or temporal analyses.

Only five countries out of 13 were able to give the percentage of smokers over 15 years old for all their regions and for 1999. Three countries provided data for different years: Belgium (2001), Luxemburg (2000), the Netherlands (95-99 and for different of regions, used only for this and the previous item). Spain provided data for only 11 of its 17 regions, and for different years: 1999 (4), 1997 (1), 1998 (1), 2000 (2), 2001 (2) and 2002 (1). Finally, France, Ireland, Finland & Greece were not able to provide this information. In Sweden, an average trhee year value was provided, adjusted for the requested year (1998-2000).

One region of Spain provided data for these 14 years and over for that region. In Sweden, figures for 16-84 years old were provided;

Where the percentage of smokers is available, it is broadly from national sources. In Spain, local sources were used.

The quality of the data was indicated for eight of the nine countries where the information is available. Use for regional and local analyses is found everywhere. The quality is sufficient in only 6 countries out of 8 to allow temporal and geographical analyses: Germany and England not commenting on this point.

Summary - Risk Factors

Table 29: Risk factors – Summary

		Availability	Conformity to the definition	Use	Quality	To be included in an health regional database
Data collected in all the regions	Distribution of BMI in the population	+ / -	+ +	+ +	-	No
	Percentage of smokers (> 15 years)	+ / -	+	+ +	+	No

Gathering information on risk factors shows that the availability of this information is limited at the level of the European regions.

Information is most often accessed from national sources.

Even though they are usually close to the agreed definitions, judgements on the quality of these data are quite negative for the distribution of BMI.

Because of this it seems reasonable to suspend for the time being the integration of these data into a database of health indicators for the regions of Europe, even though interest in terms of influencing the politics of prevention is uncontestable.

5.1.7 Conditions of life and work

The following data were requested for all regions:
- Number of persons injured or killed in road accidents

In addition the following were requested for one region from each country
- Number of accidents at work

Results

Table 30: Conditions of life and work – availability of data

Data collected in all the regions (n= 13)		Availability (all the regions – 1999)	Partial availability			Not available	Conformity to the definition
			All the regions – other year	Some regions - 1999	Some regions – other year		
	Number of persons injured or killed in road traffic accidents	8	1	0	1	3	9

Data collected in one region (n= 12)		Availability (1999)	Partial availability (selected region - other year)	Not available	Conformity to the definition
	Number of incident cases of accident related to work	7	2	3	8

Table 31: Conditions of life and work – source of data

Data collected in all the regions		Number of answers usable	Sources		
			National for all the regions	Regional for all the regions	National and regional
	Number of persons injured or killed in road traffic accidents	10	9	0	1

Data collected in one region		Number of answers Usable	Sources	
			National	Regional
	Number of incident cases of accident related to work	9	9	0

Table 32: Conditions of life and work – Quality of Data

		Number of answers usable	Quality		
			Used data	Geographical analyses	Temporal analyses
Data collected in all the regions	Number of persons injured or killed in road traffic accidents	10	10	10	10
Data collected in one region	Number of incident cases of accident related to work	8	8	7	8

Number of persons injured or killed in road accidents

> *The availability of the numbers of persons injured or killed in road accidents is high, and conformity with the definition is often found. Information is very often used for local analyses and of sufficient quality to allow geographical analyses (between regions of the same country) or temporal analyses.*

Eight countries out of 13 were able to gather data on the numbers injured or killed in road accidents for all their regions and for 1999. Spain provided information for 10 of its 17 regions for the year requested and with the information available for another region for another year (2001). In Sweden, data refers to year 2001. Greece only sent the figures for one region, and the national total for 1999. Finally, two countries, Finland and the Netherlands, could not send us this information.

Conformity with the definition poses problems in 2 of the 11 countries where information is available: in France the number of deaths is counted at 6 days rather than 30, and in 2 of the Spanish regions only the number of deaths appears.

Access to this information is possible through national sources. In Spain, data is provided through local sources.

In the ten cases where comments on the quality are available, they are positive: these data are used for local and regional analyses, and its quality is considered sufficient to allow geographical and temporal analyses.

***** These data are gathered for just one region in each country*

Number of accidents at work

> *Data on the numbers of accidents at work is moderate. However, when available the data is systematically used for local analyses and is considered of sufficient quality by the majority of the correspondents to allow geographical analyses (between regions of the same country) or temporal analyses.*

Seven countries out of 12 were able to provide a number of accidents at work for the year requested in one of their regions. Two other countries could provide the information, but for a different year (Greece, 1998, and England, 2000-2001). Ireland and Austria do not have this information available at regional level, and Portugal says it is waiting for the information.

Only one problem appeared concerning conformity to the definition: in Sweden data refers to accidents at work with absence.

These data are generally available from national structures.

As regards quality, eight countries commented on this. In all cases the number of accidents at work is used for local and regional analyses. Its quality is judged sufficient for geographical comparisons in all countries except Greece and in all countries for temporal analysis. Even if Portugal was not able to provide this data, they indicate that this kind of data was of good quality.

Summary – conditions of life and work

Table 33: Conditions of life and work – Summary

		Availability	Conformity to the definition	Use	Quality	To be included in an health regional database
Data collected in all the regions	Number of persons injured or killed in road traffic accidents	+	+ +	+ +	+ +	Yes
Data collected in one region	Number of incident cases of accident related to work	+	+ +	+ +	+ +	Yes

The enquiry made in the framework of Isare looking at data on conditions of life and work show good availability for 'numbers injured or killed in road accidents' and 'number of accidents at work'. Conformity with the definition poses no major problems and data was often collected nationally.

Judgements on the quality of these data made by our partners in the project seem good, which permits one to propose that they be integrated into a database of health indicators for the regions of Europe.

5.1.8 Preventative Data

Data in this chapter were requested for just one region in each country
- Percentage of children vaccinated against diphtheria
- Percentage of children vaccinated against tetanus
- Percentage of children vaccinated against whooping-cough
- Percentage of children vaccinated against poliomyelitis
- Percentage of children vaccinated against measles

Results

Table 34: Prevention Data – Availability of Data

	Percentage of infants vaccinated	Availability (1999)	Partial availability (selected region - other year)	Not available	Conformity to the definition
Data collected in one region (n= 12)	Diphtheria	7	1	4	4
	Tetanus	6	1	5	3
	Pertussis	6	1	5	4
	Poliomyelitis	7	1	4	4
	Measles	7	2	3	6

Table 35: Prevention Data – Sources of Data

	Percentage of infants vaccinated against	Number of answers Usable	Sources	
			National	Regional
Data collected in one region	Diphtheria	8	7	1
	Tetanus	7	6	1
	Pertussis	7	7	0
	Poliomyelitis	8	7	1
	Measles	9	8	1

Table 36: Prevention Data – Quality of Data

	Percentage of infants vaccinated against	Number of answers usable	Quality		
			Used data	Geographical analyses	Temporal analyses
Data collected in one region	Diphtheria	7	7	6	6
	Tetanus	6	6	5	5
	Pertussis	6	6	6	6
	Poliomyelitis	7	7	6	6
	Measles	8	8	7	6

Percentage of children vaccinated against diphtheria

Availability of data on the percentage of children vaccinated against diphtheria is moderate. On the other hand, the quality is often judged sufficient for local analyses and to allow geographical analyses (between regions of the same country) or temporal analyses.

The percentage of children vaccinated against diphtheria has been obtained for the region and the year requested in 7 countries out of 12. Also, Luxemburg was able to supply this information for 2002. On the other hand, for four of the countries that replied, Greece, Belgium, France, and Finland, it has not been possible to provide this information (but the first two mentioned that this information is awaited).

Conformity with the proposed definition is rarely found: amongst the eight countries providing data, four have indicated that they do not correspond to the definition. In England, vaccination coverage is measured at 24 months, in Luxemburg at between 25 & 30 months, and in Germany and Austria it is measured on starting school.

Except Austria were local sources had to be contacted, when these data are available, they always from national sources.

Information on the quality is available in 7 of the 8 countries that provided data. This vaccination coverage is always used for local and regional analyses, and, apart from Austria (no reply), the information is judged to be of sufficient quality to allow geographic and time trend analysis.

Percentage of children vaccinated against tetanus

Availability of data on the percentage of children vaccinated against tetanus is low . On the other hand, the quality is most often judged sufficient for local analyses and to allow geographical analyses (between regions of the same country) or temporal analyses.

Six countries out of 12 were able to provide the percentage of children vaccinated against tetanus for the region and for the year requested. Luxemburg was able to supply this information for 2002. Four of the countries that replied, Greece, Belgium, Espagne, France and Finland, have not been able to provide this information (but the first two mentioned that this information is awaited).

In England, vaccination coverage is measured at 24 months, in Luxemburg at between 25 & 30 months, and in Germany and Austria it is measured on starting school.

These data are available almost always from national sources: in Austria the sources are local.

Information on the quality is available in 6 of the 7 countries that provided data. This vaccination coverage is always used for local and regional analyses, and, apart from Austria, which makes no comment, the information is judged to be of sufficient quality to allow geographic and time trend analysis.

Percentage of children vaccinated against pertussis

The availability of the percentage of children vaccinated against pertussis is low. On the other hand, the quality is most often judged sufficient for local analyses and to allow geographical analyses (between regions of the same country) or temporal analyses.

Only six countries were able to communicate the percentage of children vaccinated against pertussis for the region and for the year requested. Luxembourg provided 2002 data. France, Austria & Finland, have not been able to provide this information. We are awaiting data from Greece and Belgium.

In England, vaccination coverage is measured at 24 months, in Luxemburg at between 25 & 30 months, and in Germany it is measured on starting school.

However, when these data are available, it is always from national sources.

Six of the 7 countries that provided data gave information on the quality. The percentage of children vaccinated against pertussis is used for local and regional analyses, and the information is judged to be of sufficient quality to allow geographic and time trend analysis.

Percentage of children vaccinated against poliomyelitis

The percentage of children vaccinated against poliomyelitis is a data of low availability., the quality is most often judged sufficient for local analyses and to allow geographical analyses (between regions of the same country) or temporal analyses.

The percentage of children vaccinated against poliomyelitis has been obtained for the region and the year requested in 7 countries out of 12. In addition, Luxemburg was able to supply this information for 2002. Data is awaited from Greece and Belgium.

Many problems of conformity with the definition are encountered: amongst the eight countries having provided data, four have indicated that it does not correspond with the definition. In England, vaccination coverage is measured at 24 months, in Luxemburg at between 25 & 30 months, and in Germany and Austria it is measured on starting school.

Data are collected on a national level, with the exception of Austria who collect data at a local level.these data are.

Information on the quality of the data is available from seven of the eight countries that provided information. The vaccination cover against poliomyelitis is very often used for local and regional analyses, and, apart from Austria who made no observation on this point, the information is judged to be of sufficient quality to allow geographic and evolution analyses.

Percentage of children vaccinated against measles

Availability of information on the percentage of children vaccinated against measles is good. Its conformity with the proposed definitions is moderate but the quality is most often judged sufficient for local analyses and to allow geographical analyses (between regions of the same country) or temporal analyses.

The percentage of children vaccinated against measles has been obtained for the region and the year requested in 7 countries out of 12. In addition, Luxemburg and France were able to supply this information for a different year: 2002 in the former case, 2000 in the latter. Greece, Belgium & Finland have not been able to get this information (though the former two countries expect to have this information soon).

Conformity with the proposed definition is found in all cases but three: in Germany and Austria vaccination coverage against measles is measured on starting school and in Sweden at the first birthday. It should also be noted that the figures provided by Austria, Luxemburg and Ireland correspond to children vaccinated with the triple vaccine (measles, mumps, rubella).

These data are always available from national sources except Austria (local sources).

Information on the quality of the data is available from eight of the nine countries that provided information. This information is often used for local and regional analyses. The information is judged to be of sufficient quality to allow geographic and time trend analysis (apart from Austria who made no observation on the first point, and Austria and France who made no observation on the second point).

Summary – Prevention Data

Table 37: Prevention Data – Summary

	Percentage of infants vaccinated against	Availability	Conformity to the definition	Use	Quality	To be included in an health regional database
Data collected in one region	Diphtheria	+ / -	-	+ +	+ +	No
	Tetanus	-	- -	+ +	+ +	No
	Pertussis	-	-	+ +	+ +	No
	Poliomyelitis	+ / -	-	+ +	+ +	No
	Measles	+	+ / -	+ +	+ +	Yes

Availability of data on vaccination coverage for children at regional level is generally moderate, and mediocre in certain cases except for measles where availability is good.

Even though the data can usually be obtained from national organisations, it should be noted that numerous problems of conformity with the proposed definition are encountered, even if there are less problems for measles coverage.

On the other hand, few reservations were expressed concerning the quality of the data.

Thus we propose to include only the percentage of children vaccinated against measles in the database of health indicators for the regions of Europe.

5.1.9 Summary of results

The second phase of the Isare project has enabled us to test in the "big wide world" the gathering of infra-national data from regional correspondents of 13 countries of the European Union (12 for the "short" list of data from just one region in each country). It is thus possible to judge the availability of these data, and also, based on the opinions of the correspondents, their quality and comparability.

Availability is generally high (16 data) or very high (12 data) and was never considered very bad accorded to the criteria set out (4.4). However, availability is never perfect insofar as no single data has been provided to us for every one of the regions studied and for the year requested (1999). One hand the score for the availability of collected data in all the regions is greatest for the number of live births, the number of death and the number of acute care beds (11.5/13) and on the other hand the score for the availability of collected data in one region is maximum for the number of in-patients admissions per year (11.5/12). The availability scores of collected data in all the regions are the lowest for the body mass index distribution or the percentage of smokers (7/13) and the availability scores in collected data in one region are the lowest for the percentages of infants vaccinated against pertussis or tetanus (6.5/12).

Conformity of the data to the proposed definitions, definitions based on those of WHO Europe and OECD, is better. So when data are available, conformity in a very large majority of cases is very high (21 data, considered by over 80% of our correspondents to conform to the definition) or high (9 data, considered by 71% to 80% of our correspondents to conform to the definition). For three data, however, conformity can only be considered moderate, for four data as bad and for one data as very poor.

To shed more light on the quality of the data, two questions bearing on **comparability** were posed to the country correspondents:

- "Do you consider the quality of the data sufficient to effect comparisons between regions of your country?"
- "Do you consider the quality of the data sufficient to effect comparisons within your region of your country?"

As regards the first question, it is important to underline that the information gathered concerns only comparability between regions of the same country, and not regions of different countries. Looking at the correspondents' replies it appears that comparability is always very high (31 data) or high (6 data). Only one item is in the poor category. The few reservations expressed, concerning essentially comparisons over time, were reflections of changes of definitions, or methods of gathering data, and more rarely intra-national comparisons.

Table 38: All Data– Analysis of the 38 data studied according to availability, conformity and quality

Score	Availabilit		Conformity to definitio		Use		Geographical temporal comparabilit	
++	12	32%	21	55%	36	95%	31	82%
+	16	42%	9	24%	2	5%	6	16%
+/-	8	21%	3	8%	0	0%	0	0%
-	2	5%	4	11%	0	0%	1	3%
--	0	0%	1	3%	0	0%	0	0%
Totals	**38**	100%	**38**	100%	**38**	100%	**38**	100%

On the basis of this information, it would appear that a large part of the data studied (27 out of 38) could immediately be incorporated into a sub-national European database, given their availability and their quality.

The data on **health services**, as well as the **mortality**, and **working conditions** data have been retained in the database. Their conformity and comparability are always high or very high. Their availability is also satisfactory or very satisfactory with few exceptions.

On the other hand, data on **health professionals, vaccination coverage for children**, **morbidity**, and those concerning **demographic and socio-economic** data, **risk factors** pose more problems.

Amongst data on **health professionals**, we do not recommend, at this moment, incorporate data related to midwives or nurses including midwives. All the other data from this group can be incorporated.

Both the **demographic and socio economic** data related to the studies levels cannot be included because of the conformity definition and of the poor availability. The four other data items in this theme are retained.

For the data related to morbidity, it appears that availability and conformity to the definition is too low for the number of new breast cancer to select them for the momenttime being.

As regards **vaccination**, of five data studied only the percentage of children vaccinated against measles could be incorporated into a European database on the basis of the results of Isare 2. Effectively the rates of vaccination against diphtheria, tetanus, pertussis and poliomyelitis don't often in conform with the definitions, nor are they better than moderately or poorly available.

Finally, the two data items concerning **risk factors** (distribution of body mass index and, percentage of smokers aged over 15) could not be included either, as on the one hand a high number of correspondents considered them not to be comparable temporally and/or geographically, and also their availability is poor.

However, for these twelve data that are not selected for the moment, recommendations could be proposed in order to include them in the database in the future.

Table 39 : Summary

Number of regions		Availability	Conformity to the definition	Use	Comparability	To include in the database
Health professionals						
Data collected for all regions	Physicians	+ +	+ +	+ +	+	yes
	Nurses (including midwives)	+/-	+ +	+ +	+	no
	Nurses (excluding midwives)	+	+	+ +	+	yes
	Midwives	+ / -	+ +	+ +	+ +	no
Data collected in one region	General practitioners	+	+ +	+ +	+ +	yes
	Dentists	+ +	+ +	+ +	+ +	yes
	Pharmacists	+	+ +	+ +	+ +	yes
Health services						
Data collected for all regions	Number of beds for acute care	+ +	+ +	+ +	+ +	yes
	Hospital in-patients admissions	+	+ +	+ +	+ +	yes
Data collected in one region	Hospital beds in gyneacology, obstetrics and maternity	+ +	+	+ +	+ +	yes
	Bed days, acute care/year	+ +	+ +	+ +	+ +	yes
	Bed days/year in gynaecology, obstetrics and maternity	+	+	+ +	+ +	yes
	Hospital in-patients admissions/year in gynaecology, obstetrics and maternity	+	+	+ +	+ +	yes
	Caesarean sections	+ +	+ +	+ +	+ +	yes
	Cataract operation	+ +	+ +	+ +	+ +	yes
	Hip replacements	+	+ +	+ +	+ +	yes
	Induced abortions	+	+ +	+ +	+ +	yes
Demographic and socio-economic data						
Data collected for all regions	Mid-yeat population estimate	+	+ +	+ +	+ +	yes
	Lve births	+ +	+ +	+ +	+ +	yes
	Deaths	+ +	+ +	+ +	+ +	yes
	Percentage of unemployed in range 15-64	+	+	+ +	+ +	yes
Data collected in one region	Percentage of the adult population (25-64) having completed secondary education	+	+ / -	+	+ +	no
	Percentage of the adult population (25-64) having completed higher education	+	-	+	+ +	no
Mortality data						
Data collected for all regions	Perinatal deaths	+ +	+	+ +	+ +	yes
	Stillbearth	+ +	+	+ +	+ +	yes
	Deaths by age, sex and cause	+	+ +	+ +	+ +	yes
Morbidity data						
Data collected for all regions	New cases of AIDS	+ / -	+/-	+ +	+ +	no
Data collected in one region	New cases of tuberculosis	+ +	+ +	+ +	+ +	yes
	New cases of breast cancer	+/-	+	+ +	+	no
Risk factors						
Data collected for all regions	Distribution of body mass index	+ / -	+ +	+ +	-	no
	Percentage of smokers aged over 15	+ / -	+	+ +	+	no
Conditions of life and work						
Data collected for all regions	Persons injured or killed in road traffic accidents	+	+ +	+ +	+ +	yes
Data collected in one region	Accidents at work	+	+ +	+ +	+ +	yes
Prevention data						
Data collected in one region	Percentage of children immunized against					
	Diphteria	+/-	-	+ +	+ +	no
	Tetanus	-	--	+ +	+	no
	Pertussis	-	-	+ +	+ +	no
	Poliomyelitis	+/-	-	+ +	+ +	no
	Measles	+	+ / -	+ +	+ +	yes

5.2 Comparability of data and HMP work (Health Monitoring Programme)

To complete the elements on comparability of data provided by the participants in the Isare project during the data collection process, we have referred to current work in the context of the health-monitoring programme. Only projects for which intermediate or final reports were available at the time of analysis of the Isare results have been taken into account.

Two projects provide information on the regional comparability of the indicators: the ECHI[4] project and the Eurochip[5] project.

The objective of the ECHI project is to produce a list of health indicators for the European Community. All the indicators in the Isare project figure in the ECHI project except for one (the number of persons injured or killed in road accidents). One of the objectives of the ECHI project was to propose to member states appropriate health information to make international comparisons, and to justify their national health policy. The ECHI project also concerned itself with the usefulness and feasibility of the collection of these indicators at regional level. Only two indicators retained in the Isare project seem not to be useful or seem difficult to gather at regional level according to the ECHI project (the distribution of corporal mass index in the population, the number of accidents linked to work).

The EUROCHIP project relates to health indicators in the field of cancers. Five indicators selected in the Isare project figure in the EUROCHIP project (the distribution of corporal mass index in the population, the percentage of regular smokers aged over 15 years, the percentage of the adult population (25 to 64 years) who have achieved a given educational level, the incidence of cancer, cancer mortality). The EUROCHIP project concerned itself with the problems of collection, quality and availability of data at regional level. As regards data collection, those concerning the percentage of smokers posed problems; according to the EUROCHIP project, data comparable between countries have not yet been produced concerning this indicator. As for data quality, only the indicator concerning the percentage of the population who have achieved a given educational level is without problems. However, according to the EUROCHIP project, data concerning this indicator are available for different years according to the country. The five indicators common to both projects are available at regional level from the EUROCHIP project, although the regional availability is only partial as regards the incidence of cancer.

Other HMP projects relate to comparison of data between countries without taking regions into account.

An HMP project specifically on mortality[6] brings elements of comparability of mortality data at international level. It emerges from the results of this project that mortality data by major causes (as used in Isare) are globally comparable from one country to another, certain difficulties appearing when one arrives at a finer level of detail.

International comparison of data on general medicine, hospital admissions, transmittable diseases and cancer is addressed in an HMP project on the methods of producing morbidity data comparable between the states of the European Union[7].

Comparisons of data on general medicine (primary care) are difficult between member states because of differences in the care systems. There is no uniform method of gathering data on general medicine (primary care) from one country to another. For example, certain member states focus rather on the use of health services in hospitals, and gather little information on primary care. The states that do gather date on general medicine often have different systems of primary care and the data are therefore difficult to compare.

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[4] *Design for a set of European community health indicators. Final Report, February 2001.*
[5] *European cancer health indicator project. Final report, July 2003.*
[6] *Comparability and quality improvment of European causes of death statistics. Final Report. French Institute of Health and Medical Research, July 2001.*
[7] *Methodologies for producing EU-WIDE comparable disease-specific morbidity data: development of an electronic inventory of data sources. Final Report. Office for National Statistics, United Kingdom, March 2001.*

Gathering of data on hospital admissions is compulsory in all countries except Luxemburg and the competition is between 90 and 100%. Data on admissions are also gathered through hospital surveys, for example in Portugal, Greece & Spain.

Table 40 : Comparability of data with various HMP project – Summary

	ECHI	Eurochip	MPCDSM (a)	EURO-MED-DATA
Health professionals				
Physicians	Reg			
Nurses (including midwives)	Reg			
Nurses (excluding midwives)	Reg			
Midwives	Reg			
General practitioners	Reg		Comp-no	
Dentists	Reg			
Pharmacists	Reg			
Health services				
Number of beds for acute care	Reg			
Hospital in-patients admissions	Reg		Comp	
Hospital beds in gyneacology, obstetrics and maternity	Reg			
Bed days, acute care/year	Reg			
Bed days/year in gynaecology, obstetrics and maternity	Reg			
Hospital in-patients admissions/year in gynaecology, obstetrics and maternity	Reg		Comp	
Caesarean sections	Reg			
Cataract operation	Reg			
Hip replacements	Reg			
Induced abortions	Reg			
Demographic and socio-economic data				
Mid-yeat population estimate	Reg			
Live births	Reg			
Deaths	Reg			
Percentage of unemployed in range 15-64	Reg			
Percentage of the adult population (25-64) having completed secondary education	Reg	Comp		
Percentage of the adult population (25-64) having completed higher education	Reg	Comp		
Mortality data				
Perinatal deaths	Reg			
Stillbirths	Reg			
Deaths by age, sex and cause	Reg	Comp (for cancers)	Comp	
Morbidity data				
New cases of AIDS	Reg		Comp	
New cases of tuberculosis	Reg		Comp	
New cases of breast cancer	Reg	Comp-no	Comp	
Risk factors				
Distribution of body mass index	Reg	Comp-no		
Percentage of smokers aged over 15	Reg			
Conditions of life and work				
Persons injured or killed in road traffic accidents	Reg-no			
Accidents at work	Reg-no			Comp
Preventative data				
Percentage of children immunized against				
Diphteria	Reg			
Tetanus	Reg			
Pertussis	Reg			
Poliomyelitis	Reg			
Measles	Reg			

Comp : data which can be compared at the european level

Comp-no : data which can't be compared at the european level or with difficulty or with quality problems

Reg : data of interest at the regional level

Reg-no : data without interest at the regional level or difficult to collect

(a) Methodologies for producing EU-wide comparable disease-specific morbidity data

Systems for reporting communicable diseases within the different countries are similar, even though the organisation of the means of control of communicable diseases varies from state to state. Systems of observation for controlling infection diseases exist in all countries. According to the country, doctors, clinics or laboratories may do the reporting. The majority of countries have adopted standard questionnaires to gather the information. Certain countries have established reference laboratories for notifiable diseases. The European inventory on the

methods of observing communicable diseases showed that in most countries a national institution is responsible for the validation and analysis of the data. All countries produce an epidemiological report, published at national level, although the frequency of publication varies.

In most countries, the collection of data on new cancer cases is done from registers. Extrapolated national data are available in most countries. Most countries use CIM coding, although Greece, Belgium, the Netherlands and Norway use the "Classement Internationale des Maladies pour l'Oncologie". Most countries are members of the International Association of Cancer Registers. This association, created in 1996, has as its objective the exchange of information between cancer registers, improvement of the quality of data and of comparability between registers.

Finally, the work of the EURO-MED-DATA8 programme has influenced the gathering of routine medical data and their utilisation. Two useful conclusions of the Isare project emerge at the level of international comparison of data.

The secondary care systems in Europe show some homogeneity as regards medical data routinely collected in hospitals, this because the national classification systems are based on the CIM.

With the exception of data on accidents at work and occupational illnesses, it is impossible to compare data on work-health.

It may be that other HMP projects bring together information on the comparability of regional data, but not all the HMP projects can be downloaded from the Internet site of the European Commission.

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[8] *European situation of the routine medical data collection and their utilisation for health monitoring. Final Report, December 2001*

5.3 Examples of Analyses

Three examples of analyses are developed here to illustrate what can be done with data thus collected.

5.3.1 Infant mortality

The first example concerns the health indicator, infant mortality. Out of the 214 Isare health regions of the 14 countries participating in the Isare project, we have collected the necessary information (that is to say the number of deaths occurring in the first 365 days of life and the number of live births in the same period) from 156 regions. This indicator is thus available for 73% of the regions within this group. In all regions for which the figure is available, it is for the year 1999.

The average level of infant mortality over all the regions studied is 4.8. In 87 regions (56%) the level is below this value, and in 69 regions (44%) it is higher.

Although the level of infant mortality for each country, recalculated from the data available, varies between 3.7 and 5.7, the extreme values observed vary between 0.9 and 11.7. What is more, the variability within each country is always greater than the variability found between countries. The extreme values observed most often concern "small" regions; i.e. those with small populations. These items are illustrated in the table of results and in the graphic that shows the number of regions concerned by deciles. One can see that the extreme infant mortality figures concern a limited number of regions and that nearly two thirds of the regions have levels of infant mortality between 3.3 and 5.7 deaths per thousand live births.
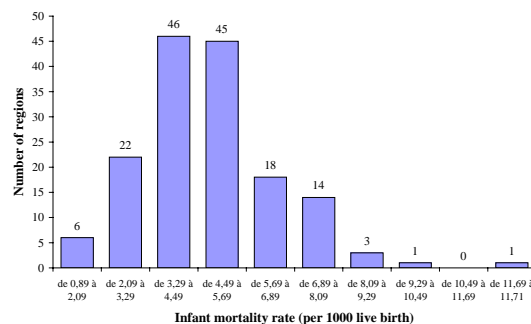
The map display of infant mortality levels shows that variations between these levels do not respect national frontiers on the one hand, and are significant between regions of any one country on the other.

However, analysis of these data does pose some questions: the number of deaths per region ranges between 1 and 855 and the number of registered live births from 515 to 176,578. In 70 regions (45% of the cases) the annual number of live births is below 10,000. This questions the validity of a calculation based on just one year. It is no doubt necessary to work on 3-year –even 5-year – periods.

Table 41 : Infant mortality

Country	Number of responses	Mean	Standard deviation	Lowest value	Highest value
Austria	9/9	4,3	1,4	2,7	7,1
Belgium	11/11	5,7	0,9	4,1	7,3
England	9/9	5,6	0,9	4,4	6,8
Finland	0/21	nd	nd	nd	nd
France	22/22	4,2	0,7	2,6	5,6
Germany	16/16	4,4	0,7	3,1	5,6
Greece	12/13	5,3	1,8	2,9	8,5
Ireland	0/8	nd	nd	nd	nd
Italy	0/21	nd	nd	nd	nd
Luxemburg	1/1	4,1	--	4,1	4, 1
Netherlands	40/40	5,5	2,3	1,5	11,7
Portugal	5/5	5,2	1,3	3,9	7,2
Spain	10/17	4,2	1,1	1,9	5,9
Sweden	21/21	3,7	1,6	0,9	7,8
Total	**156/214**	**4,8**	**1,7**	**0,9**	**11,7**

Graph 1 : Distribution of regions according to the value of infant mortality

Map 1 : Infant mortality rates in the "Isare Health Regions" in Europe

Infant mortality
per1000 live birth

- 7.0 - 11.8
- 5.6 - 7.0
- 4.7 - 5.6
- 3.9 - 4.7
- 0.8 - 3.9
- Missing value
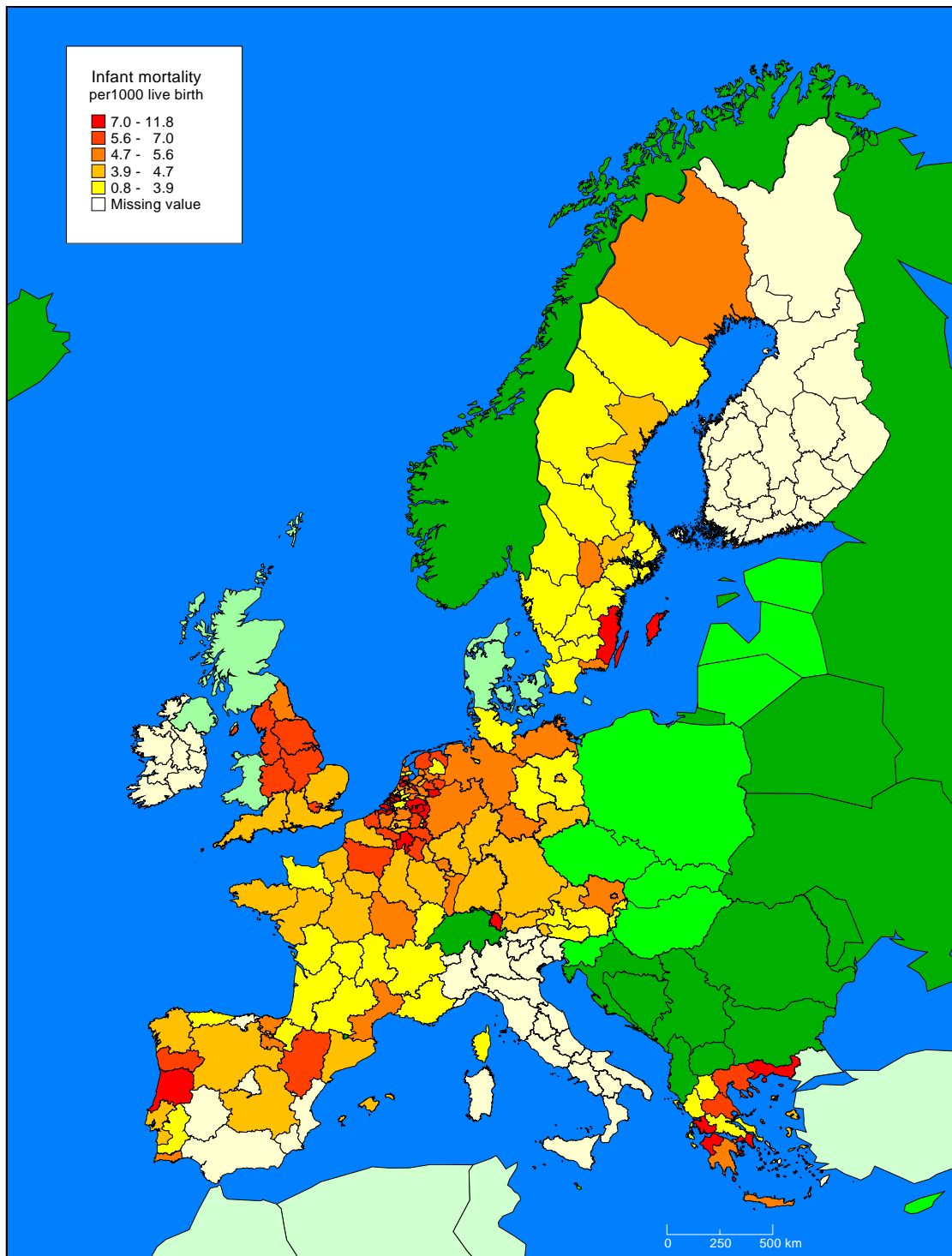
5.3.2 Number of short-term care beds per 1 000 population

The second example concerns an indicator on healthcare provision the number of short-term care beds per 1000 population. As for the previous example, the value can be calculated for 156 regions out of 214 (73%) although these are not exactly the same regions. This means that, for the regions in question, both the number of short-term care beds and the population figures are available. In 103 regions, the figures are for the year 1999. In the other regions the figures are for the year 1998 (12 regions), 2001 (40 regions) or 2002 (1 region).

The level of availability calculated for all regions is 4.0 beds per 1000 population. Variations observed between countries are greater than those for infant mortality, and variations between regions rather less.

In 94 regions (60%), the value is below the average for all available regions, and in 62 regions (40%), it is higher.
Variability within a country is greater than variability between countries only in 3 cases.

A study of the graphic representing the distribution of the regions by deciles shows the results more spread out. A study of the map shows that the levels within countries are more homogeneous than for the health indicator studied previously, and that the shapes of the frontiers appear more clearly, showing that this indicator is strongly linked to the policy choices of each country.

Table 42 : Acute care beds per 1 000 inhabitants

Country	Number of responses	Mean	Standard deviation	Lowest value	Highest value
Austria	9/9	6,3	0,9	5,2	7,9
Belgium	11/11	4,8	1,4	2,5	7,6
England	9/9	2,2	0,3	1,6	2,6
Finland	0/21	nd	nd	nd	nd
France	22/22	4,2	0,4	3,6	5,0
Germany	16/16	6,7	0,9	5,5	9,2
Greece	12/13	3,9	1,4	1,6	7,2
Ireland	0/8	nd	nd	nd	nd
Italy	0/21	nd	nd	nd	nd
Luxemburg	1/1	5,8	--	5,8	5,8
Netherlands	40/40	3,4	1,3	1,0	7,7
Portugal	5/5	3,3	0,8	2,3	4,4
Spain	10/17	3,3	0,5	2,7	3,9
Sweden	21/21	2,7	0,3	1,6	2,6
Total	**156/214**	**4,0**	**1,65**	**1,0**	**9,2**

Graph 2 : Distribution of regions according to the number of acute care beds
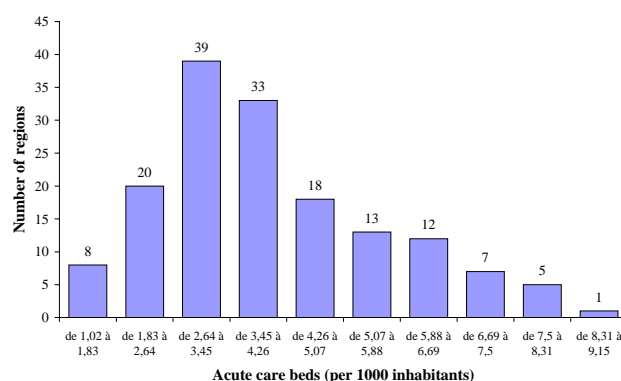
Map 2 : Acute care beds per 1 000 inhabitants in the "Isare Health Regions" in Europe

Number of acute care beds
per 1000 inhabitants

- 6.31 - 9.15
- 4.93 - 6.31
- 3.86 - 4.93
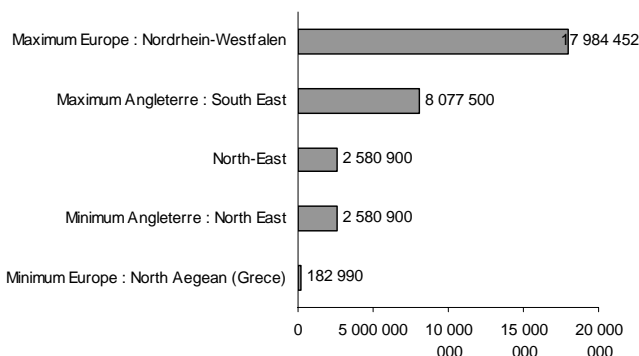- 3.01 - 3.86
- 1.02 - 3.01
- Missing value
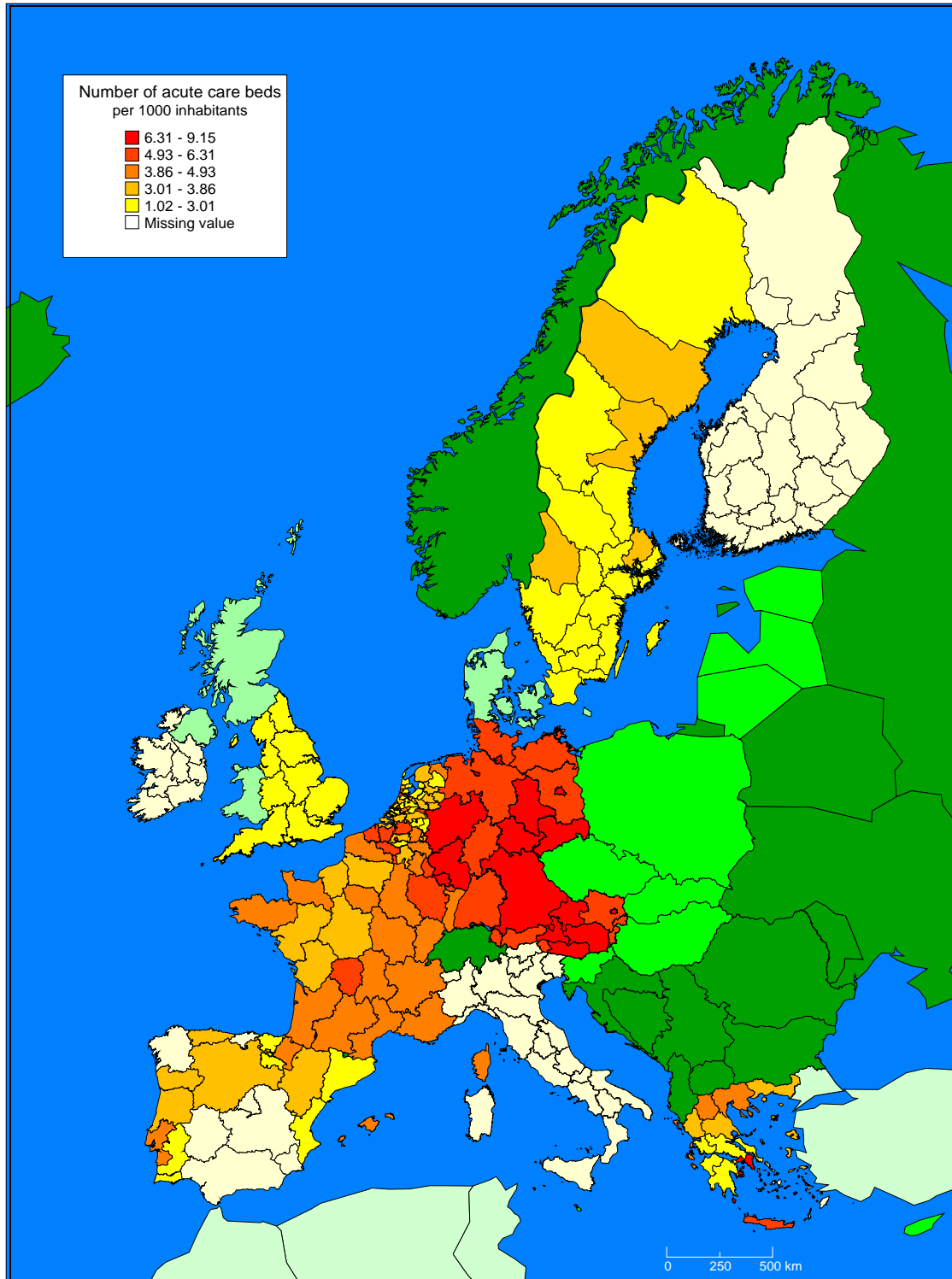
5.3.3 Example of a summary record: the "North East" region in England

This third example concerns the demographic and economic indicators of the North East region in England. The table shown below corresponds to the type of table obtained using the function "regional figures" on the site www.isare.org. It shows, for a given theme, the values of the indicators for the region selected, and the national and European extreme values.
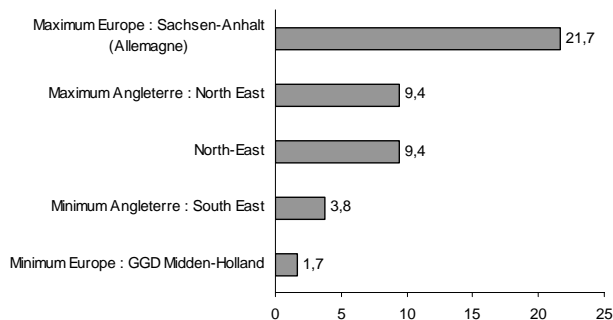
In 1999 the North East region had 2,580,900 inhabitants. It is the smallest of the 9 Isare health regions in England. At European scale the North East region is in 66th place out of the 98 regions for which this data are available, (starting from the smallest region). Populations are extremely variable between Isare health regions, the smallest of them (North Aegean in Greece) having only 182,000 inhabitants, this being 98 times smaller than Nordrhein-Westfalen (Germany). In terms of classification, from its proportion of persons aged 75 or older, the North East could be considered fairly aged as much on the national as on the European scale. Also, at the European level it is a relatively young region insofar as with a proportion of 22.3% of persons under 20 years of age the North East ranks 45th of the 98 Isare health regions for which we have the data available.

On the other hand, the North East of England appears particularly affected by unemployment, which affects 9.4% of the adult population from 14 to 64 years, the highest rate in the country. Implementing this analysis at European level shows the following contrast however; the North East region is certainly in the third of the regions most affected, but is far removed from the situation registered in Sachsen-Anhalt (Germany) which has 21.7% unemployment in the adult population.
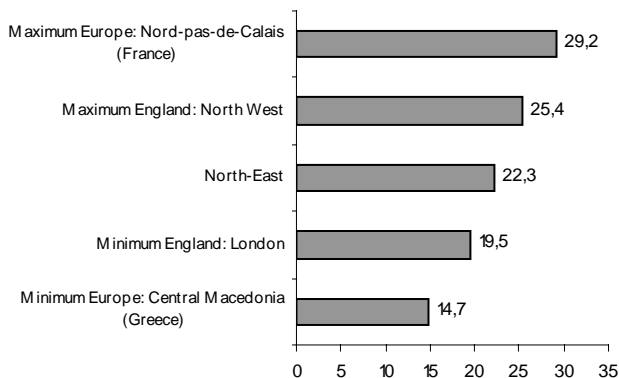
Graph 3 : Total population

Region	Value
Maximum Europe : Nordrhein-Westfalen	17 984 452
Maximum Angleterre : South East	8 077 500
North-East	2 580 900
Minimum Angleterre : North East	2 580 900
Minimum Europe : North Aegean (Grece)	182 990

Graph 4 : Percentage of unemployed in age range 15-64

Region	Value
Maximum Europe : Sachsen-Anhalt (Allemagne)	21,7
Maximum Angleterre : North East	9,4
North-East	9,4
Minimum Angleterre : South East	3,8
Minimum Europe : GGD Midden-Holland	1,7

Graph 4 : Percentage of the population aged less than 20 years

Region	Value
Maximum Europe: Nord-pas-de-Calais (France)	29,2
Maximum England: North West	25,4
North-East	22,3
Minimum England: London	19,5
Minimum Europe: Central Macedonia (Greece)	14,7

Graph 5 : Percentage of the population aged 75 years or more

Region	Value
Maximum Europe: Limousin (France)	11,0
Maximum England: South East	7,8
North-East	7,1
Minimum England: East Midlands	4,4
Minimum Europe: Extremadura (Spain)	3,2
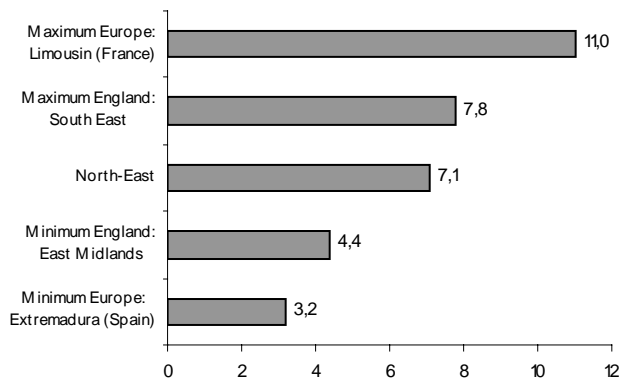
Table 42 : Demographic and economic indicators in the North East region, compared to extreme values in England and Europe

	England				Europe		
	Value	Rank	Minimum	Maximum	Rank	Minimum	Maximum
Population total	2 580 900	1 / 9	2 580 900	8 077 500	66 / 98	182 990	17 984 452
% population aged 20 years or less	22,3	2 / 9	19,5	25,4	43 / 98	14,7	29,2
% population aged 75 years or more	7,1	4 / 9	4,4	7,8	45 / 98	3,2	11,0
% of unemployed in age range 15-64	9,4	9 / 9	3,8	9,4	106 / 156	1,7	21,7

5.4 Implementation study

The questionnaire for the implementation study included questions on the methods of information gathering, methods used to answer questions on the quality of the data, difficulties encountered, the work time needed and offered the possibility to add recommendations or comments.

We received replies from 11 of the 14 participating countries. The missing replies concern Finland, Portugal & Sweden. Details of the replies obtained are appended to this report.

As regards methods of information gathering, we note that, as much for the data covering all regions (short list) as for the data relating to a particular region (extended list) the correspondents called on many sources of data:
- national databases,
- regional databases,
- national surveys,
- regional surveys,
- specific requests to organisations for data not routinely available.

An example: for data gathered for the short list, one country, Belgium, had to call on four of the above categories of information sources, and two countries, England & Greece, had to call on three. Only France & Ireland could get the requested data from national databases. Responses concerning the extended list are very similar.

As regards a judgement on the quality of the data, several methods were quoted in the replies:
- validation of data by crosschecking databases,
- appraisal by participants in the Isare project,
- opinions of third-party experts,
- opinions of users of the databases,
- recognised quality of the database.

Once again, several methods were used by participants, generally two or three.

Many difficulties were mentioned by our partners concerning the gathering of data:
- identification of the relevant databases on the one hand, and the persons able to communicate the data on the other hand,
- delay in the production of the data in usable form,
- correspondence between the data available and the proposed definitions,
- accessibility problems related to administrative obstacles,
- the fact that the data are not always accessible in an easily usable format. The workload needed to transcribe data to the formats requested within the framework of the Isare project.
- difficulty of access to the data for the year requested: it was not always possible in 2003 to obtain data for 1999. In some cases, data for an earlier year was supplied, in other cases for a later year,

- in some countries, because of the recent implementation of the Isare health regions, the data are not necessarily yet available on the geographical scale requested. Also, in some countries, certain data may only be available at national level.

Three countries indicated they had abandoned communicating some data. In these countries, this relates to a very limited number of data, or even just one sets of data. This was always related to a serious defect in the quality of the data or imperfect agreement with the proposed definition.

Eight countries indicated the time needed to gather the data. This varied from 10 hours to three or four months. Between these extremes, a group of three countries took about a week, and another group of three took three to four weeks. It appears, however, that in two or three cases there was an under-estimate of the time required, only the time taken to coordinate the data gathered in those countries being mentioned. It must also be noted that the difficulties in data gathering mentioned above caused a notable increase in the work time needed to accomplish the requested tasks

At the level of the recommendations, we noted :
- the need to widen the data collection to include indicators concerning the state of health in the broad sense, and health determinants,
- development of closer contact between the holders of the information in the different countries to smooth the technical problems in bringing the data together,
- setting up regular gathering of data,
- the need to work on certain definitions, to make them more precise or more operational.

5.5 Inventory of data sources

Along with data gathering, the Isare survey enabled us to link the different sources of data used by our participants. We have integrated all this information in an appendix with tables summarizing the gathered data.

One can see that the data sources contacted are usually numerous. Apart from Germany, Austria and Finland, who had recourse to a single data source, in the other countries from three to seven data sources were consulted. These sources included national statistics institutions to specialised or more local organisations.

This diversity of sources shows the need to develop a network of data producers linked to health among the European regions if we wish to make possible regular up-dating and improving of a database on this theme and at this geographical level.

6. Discussion

The results of Isare 2 were presented to the steering committee and to the body of regional correspondents during a meeting held in Bordeaux on the 16th December 2003. A meeting of the steering committee was also held at the end of February 2004. The discussion that follows largely reflects the debates that were held at the Bordeaux meeting.

An experimental move

First of all, remember that Isare 2 is a pilot project, and that its objective is in no way to create an official database, but to test the feasibility of gathering health data at an infra-national level within the European Union. Over time, this project should lead to recommendations permitting easier integration of regional health data into the European databases.

Thus the database created during the project suffers from several limitations. On the one hand it only covers the regions of 13 of the 15 countries in the Union, Denmark not having wished to participate in the Isare 2 project and Italy not having been able to submit data in time

On the other hand, because the move was always described as experimental, the database created cannot be freely accessed. No official request to the authorities in the different countries requesting transmission of data with a view to integrating them into a database has been made. Only data passed on by the correspondents in the Isare project has been used, most of these correspondents working at an infra-regional level, and not national. Finally, because of the experimental nature of the database, the providers of information did not include thorough validation and verification of the data, which would be essential for any data disseminated through the Internet.

Within Isare 2 data gathering was voluntarily limited to a restricted number of data items (38) with the aim of not overloading the work of the correspondents in each country. They were selected from the 130 items in the Isare 1 list (itself constructed from the list of indicators used in ECHI[9]). The choice of data was made as a function of their availability and their usefulness as material that would help decision-making in establishing regional public health policies.

We made the choice of not developing definitions specific to Isare, but to use those adopted by the WHO[10] Europe for its "Health for all" database, by the OECD[11] and by the ILO[12].

The choices of data, definitions and indicators calculated from the data, even if members of the steering group have validated them, are not an 'official data set'. They will probably evolve in the light of the conclusions and advances in other projects of the Health monitoring program (HMP) and the new European public Health program.

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[9] ECHI : European Community Health Indicators
[10] WHO : World Health Organisation
[11] OECD : Organisation for economic cooperation and development
[12] ILO : International Labour Office

Contributions

Isare 2 permitted the construction of an experimental database of regional data in the health field, using a network of experts and regional correspondents. The project has also brought about an inventory of the organisations susceptible of transmitting health data, not only at national levels, but also regional; elements that will facilitate the development and enrichment of official databases.

From the gathered data, a group of indicators has been calculated. The dissemination of these indicators has been tested thanks to a demonstration database accessible on the Internet. This permits access to information on the procedures used as well as to the indicator base. The report you are reading, along with that of the Isare 1 project, is also available on the site, in English as well as in French. Access to the database can only be made by using a password, for reasons already given. Various ways of interrogating the database are available, so one can obtain either a table presenting the value of an indicator for a group of regions chosen by the user, or a document showing a summary of the situation in a given region relative to the extreme regions of that country and the whole of the European union.

The Isare 2 exercise has also shown that the construction of a database runs into various difficulties, as much associated with the availability of data as with access to existing data, its quality or its comparability.

Difficulties in data gathering

According to the results of the first phase of the Isare project, the availability of health data at regional level seemed high, even complete for some countries.

Isare 2 only partially confirms this result: in practice it has never been possible to obtain data for each of the Isare health regions and for the selected year (1999). This is especially true for demographic and mortality data which, according to Isare 1 should have been available in all the European Isare health regions, but could not be sent to us by every one of our correspondents

This is due, in a few rare cases, to a lack of precision in the information gathered under Isare in some countries or certain regions. But other elements explain this gap between the theoretical and effective access, for example the practical difficulty in identifying the right source of data.

In some countries (France and Ireland), the gathering was relatively easy, as the information was available from national databases that do not have restricted access. On the other hand, in the other countries it was necessary to call on multiple sources: national and local databases and surveys.

In certain countries the administrative/political organisation has complicated matters for our correspondents. This is the case in Spain in particular, a country where federalism is very marked. The correspondent made the choice to call only on regional organisation to assemble the data even though national databases exist. This choice was motivated by the better quality of the regional data. Because of this he was not able to obtain data for all regions. Belgium was confronted with similar difficulties.

The Isare experiment shows that in order to be able to construct a European regional database of health indicators one needs not only to call on national institutions that produce statistics, but also to be able to call on a network of regional structures. Resorting to local correspondents certainly complicates the collection of data, but seems indispensable. This allows access to data that are only available locally, and that the national institutions do not routinely collect. What is more, and we shall come back to this, from their position, and their capacity as

users of regional data, they benefit from particular and valued expertise on the reliability and limitations of the data, which complement those held by the national institutions.

Quality and comparability of the data

To standardise the gathering of data in the European regions, the Isare 2 project needed tight definitions for each data item gathered. The steering committee chose to take as reference, whilst waiting for more precise definitions from other work undertaken by HMP, the definitions proposed by the WHO and, where these were not available, by the OECD or the ILO. in most cases our correspondents claimed to have returned data in conformity with these definitions. This point will be developed later.

However, the definitions used are not intended to become reference definitions. The drawing up of reference definitions is necessary to achieve a harmonisation of health databases at European level. In particular, the work done by Eurostat for the Newcronos database must be taken into consideration.

Resorting to multiple databases, national or regional, could lead to some incoherence between the values in the Isare 2 database and those presented in other databases. Notably, calculation of indicators at national level based on regional values could give results that differ from those produced by the country's national statistics. Spain, (but not only Spain,) provides an example of this, for a number of the data gathered. Some work on consolidation of data to obtain coherent values between geographical levels must be done at such time as regional health indicators are routinely introduced into European databases.

The approach to data comparability in Isare 2 rests principally on the information supplied by the correspondents in the 14 participating countries. The correspondents' opinions relate as much to temporal comparability (evolution in the quality of data or method of data collection, changes of definition …) as to comparability between regions. Conformity and temporal and geographic comparability are considered good or very good for most of the data collected.

Simply based on the opinions of the correspondents, the approach to comparability between regions would have been incomplete. In effect, the questions asked related only to comparability between regions of their own country, and not to comparability with regions of other countries. This is why the survey was completed by taking into account the conclusions of other HMP projects available to date. Thus one sees that whereas the comparability between regions of one country is often, but not always, judged to be good or very good, when one looks at comparability between countries, limitations appear in a number of areas. One example of this sort of difficulty is the data on "number of GPs": there is generally no problem in making comparisons between regions of one country, the definitions and counting methods being the same within a country. On the other hand, when comparing the data between regions of different countries, the effects of different methods of organising the medical structure used by each country appear, and the data are more difficult to compare: the number of GPs in Hainaut in Belgium cannot necessarily be compared with the "North East" region of England.

Correspondents' replies also show that data are very often used for regional analyses, even when the definitions do not conform with the proposed international definitions. This point confirms how important it is for local decision makers to have regional data available as well as national data.

Selection of geographical levels of data gathering

The data were gathered at the level of health regions, as they were determined during the Isare 1 project. In each country a geographical level was selected with the correspondent according to various criteria, amongst which especially was correspondence with a level of local democracy and the existence, at this level, of competency in the field of public health. Within the framework of a general movement towards regionalisation of health policies, the use of these criteria had been motivated by the idea that a regional database should respond to the needs of local decision makers. The use of these criteria does however call for some comments.

The Isare health regions are sometimes subject to change, as shown by examples in Greece or England where the local organisation of health policies evolved between Isare 1 & 2. Within a few years Ireland will be faced with similar changes. If this happened once a database was in place, this would probably lead to continuous problems in historical data. For example, in Greece, because of the recent creation of Isare health regions, many data are currently only available for groups of regions; a problem that will nevertheless soon be resolved.

The non-correspondence of the Isare health regions with NUTS,[13] and the different levels of NUTS, pose several problems.
On the one hand, this non-correspondence results in a few rare cases in the absence of data, as for example in Ireland, where estimates of population are not routinely available at the level of Isare health regions. However, faced with similar situations our correspondents generally indicated that these data could be recalculated from their information systems.
On the other hand, this non-correspondence poses problems relative to policies of standardisation of data at the European level and the integration of regional health data into existing databases. In effect, in order to allow collection, setting up and dissemination of harmonised regional statistics within the Community, NUTS has been officially recognised as the reference for territorial nomenclature by the European Parliament and Council[14]. From now on, Eurostat will only gather and process data at the NUTS levels.

Thus, given the experimental nature of the Isare project (to test the feasibility of gathering data at an infra-national level within each country of the EU) and the official status of NUTS, the cases of non-correspondence must find a solution in the future. It should be emphasised that the European regulation (establishing NUTS) was adopted whilst the Isare 2 project was in its final stages. For following up Isare 2, there are two possibilities:

- to abandon the notion of health regions and to use NUTS systematically for gathering data. Such a notion, although corresponding perfectly to the constraints associated with NUTS, goes against the logic of the database developed for the use of regional operators. Let us remember that the Isare health regions correspond to infra-national levels of administration at which local health policies are organised. They therefore correspond to the levels at which it is relevant that local decision makers have access to health data.
- The grouping of several Isare health regions to obtain a NUTS region (cf. note appended). It has been found that it is possible to reconstruct the NUTS 2 regions by grouping Isare 2 health regions in Ireland and in Greece and partially in Finland and in the Netherlands. Finally, in Portugal only one of the 5 Isare health regions corresponds to a NUTS level. The other Isare health regions, even grouped, do not permit the construction of NUTS regions.
  It is therefore possible in most countries to continue to gather data in the Isare health regions and, in doing the calculations, to produce indicators both at the Isare health region levels and the NUTS levels. This point will be specified in the framework of Isare 3.

The disparity in size of the Isare health regions, already highlighted in the Isare 1 report, poses methodological problems of comparisons as seen in the example on infant mortality. To give an idea of the problem, there is a

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[13] *NUTS - Nomenclature of territorial units for statistics – Statistical Regions of Europe*
[14] *Règlement (CE) n° 1059/2003 du 26 mai 2003*

ratio of 1:300 in terms of population between the smallest Isare health region (Gotlands Laen in Sweden – 57 684 inhabitants) and the largest (Nordrhein Westfalen in Germany – 17 984 452 inhabitants).

However, this is a problem common which is shared with regions NUTS, the comparison of geographic zones with very different characteristics necessitates some precautions. For example some regions are limited to towns (the villes-Land of Germany) whose health services are intended to respond not just to the needs of the population of that town, but also to neighbouring populations. Their indicators of health provision cannot therefore be compared with those of other regions.

All this emphasises a recommendation already made during phase 1 of the Isare project: the need to favour a permit approach by integrating different geographical levels into a regional database.

7. Conclusion

The Isare 2 project has shown that the construction of a health database at the level of the regions of Europe with information from the regions, is possible. The mobilisation of a network of correspondents working on health observations in the regions brings considerable added value: knowledge of the terrain and their close links with local decision makers are a useful complement to the knowledge of the administrators of the national databases.

Taking account of their availability, their quality and their conformity to the definition, a high number of the data (27 out of 38) may be used to build indicators to integrate into a regional health database.

We must also highlight the great interest shown by the participants in the Isare project, as much at country level as with international organisations. This interest underlines the contribution of the regional picture in studies and analyses carried out at European level.

The Isare 2 project also allowed us to highlight the difficulties still to be overcome before the integration of regional health data into European databases becomes routine:

- some of the work of identification of data sources, and with appropriate persons contact, remains to be done. This will involve a major investment in the early stages of gathering of regional data, but later will only involve updating this information,

- continuing work is needed on specifying the geographical reference levels, seeking the best possible benefit in terms of help with decision making whilst taking into account the European regulations that are now in place,

- work remains to be done on definitions, to make clear definition available that can be widely used in Europe. This work is not specific to the Isare project, but is common to many projects of the Health Monitoring Programme and the new European Public Health Programme,

- finally, although it was shown that the comparability of data between regions of any one country did not in most cases pose major problems, there remain questions on the comparability between regions of different countries. Once again this is not a problem specific to Isare.

Continuation of the Isare project should lead to answers to various points:

- integration of the countries acceding to the European Union on 1st May, 2004 (Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia and the Czech Republic),

- updating data on the Isare health regions defined in phase 1 of the project; notably researching the most pertinent NUTS level,

- working on examples of the use of information from a health database at the level of the European regions.

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The coordinator wishes to thanks all the members of the ISARE project steering group and the members of the country representatives group for their active participation throughout the project.

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